

CONSERVATION ACTIONS TO ADDRESS STRESSORS TO HABITATS (ELEMENT 4)

Major stressors were identified for each habitat type in each ecoregion (“Ecoregion-Specific Habitat Conditions (Element 2)”). Any stressor identified as having significant impacts is listed below, along with conservation actions that would alleviate or remove the impacts to wildlife and wildlife habitats. Some of these actions can be implemented immediately or represent ongoing efforts. Other actions fall outside the scope of work for the Department, represent long-term commitments, or imply other obstacles to implementation. Nonetheless, this is a comprehensive set of actions that would bring better habitat conditions for communities of wildlife in Arizona. Stressors are listed under the appropriate stressor category; actions are grouped under the appropriate emphasis (conserving wildlife habitat, representing wildlife values in multiple-use planning, representing wildlife values in other processes, maintaining and re-establishing habitat and landscape connectivity, wildlife management, or public education and law enforcement to benefit wildlife and wildlife habitat).

HABITAT CONVERSION CATEGORY

Agricultural conversion

Conserving wildlife habitat

- Acquire land or conservation easements to protect key conservation areas.
- Protect and restore riparian areas.

Representing wildlife values in multiple-use planning

- Mitigate habitat loss from agricultural conversion and/or urban/rural development.

Representing wildlife values in other processes

- Collaborate on public outreach, education, and incentive programs to encourage erosion control techniques on private lands.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Dams/reservoirs/impoundments

Conserving wildlife habitat

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Representing wildlife values in multiple-use planning

- Remove or modify unnecessary or inoperative dams or diversions.
- Create and maintain habitat improvement features for aquatic species.
- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.

Representing wildlife values in other processes

- Develop off-channel wetlands and backwaters along rivers to increase wildlife habitat.

Wildlife management

- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Survey for areas of suitable habitat for reestablishment of species.

Forest and woodland management - habitat conversion

Representing wildlife values in multiple-use planning

- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.
- Encourage design of extractive operations that minimizes disturbance to wildlife.

Representing wildlife values in other processes

- Use integrated management activities in concert to address nuisance plants.

Landfills/dumps

Representing wildlife values in multiple-use planning

- Improve public access and use of landfills to reduce illegal dumping.
- Work with manufacturing and commercial industries to modify products and packaging to reduce disposable material and need for additional landfills.
- Use old pit mines as landfills, where appropriate.
- Regulate and enforce regulations that ensure allowable materials are disposed of properly based on landfill type (industrial waste, municipal waste, hazardous materials).
- Promote recycling to reduce contamination from landfills and new mine operations.
- Locate new landfills in appropriate locations that reduce impacts to wildlife and water sources.
- Minimize wildlife access to landfills to discourage use as a source of food.

Representing wildlife values in other processes

- Ensure new and existing landfills are properly lined and sealed from contaminating surrounding habitat and water sources.

Livestock management

Conserving wildlife habitat

- Protect and restore riparian areas.
- Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Maintaining and re-establishing habitat and landscape connectivity

- Remove unnecessary fences and barriers to wildlife movement.
- Encourage use of wildlife-friendly fences.

Representing wildlife values in multiple-use planning

- Protect sensitive habitats from excessive grazing.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.

Representing wildlife values in other processes

- Revegetate disturbed areas with native plants.
- Use integrated management activities in concert to address nuisance plants.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Recreational sites/facilities

Public education and law enforcement to benefit wildlife and wildlife habitat

- Increase enforcement for laws governing recreational activities.
- Support prevention of human-caused fire through enforcement of appropriate fire use regulations and education.
- Increase public awareness on ways to reduce nuisance wildlife in residential areas (that is: not leaving out pet food, proper disposal of waste, storage of food, fencing gardens or yards).
- Increase public awareness on the impacts of releasing nonnative species, pets, or livestock on wildlife.
- Encourage gray water use.
- Increase public awareness on the risks of wildlife transmitted diseases.

Representing wildlife values in multiple-use planning

- Use environmentally-friendly materials, landscaping, and structure designs for recreational sites.
- Design recreation site management plans and policies that minimize impacts to wildlife and habitats.
- Benchmark and evaluate successful recreational management efforts in various parks, forests, rangelands, and private lands.
- Manage watercraft recreation to reduce impacts to shoreline habitats and minimize disturbance to wildlife.
- Educate the public about maintaining sensitive habitat for wildlife.

Representing wildlife values in other processes

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Conduct boat inspections at marina and boat launch ramps to detect and prevent the spread of aquatic nuisance species.

Rural development

Conserving wildlife habitat

- Renovate aquatic systems to remove undesirable species.
- Identify key conservation areas to protect from development.
- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).
- Protect and restore riparian areas.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Acquire land or conservation easements to protect key conservation areas.

Maintaining and re-establishing habitat and landscape connectivity

- Identify and protect key wildlife corridors for landscape connectivity.

- Promote establishment and protection of green belts and other preserves including terrestrial and aquatic corridors.

Public education and law enforcement to benefit wildlife and wildlife habitat

- Increase enforcement for laws governing recreational activities.
- Promote legislation to increase water conservation.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Increase enforcement of existing laws and promote more stringent laws prohibiting the release of domestic or nonnative animals into the wild.
- Encourage the utilization of low water use [and native] plants in landscaping.

Representing wildlife values in multiple-use planning

- Mitigate habitat loss from agricultural conversion and/or urban/rural development.

Representing wildlife values in other processes

- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Use environmentally-friendly materials, landscaping, and structure designs for rural development.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Urban growth

Conserving wildlife habitat

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Protect and restore riparian areas.
- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).
- Acquire land or conservation easements to protect key conservation areas.
- Renovate aquatic systems to remove undesirable species.
- Identify key conservation areas to protect from development.

Maintaining and re-establishing habitat and landscape connectivity

- Identify and protect key wildlife corridors for landscape connectivity.
- Promote establishment and protection of green belts and other preserves including terrestrial and aquatic corridors.

Public education and law enforcement to benefit wildlife and wildlife habitat

- Encourage the utilization of low water use [and native] plants in landscaping.
- Promote legislation to increase water conservation.
- Increase enforcement for laws governing recreational activities.
- Increase enforcement of existing laws and promote more stringent laws prohibiting the release of domestic or nonnative animals into the wild.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

Representing wildlife values in multiple-use planning

- Create and maintain habitat improvement features for aquatic species.

Representing wildlife values in other processes

- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

TRANSPORTATION AND INFRASTRUCTURE CATEGORY

Air traffic corridors/overflights

Maintaining and re-establishing habitat and landscape connectivity

- Establish, where necessary, advisory distances for air traffic corridors/overflights in critical wildlife habitats.

Public education and law enforcement to benefit wildlife and wildlife habitat

- Inform and educate the public on potential negative impacts of low level overflights to wildlife.

Canals/pipelines

Conserving wildlife habitat

- Identify wildlife core habitats and corridors to avoid when installing new pipelines and canals.

Maintaining and re-establishing habitat and landscape connectivity

- Encourage proper maintenance and functioning of current pipelines.
- Identify and protect key wildlife corridors for landscape connectivity.

Representing wildlife values in multiple-use planning

- Remove or modify unnecessary or inoperative dams or diversions.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.

Representing wildlife values in other processes

- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Revegetate disturbed areas with native plants.
- Create barriers between susceptible native species and nonnatives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.

Wildlife management

- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Advocate for and create new urban fishing opportunities.
- Manage so as to sustain or enhance native fish and sport fish populations.

Power lines/wind-harnessing turbines

Maintaining and re-establishing habitat and landscape connectivity

- Develop guidelines for location and design of new infrastructure installations to minimize effects on - Encourage use of underground power and telephone lines where feasible.

- Identify problem areas and retrofit existing problem structures to minimize affects on wildlife.

Representing wildlife values in multiple-use planning

- Limit access and use of utility maintenance roads for official use when other adequate access exists or is not desireable.

Wildlife management

- Assess and implement current recommendations for power lines/wind-harnessing turbines/telephone lines/cell phone towers/radio towers to minimize impacts to wildlife.

Right-of-way fencing along roadways

Maintaining and re-establishing habitat and landscape connectivity

- Remove unnecessary fences and barriers to wildlife movement.
- Encourage use of wildlife-friendly fences.
- Use exclusion fencing and other design features to funnel wildlife movement to existing underpasses, overpasses or culverts.
- Develop species-specific wildlife friendly fencing guidelines.

Roads for motorized vehicles

Maintaining and re-establishing habitat and landscape connectivity

- Encourage wildlife friendly design for all road building.
- Encourage increased partnering and communication with transportation officials on projects that affect wildlife and their habitat.
- Promote design and construction of overpasses, underpasses or culverts to increase permeability of existing or planned roads.

Public education and law enforcement to benefit wildlife and wildlife habitat

- Increase public awareness on the negative effects of feeding wildlife.
- Encourage cooperative clean up efforts of aquatic and terrestrial wildlife habitats through existing and new programs.
- Encourage cooperative clean up efforts along highways through existing and new programs.
- Support prevention of human-caused fire through enforcement of appropriate fire use regulations and education.

Representing wildlife values in multiple-use planning

- Reduce sedimentation effects from road and trail construction.

Representing wildlife values in other processes

- Use appropriate concentrations and types of pesticides, herbicides, or alternatives to control undesirable species, especially near sensitive habitat and watercourses.
- Use seed traps along forest/woodland roads to prevent the spread of nuisance plants.
- Encourage maintenance of paved and unpaved roads in a manner that minimizes impacts on wildlife and wildlife habitats.
- Use native plants for roadway landscaping and urban/rural developed areas.
- Use certified weed-free straw or native vegetation for roadside erosion control.

Telephone lines/cellphone towers

Maintaining and re-establishing habitat and landscape connectivity

- Develop guidelines for location and design of new infrastructure installations to minimize effects on wildlife and habitats.

- Encourage use of underground power and telephone lines where feasible.

Representing wildlife values in multiple-use planning

- Prevent or minimize recreational impacts in sensitive habitats.

Wildlife management

- Assess and implement current recommendations for power lines/wind-harnessing turbines/telephone lines/cell phone towers/radio towers to minimize impacts to wildlife.

Trails for foot, bike, or equine use

Public education and law enforcement to benefit wildlife and wildlife habitat

- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.

Representing wildlife values in multiple-use planning

- Clearly mark designated roads and trails for recreational users.
- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Prevent or minimize recreational impacts in sensitive habitats.

Representing wildlife values in other processes

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Unauthorized roads & trails

Public education and law enforcement to benefit wildlife and wildlife habitat

- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.
- Increase public awareness of responsible OHV use and laws.
- Increase enforcement for laws governing recreational activities.
- Encourage responsible outdoor recreation through education (for example: "Stay on the Trails," "Leave No Trace," "Be Bear Aware," "Stop Aquatic Hitchhikers").

Representing wildlife values in multiple-use planning

- Use fencing and/or increased law enforcement presence to reduce unauthorized use and access to sensitive habitats.
- Encourage revegetation and restoration of existing unauthorized roads and trails.

Representing wildlife values in other processes

- Incorporate wildlife values in the design of road and trail networks in and around natural areas.

ABIOTIC RESOURCE USE CATEGORY

Representing wildlife values in multiple-use planning

- Encourage design of extractive operations that minimizes disturbance to wildlife.

Groundwater depletion and springhead use

Conserving wildlife habitat

- Encourage wise management of ground water.
- Protect and restore springheads.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.)

to benefit wildlife habitat.

Public education and law enforcement to benefit wildlife and wildlife habitat

- Encourage gray water use.
- Encourage low water use agriculture.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Promote water conservation methods.
- Promote water conservation methods in growth planning to develop sustainable water use.

Representing wildlife values in other processes

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Mining

Representing wildlife values in multiple-use planning

- Incorporate wildlife values in planning and locations for new mines, associated structures, and leach fields.
- Increase public awareness of wildlife impacts and benefits of mining operations.
- Promote recycling to reduce contamination from landfills and new mine operations.
- Retain and secure old mine adits and shafts for wildlife habitat (primarily for bats).

Representing wildlife values in other processes

- Revegetate disturbed areas with native plants.

Water diversion/water catchments

Conserving wildlife habitat

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Maintaining and re-establishing habitat and landscape connectivity

- Remove artificial stream barriers where appropriate.

Public education and law enforcement to benefit wildlife and wildlife habitat

- Promote water conservation methods.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

Representing wildlife values in multiple-use planning

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Prevent or minimize recreational impacts in sensitive habitats.
- Protect sensitive habitats from excessive grazing.

Representing wildlife values in other processes

- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

CONSUMPTIVE USE OF BIOLOGICAL RESOURCES CATEGORY

Forest and woodland management - consumptive use

Representing wildlife values in multiple-use planning

- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.
- Encourage design of extractive operations that minimizes disturbance to wildlife.

Representing wildlife values in other processes

- Work with fire fighting services to develop fire management plans that minimize effects of fire retardants and water drawing on wildlife and wildlife habitats.

Grazing by ungulates

Representing wildlife values in multiple-use planning

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Disseminate information to partners on effects of grazing on resources.
- Protect sensitive habitats from excessive grazing.

Representing wildlife values in other processes

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Harvesting/collecting animals

Public education and law enforcement to benefit wildlife and wildlife habitat

- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.
- Increase public awareness of regulations pertaining to illegal harvest.

Wildlife management

- Develop harvest guidelines for sensitive species to minimize impacts to important life stages (breeding, raising young, etc.).

NON-CONSUMPTIVE RESOURCE USE CATEGORY

Dispersed camping

Public education and law enforcement to benefit wildlife and wildlife habitat

- Increase public awareness of responsible camping practices (low impact camping).
- Increase enforcement for laws governing recreational activities.

Wildlife management

- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..

Motorized recreation off-trail

Public education and law enforcement to benefit wildlife and wildlife habitat

- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.

- Increase enforcement for laws governing recreational activities.
- Increase public awareness of responsible OHV use and laws.
- Encourage responsible outdoor recreation through education (for example: "Stay on the Trails," "Leave No Trace," "Be Bear Aware," "Stop Aquatic Hitchhikers").

Representing wildlife values in multiple-use planning

- Prevent or minimize recreational impacts in sensitive habitats.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Encourage revegetation and restoration of existing unauthorized roads and trails.

Representing wildlife values in other processes

- Incorporate wildlife values in the design of road and trail networks in and around natural areas.

Non-motorized recreation off-trail

Public education and law enforcement to benefit wildlife and wildlife habitat

- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.

Representing wildlife values in multiple-use planning

- Seasonally close areas to recreational and commercial use when sensitive breeding wildlife are present.
- Prevent or minimize recreational impacts in sensitive habitats.
- Clearly mark designated roads and trails for recreational users.

Representing wildlife values in other processes

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Off-range recreational shooting

Public education and law enforcement to benefit wildlife and wildlife habitat

- Increase enforcement for laws governing recreational activities.

Representing wildlife values in multiple-use planning

- Educate users on responsible recreational shooting behavior and habitat stewardship.

Wildlife management

- Develop harvest guidelines for sensitive species to minimize impacts to important life stages (breeding, raising young, etc.).

Scientific research and collection

Wildlife management

- Collaborate with partners to evaluate effects of capture and sampling techniques on wildlife.
- Evaluate and modify Department regulations where appropriate.

Watercraft operation

Public education and law enforcement to benefit wildlife and wildlife habitat

- Increase public awareness of dumping and littering impacts to wildlife and their habitat.
- Increase enforcement for laws governing recreational activities.
- Encourage cooperative clean up efforts of aquatic and terrestrial wildlife habitats through

existing and new programs.

- Increase public awareness on the impacts of watercraft and watercraft operating practices to wildlife and wildlife habitat.

Representing wildlife values in multiple-use planning

- Promote integrated aquatic plant management strategies.
- Require use of established launch ramps for watercraft put in/take out.
- Promote the "Boating Access Grant Program" to help fund development of launch ramps, information kiosks, and restrooms.
- Prevent or minimize recreational impacts in sensitive habitats.
- Manage watercraft recreation to reduce impacts to shoreline habitats and minimize disturbance to wildlife.
- Install designated, concrete watercraft launch ramps to minimize shoreline habitat degradation.
- Incorporate wildlife needs in aquatic vegetation removal efforts.

Representing wildlife values in other processes

- Install washdown stations to prevent spread of aquatic nuisance species.
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.
- Conduct boat inspections at marina and boat launch ramps to detect and prevent the spread of aquatic nuisance species.
- Cooperate with municipalities to develop waste management plans that incorporate wildlife values.
- Promote the "Clean Vessel Act Grant Program" to develop sanitary waste pump-out and dump stations.

POLLUTION CATEGORY

Contaminants from waste water and runoff

Public education and law enforcement to benefit wildlife and wildlife habitat

- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.

Representing wildlife values in other processes

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Cooperate with municipalities to develop waste management plans that incorporate wildlife values.
- Ensure new and existing landfills are properly lined and sealed from contaminating surrounding habitat and water sources.

Heavy metals/mine tailings

Public education and law enforcement to benefit wildlife and wildlife habitat

- Increase public awareness on alternative methods to using fertilizers, pesticides, and other contaminants.

Representing wildlife values in multiple-use planning

- Promote recycling to reduce contamination from landfills and new mine operations.

Representing wildlife values in other processes

- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.
- Support alternative energy and recycling efforts to reduce toxic by-products and wastes from traditional fuels and mineral extraction.

Highway/roadway de-icing

Representing wildlife values in other processes

- Use inert or non-polluting materials for roadway de-icing.

Illegal dumping/littering

Public education and law enforcement to benefit wildlife and wildlife habitat

- Increase public awareness of dumping and littering impacts to wildlife and their habitat.
- Encourage cooperative clean up efforts of aquatic and terrestrial wildlife habitats through existing and new programs.

Representing wildlife values in multiple-use planning

- Promote recycling to reduce contamination from landfills and new mine operations.

Representing wildlife values in other processes

- Cooperate with municipalities to develop waste management plans that incorporate wildlife values.

Lead shot/fishing line

Public education and law enforcement to benefit wildlife and wildlife habitat

- Encourage cooperative clean up efforts of aquatic and terrestrial wildlife habitats through existing and new programs.
- Increase public awareness on the effects of improper disposal of fishing line.
- Provide more wildlife proof waste receptacles in areas of public recreation.

Light pollution

Conserving wildlife habitat

- Identify sites where light pollution affects wildlife.

Noise pollution

Conserving wildlife habitat

- Identify sensitive wildlife areas where noise should be reduced/limited/avoided.

Public education and law enforcement to benefit wildlife and wildlife habitat

- Increase public awareness of responsible OHV use and laws.
- Increase public awareness on the impacts of watercraft and watercraft operating practices to wildlife and wildlife habitat.

Representing wildlife values in other processes

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Nutrients/algal blooms

Conserving wildlife habitat

- Chemical and biological treatment of lakes (copper compounds, microbes, hay) to prevent and reduce algal blooms.

Public education and law enforcement to benefit wildlife and wildlife habitat

- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.
- Encourage cooperative clean up efforts of aquatic and terrestrial wildlife habitats through existing and new programs.
- Encourage the utilization of low water use [and native] plants in landscaping.

Representing wildlife values in other processes

- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Promote self-containing designs for high fertilizer use areas or filtration of nutrients.

Pesticides/herbicides

Public education and law enforcement to benefit wildlife and wildlife habitat

- Increase public awareness on alternative methods to using fertilizers, pesticides, and other contaminants.

Representing wildlife values in other processes

- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Use appropriate concentrations and types of pesticides, herbicides, or alternatives to control undesirable species, especially near sensitive habitat and watercourses.
- Promote organic agriculture and gardening practices that do not rely on chemical treatments.
- Use alternative means for pest control (biocontrol, genetic control, management practices).
- Identify and use pesticides and herbicides that have limited negative impact to wildlife (a wildlife-safe label).

Sediment/ash flows

Conserving wildlife habitat

- Protect and restore riparian areas.

Representing wildlife values in multiple-use planning

- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Work with land managers to develop and implement management plans that incorporate wildlife values.

Representing wildlife values in other processes

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Revegetate disturbed areas with native plants.
- Work with land managers to reduce or prevent high sedimentation of aquatic systems where appropriate.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.

Wildlife management

- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.

INVASIVE SPECIES CATEGORY

Bait-bucket dumping/illegal stocking

Conserving wildlife habitat

- Renovate aquatic systems to remove undesirable species.

Public education and law enforcement to benefit wildlife and wildlife habitat

- Increase public awareness on the impacts of releasing nonnative species, pets, or livestock on wildlife.

Representing wildlife values in other processes

- Evaluate additional regional guidelines for use of different fishing baits and risks of bait-bucket - Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.

Wildlife management

- Evaluate and modify Department regulations where appropriate.

Disease/pathogens/parasites

Representing wildlife values in other processes

- Adopt national standards and efforts to reduce and control nuisance species.

Wildlife management

- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Collaborate with partners on disease/pathogen/parasite issues to protect wildlife.
- Pursue projects to limit spread of disease to sensitive wildlife populations.

Feral animals

Public education and law enforcement to benefit wildlife and wildlife habitat

- Increase public awareness on the impacts of releasing nonnative species, pets, or livestock on wildlife.
- Increase public awareness on the need to control feral animals.

Representing wildlife values in other processes

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Wildlife management

- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..

- Reduce/eliminate the effects of feral animal populations in sensitive wildlife habitats or near wildlife populations of concern.

Hybridization

Public education and law enforcement to benefit wildlife and wildlife habitat

- Increase public awareness on the impacts of releasing nonnative species, pets, or livestock on wildlife.

Representing wildlife values in multiple-use planning

- Address hybridization and replication of rare populations in watershed planning efforts.

Representing wildlife values in other processes

- Regulate or prohibit movement of species with high risk of hybridization with native species.
- Create barriers between susceptible native species and nonnatives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.

Wildlife management

- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Evaluate and modify Department regulations where appropriate.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

Nuisance animals

Conserving wildlife habitat

- Identify watersheds and other conservation areas to prioritize renovation activities.

Representing wildlife values in other processes

- Adopt national standards and efforts to reduce and control nuisance species.
- Build a central database that identifies the distribution of aquatic nuisance species in relation to sensitive habitats and wildlife of concern.
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.
- Conduct inspections at state borders to detect and prevent the spread of nuisance plants and animals.
- Use integrated management activities in concert to address nuisance plants.
- Create barriers between susceptible native species and nonnatives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Ensure regulatory mechanisms are updated (for example: restrictive live wildlife under Article 4 (ARS R12-4-406).
- Support and participate in the multi-agency Governor's Invasive Species Task Force.

Wildlife management

- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Manage so as to sustain or enhance native fish and sport fish populations.
- Limit recreational and commercial use of crayfish and bullfrogs as fishing bait.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Evaluate and modify Department regulations where appropriate.

- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Survey for areas of suitable habitat for reestablishment of species.

Nuisance plants

Public education and law enforcement to benefit wildlife and wildlife habitat

- Encourage the utilization of low water use [and native] plants in landscaping.

Representing wildlife values in other processes

- Limit extent and level of disturbance that promotes invasion and spread of nuisance plants.
- Use integrated management activities in concert to address nuisance plants.
- Use certified weed-free straw or native vegetation for roadside erosion control.
- Support and participate in the multi-agency Governor's Invasive Species Task Force.
- Revegetate disturbed areas with native plants.
- Develop regulations on the sale and use of potentially invasive plants for landscaping, aquariums, and backyard ponds.
- Conduct inspections at state borders to detect and prevent the spread of nuisance plants and animals.
- Adopt national standards and efforts to reduce and control nuisance species.
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.

CLIMATE CHANGE CATEGORY

Drought

Conserving wildlife habitat

- Encourage development of water use plans that protect instream flow.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Public education and law enforcement to benefit wildlife and wildlife habitat

- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods.
- Encourage development of water recycling systems/programs (effluent, storm water run-off) to increase the amount of water available to wildlife.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Promote water conservation methods in growth planning to develop sustainable water use.

Representing wildlife values in multiple-use planning

- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Promote adjustment of livestock management practices during droughts to ensure sufficient

forage for wildlife.

Representing wildlife values in other processes

- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Wildlife management

- Survey for areas of suitable habitat for reestablishment of species.

Shift to warmer climate

Representing wildlife values in other processes

- Support efforts to reduce emission of greenhouse gases.

Wildlife management

- Develop plans to conserve priority conservation species (Focal Community, Responsibility, and Vulnerability categories) that are not sufficiently addressed under existing plans.

CHANGES IN ECOLOGICAL PROCESSES CATEGORY

Altered river flow regimes

Conserving wildlife habitat

- Protect and restore springheads.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Public education and law enforcement to benefit wildlife and wildlife habitat

- Promote water conservation methods in growth planning to develop sustainable water use.

Representing wildlife values in multiple-use planning

- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Protect sensitive habitats from excessive grazing.
- Remove or modify unnecessary or inoperative dams or diversions.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

Representing wildlife values in other processes

- Develop off-channel wetlands and backwaters along rivers to increase wildlife habitat.

Wildlife management

- Survey for areas of suitable habitat for reestablishment of species.

Domestication of wildlife/game farming

Representing wildlife values in other processes

- Adopt national standards and efforts to reduce and control nuisance species.
- Evaluate regulations and policies for game farms/domestication of wildlife to ensure wild populations and habitats are protected.

Wildlife management

- Manage so as to sustain or enhance native fish and sport fish populations.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..

Habitat degradation/shrub invasions

Representing wildlife values in multiple-use planning

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.

Representing wildlife values in other processes

- Use integrated management activities in concert to address nuisance plants.

Habitat fragmentation/barriers

Conserving wildlife habitat

- Protect and restore riparian areas.
- Acquire land to protect important habitat and wildlife corridors.

Maintaining and re-establishing habitat and landscape connectivity

- Identify and protect key wildlife corridors for landscape connectivity.
- Remove artificial stream barriers where appropriate.

Representing wildlife values in multiple-use planning

- Remove or modify unnecessary or inoperative dams or diversions.
- Increase public awareness of the effects of human activities and infrastructure on wildlife habitat fragmentation.
- Modify grazing practices of grasslands to allow for natural fire regimes and reduction in undesirable vegetation.

Representing wildlife values in other processes

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Wildlife management

- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Conduct economic impact analyses for legal designations of critical habitat and listed populations.
- Survey for areas of suitable habitat for reestablishment of species.

Insect Infestation

Representing wildlife values in multiple-use planning

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.
- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.

Loss of keystone species

Conserving wildlife habitat

- Protect and restore riparian areas.
- Renovate aquatic systems to remove undesirable species.

Representing wildlife values in multiple-use planning

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Representing wildlife values in other processes

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Wildlife management

- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Manage habitat to maximize biodiversity by keeping common species common and protecting imperiled species.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Develop plans to conserve priority conservation species (Focal Community, Responsibility, and Vulnerability categories) that are not sufficiently addressed under existing plans.
- Manage so as to sustain or enhance native fish and sport fish populations.

Management for game animals and sport fish

Representing wildlife values in multiple-use planning

- Develop and implement integrated fisheries management plans for watersheds (for native and sport fish).

Wildlife management

- Manage so as to sustain or enhance native fish and sport fish populations.
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Expand hatchery capabilities to propagate native species.
- Incorporate ecosystem and community level concerns into operational plans.

Soil erosion

Conserving wildlife habitat

- Protect and restore riparian areas.

Maintaining and re-establishing habitat and landscape connectivity

- Implement 'Best Management Practices' when building roads or other infrastructure (dams, mines, developments, etc.).

Representing wildlife values in multiple-use planning

- Install streambank stabilization structures or habitat features to reduce erosion and loss of sediment.
- Train resource managers, developers, and private landowners in ways to minimize soil erosion and improve habitat.
- Work with land managers to develop and implement management plans that incorporate wildlife values.

- Implement watershed based approaches aimed at preventing excessive soil erosion.

Representing wildlife values in other processes

- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Revegetate disturbed areas with native plants.

Wildlife management

- Promote guidelines for timber harvesting and associated road building that positively effect wildlife.
- Survey for areas of suitable habitat for reestablishment of species.

Streambank alteration/channelization

Conserving wildlife habitat

- Work with other agencies to employ new techniques in lieu of traditional stream bank armoring and flood control measures.
- Protect and restore riparian areas.

Public education and law enforcement to benefit wildlife and wildlife habitat

- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods in growth planning to develop sustainable water use.
- Promote water conservation methods.

Representing wildlife values in multiple-use planning

- Protect sensitive habitats from excessive grazing.
- Prevent or minimize recreational impacts in sensitive habitats.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.

Representing wildlife values in other processes

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.

Wildlife management

- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Survey for areas of suitable habitat for reestablishment of species.

Unnatural fire regimes

Conserving wildlife habitat

- Reduce salt cedar and nonnative grasses to improve recolonization of native vegetation.

Public education and law enforcement to benefit wildlife and wildlife habitat

- Encourage the utilization of low water use [and native] plants in landscaping.
- Support prevention of human-caused fire through enforcement of appropriate fire use regulations and education.

Representing wildlife values in multiple-use planning

- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.
- Work with land managers to develop and implement management plans that incorporate

wildlife values.

- Design fire management plans and wildland/urban interface policies that consider wildlife values.

Representing wildlife values in other processes

- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Use certified weed-free straw or native vegetation for roadside erosion control.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Use integrated management activities in concert to address nuisance plants.
- Incorporate wildlife values in the design of road and trail networks in and around natural areas.

Wildlife management

- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.

INTERNATIONAL BORDER ISSUES CATEGORY

Altered fire regime as a result of border activities

Conserving wildlife habitat

- Reduce salt cedar and nonnative grasses to improve recolonization of native vegetation.

Representing wildlife values in multiple-use planning

- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.

Representing wildlife values in other processes

- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Dispersed camping along the border

Public education and law enforcement to benefit wildlife and wildlife habitat

- Develop cooperative clean up efforts along the border for the benefit of wildlife.

Representing wildlife values in multiple-use planning

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Use fencing and/or increased law enforcement presence to reduce unauthorized use and access to sensitive habitats.

Representing wildlife values in other processes

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Enforcement activities along the border

Representing wildlife values in other processes

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Enforcement fences along the border

Representing wildlife values in other processes

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Illegal dumping/littering along the border

Public education and law enforcement to benefit wildlife and wildlife habitat

- Develop cooperative clean up efforts along the border for the benefit of wildlife.

Representing wildlife values in multiple-use planning

- Use fencing and/or increased law enforcement presence to reduce unauthorized use and access to sensitive habitats.

Representing wildlife values in other processes

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Light pollution along the border

Representing wildlife values in other processes

- Design lighting projects along the borderlands that minimize disturbance to wildlife, but meet the needs for homeland security.

Unauthorized roads & trails created by illegal immigrants and smugglers

Maintaining and re-establishing habitat and landscape connectivity

- Support Border Patrol enforcement activities and wildlife-friendly border barriers.

Representing wildlife values in multiple-use planning

- Use fencing and/or increased law enforcement presence to reduce unauthorized use and access to sensitive habitats.
- Encourage revegetation and restoration of existing unauthorized roads and trails.

Representing wildlife values in other processes

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.
- Incorporate wildlife values in the design of road and trail networks in and around natural areas.

Water use/contamination from illegal immigrants and drug smugglers

Public education and law enforcement to benefit wildlife and wildlife habitat

- Develop cooperative clean up efforts along the border for the benefit of wildlife.

Representing wildlife values in other processes

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.
- Work with borderland agencies and landowners to minimize vandalism to livestock and wildlife water sources.

The text below describes conservation actions that may be implemented to address stressors specific to individual species. As such, these actions would be implemented locally in those places where the species and the stressor exists. This material covers 183 current priority species (Tiers 1a and 1b) but has not been collected for Tier 1c species since they are not anticipated to require direct attention before the next review of Arizona's CWCS. Of the 183 species addressed here, 144 are not threatened and endangered species. Note that references for plans and agreements to implement many of these actions may be found in Appendix P.

AMPHIBIANS

<u>Species</u>	<u>Scores</u>
Sonoran Tiger Salamander	Community/Focal: 2
<i>Ambystoma tigrinum stebbinsi</i>	Responsibility: 1
Tier 1a amphibian	
Category: Changes in Ecological Processes	Priority
Stressor: Soil erosion	Medium
- Implement watershed based approaches aimed at preventing excessive soil erosion.	
- Work with land managers to develop and implement management plans that incorporate wildlife values.	
Stressor: Unnatural fire regimes	Medium
- Use controlled burning to limit and reduce fuel loads and shrub invasion.	
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.	
Category: Climate Change	Priority
Stressor: Drought	Medium
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.	
Category: Habitat conversion	Priority
Stressor: Livestock management	High
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.	
- Protect sensitive habitats from excessive grazing.	
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.	
Category: Invasive species	Priority
Stressor: Bait-bucket dumping/illegal stocking	High
- Evaluate and modify Department regulations where appropriate.	
- Increase public awareness on the impacts of releasing exotic species, pets, or livestock on wildlife.	
Stressor: Disease/pathogens/parasites	High
- Adopt national standards and efforts to reduce and control nuisance species.	
Stressor: Hybridization	High
- Evaluate and modify Department regulations where appropriate.	
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.	
- Regulate or prohibit movement of species with high risk of hybridization with native	

species.

Stressor: Nuisance animals High

- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Identify watersheds and other conservation areas to prioritize renovation activities.
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.

Species

Arizona Toad

Bufo microscaphus

Tier 1b amphibian

Category: Abiotic resource use

Stressor: Water diversion/water catchments

- Promote water conservation methods.
- Protect sensitive habitats from excessive grazing.
- Prevent or minimize recreational impacts in sensitive habitats.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Remove artificial stream barriers where appropriate.

Category: Changes in Ecological Processes

Stressor: Streambank alteration/channelization

- Protect and restore riparian areas.
- Protect sensitive habitats from excessive grazing.

Stressor: Unnatural fire regimes

- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Use integrated management activities in concert to address nuisance plants.

Category: Climate Change

Stressor: Drought

- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

Scores
Community/Focal: 2
Responsibility: 1

Priority
High

Priority
Medium

High

Priority
Medium

Category: Habitat conversion **Priority**
Stressor: Livestock management Medium

- Revegetate disturbed areas with native plants.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Protect sensitive habitats from excessive grazing.
- Use integrated management activities in concert to address nuisance plants.
- Protect and restore riparian areas.

Category: Invasive species **Priority**
Stressor: Disease/pathogens/parasites Medium

- Adopt national standards and efforts to reduce and control nuisance species.

Stressor: Hybridization High

- Evaluate and modify Department regulations where appropriate.
- Regulate or prohibit movement of species with high risk of hybridization with native species.
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..

Stressor: Nuisance animals High

- Evaluate and modify Department regulations where appropriate.
- Adopt national standards and efforts to reduce and control nuisance species.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Identify watersheds and other conservation areas to prioritize renovation activities.
- Support and participate in the multi-agency Governor's Invasive Species Task Force.
- Build a central database that identifies the distribution of aquatic nuisance species in relation to sensitive habitats and wildlife of concern.
- Ensure regulatory mechanisms are updated (for example: restrictive live wildlife under Article 4 (ARS R12-4-406).
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Use integrated management activities in concert to address nuisance plants.

Category: Pollution **Priority**
Stressor: Sediment/ash flows Medium

- Revegetate disturbed areas with native plants.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Protect and restore riparian areas.

- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.

Species

Western Barking Frog
Eleutherodactylus augusti cactorum
Tier 1b amphibian

Scores

Community/Focal: 2
Responsibility: 3

Category: Abiotic resource use

Priority

Stressor: Mining

Medium

- Incorporate wildlife values in planning and locations for new mines, associated structures, and leach fields.

Category: Border issues

Priority

Stressor: Dispersed camping along the border

Medium

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Develop cooperative clean up efforts along the border for the benefit of wildlife.
- Use fencing and/or increased law enforcement presence to reduce unauthorized use and access to sensitive habitats.

Stressor: Enforcement activities along the border

Medium

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Category: Climate Change

Priority

Stressor: Drought

High

- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Consumptive use of biological resources

Priority

Stressor: Harvesting/collecting animals

Medium

- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.
- Increase public awareness of regulations pertaining to illegal harvest.

Category: Habitat conversion

Priority

Stressor: Rural development

Medium

- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).
- Renovate aquatic systems to remove undesirable species.

- Acquire land or conservation easements to protect key conservation areas.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Category: Transportation and infrastructure

Priority

Stressor: Unauthorized roads & trails

Medium

- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.
- Increase enforcement for laws governing recreational activities.
- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Use fencing and/or increased law enforcement presence to reduce unauthorized use and access to sensitive habitats.

Species

Scores

Great Plains Narrow-mouthed Toad

Community/Focal: 2

Gastrophryne olivacea

Responsibility: 3

Tier 1b amphibian

Category: Climate Change

Priority

Stressor: Drought

Medium

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

Category: Consumptive use of biological resources

Priority

Stressor: Forest and woodland management - consumptive use

Medium

- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.

Stressor: Harvesting/collecting animals

Medium

- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.
- Increase public awareness of regulations pertaining to illegal harvest.

Category: Habitat conversion

Priority

Stressor: Livestock management

Medium

- Protect and restore riparian areas.
- Use integrated management activities in concert to address nuisance plants.
- Protect sensitive habitats from excessive grazing.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Revegetate disturbed areas with native plants.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.

Stressor: Rural development

Medium

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Acquire land or conservation easements to protect key conservation areas.
- Promote urban growth planning initiatives that protect instream flow or acquire water

rights (through purchase, conservation agreement, etc.).

- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Renovate aquatic systems to remove undesirable species.

Category: Invasive species

Priority

Stressor: Disease/pathogens/parasites

High

- Adopt national standards and efforts to reduce and control nuisance species.

Stressor: Nuisance animals

High

- Build a central database that identifies the distribution of aquatic nuisance species in relation to sensitive habitats and wildlife of concern.
- Ensure regulatory mechanisms are updated (for example: restrictive live wildlife under Article 4 (ARS R12-4-406).
- Adopt national standards and efforts to reduce and control nuisance species.
- Use integrated management activities in concert to address nuisance plants.
- Identify watersheds and other conservation areas to prioritize renovation activities.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Evaluate and modify Department regulations where appropriate.
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Support and participate in the multi-agency Governor's Invasive Species Task Force.
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.

Category: Transportation and infrastructure

Priority

Stressor: Roads for motorized vehicles

Medium

- Promote design and construction of overpasses, underpasses or culverts to increase permeability of existing or planned roads.
- Encourage wildlife friendly design for all road building.

Species

Lowland Burrowing Treefrog

Pternohyla fodiens

Tier 1b amphibian

Category: Abiotic resource use

Stressor: Mining

- Incorporate wildlife values in planning and locations for new mines, associated structures, and leach fields.

Category: Climate Change

Stressor: Drought

Scores

Community/Focal: 2

Responsibility: 2

Priority

Medium

Priority

Medium

- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
 - Manage upland watersheds to retain vegetation as a buffer against drought effects.
 - Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Category:** Consumptive use of biological resources **Priority**
Stressor: Harvesting/collecting animals Medium
- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.
 - Increase public awareness of regulations pertaining to illegal harvest.
- Category:** Habitat conversion **Priority**
Stressor: Agricultural conversion Medium
- Acquire land or conservation easements to protect key conservation areas.
 - Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
 - Work with city and county planners to incorporate wildlife values in urban/rural development plans.
 - Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Stressor:** Livestock management Medium
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
 - Protect sensitive habitats from excessive grazing.
 - Evaluate the value of stock tanks to wildlife.
 - Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
 - Protect and restore riparian areas.
 - Use integrated management activities in concert to address nuisance plants.
 - Revegetate disturbed areas with native plants.
 - Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Stressor:** Rural development Medium
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
 - Acquire land or conservation easements to protect key conservation areas.
 - Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
 - Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
 - Renovate aquatic systems to remove undesirable species.
 - Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).
 - Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
 - Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Category:** Invasive species **Priority**
Stressor: Disease/pathogens/parasites High
- Adopt national standards and efforts to reduce and control nuisance species.

Stressor: Nuisance animals Medium

- Build a central database that identifies the distribution of aquatic nuisance species in relation to sensitive habitats and wildlife of concern.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Adopt national standards and efforts to reduce and control nuisance species.
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.
- Support and participate in the multi-agency Governor's Invasive Species Task Force.
- Use integrated management activities in concert to address nuisance plants.
- Ensure regulatory mechanisms are updated (for example: restrictive live wildlife under Article 4 (ARS R12-4-406).
- Evaluate and modify Department regulations where appropriate.
- Identify watersheds and other conservation areas to prioritize renovation activities.

Category: Transportation and infrastructure **Priority**

Stressor: Roads for motorized vehicles Medium

- Encourage wildlife friendly design for all road building.
- Promote design and construction of overpasses, underpasses or culverts to increase permeability of existing or planned roads.

Species

Plains Leopard Frog

Rana blairi

Tier 1b amphibian

Scores

Community/Focal: 2

Responsibility: 3

Category: Border issues **Priority**

Stressor: Dispersed camping along the border Medium

- Use fencing and/or increased law enforcement presence to reduce unauthorized use and access to sensitive habitats.
- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Develop cooperative clean up efforts along the border for the benefit of wildlife.

Stressor: Enforcement activities along the border Medium

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Category: Changes in Ecological Processes **Priority**

Stressor: Habitat degradation/shrub invasions High

- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.
- Use integrated management activities in concert to address nuisance plants.
- Develop and implement livestock and big game management guidelines that minimize

habitat degradation while maintaining stock ponds where appropriate.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

Category: Habitat conversion

Priority

Stressor: Agricultural conversion

High

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Acquire land or conservation easements to protect key conservation areas.

Stressor: Livestock management

High

- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Use integrated management activities in concert to address nuisance plants.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect and restore riparian areas.
- Protect sensitive habitats from excessive grazing.
- Revegetate disturbed areas with native plants.

Stressor: Rural development

Medium

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Acquire land or conservation easements to protect key conservation areas.
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Renovate aquatic systems to remove undesirable species.
- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).

Category: Invasive species

Priority

Stressor: Disease/pathogens/parasites

High

- Adopt national standards and efforts to reduce and control nuisance species.

Stressor: Nuisance animals

High

- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.
- Build a central database that identifies the distribution of aquatic nuisance species in relation to sensitive habitats and wildlife of concern.
- Use integrated management activities in concert to address nuisance plants.
- Ensure regulatory mechanisms are updated (for example: restrictive live wildlife under Article 4 (ARS R12-4-406).
- Identify watersheds and other conservation areas to prioritize renovation activities.
- Support and participate in the multi-agency Governor's Invasive Species Task Force.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Evaluate and modify Department regulations where appropriate.
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Adopt national standards and efforts to reduce and control nuisance species.

Category: Pollution

Priority

Stressor: Pesticides/herbicides

High

- Use appropriate concentrations and types of pesticides, herbicides, or alternatives to control undesirable species, especially near sensitive habitat and watercourses.
- Use alternative means for pest control (biocontrol, genetic control, management practices).
- Promote organic agriculture and gardening practices that do not rely on chemical treatments.
- Identify and use pesticides and herbicides that have limited negative impact to wildlife (a wildlife-safe label).

Species

Chiricahua Leopard Frog

Scores

Rana chiricahuensis

Community/Focal: 2

Tier 1a amphibian

Responsibility: 1

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Stressor: Water diversion/water catchments

Medium

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Protect sensitive habitats from excessive grazing.
- Prevent or minimize recreational impacts in sensitive habitats.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Promote water conservation methods.
- Remove artificial stream barriers where appropriate.

Category: Border issues

Priority

Stressor: Dispersed camping along the border

Medium

- Work with land managers to develop and implement management plans that incorporate

wildlife values.

- Develop cooperative clean up efforts along the border for the benefit of wildlife.
- Use fencing and/or increased law enforcement presence to reduce unauthorized use and access to sensitive habitats.

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Stressor: Enforcement activities along the border Medium

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Category: Changes in Ecological Processes Priority

Stressor: Altered river flow regimes Medium

- Protect sensitive habitats from excessive grazing.
- Protect and restore springheads.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

Stressor: Habitat fragmentation/barriers Medium

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Remove artificial stream barriers where appropriate.
- Acquire land to protect important habitat and wildlife corridors.
- Identify and protect key wildlife corridors for landscape connectivity.

Stressor: Soil erosion High

- Implement watershed based approaches aimed at preventing excessive soil erosion.
- Install streambank stabilization structures or habitat features to reduce erosion and loss of sediment.

Stressor: Unnatural fire regimes High

- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Use integrated management activities in concert to address nuisance plants.

Category: Climate Change Priority

Stressor: Drought High

- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Habitat conversion Priority

Stressor: Livestock management High

- Use integrated management activities in concert to address nuisance plants.
- Protect and restore riparian areas.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Revegetate disturbed areas with native plants.
- Protect sensitive habitats from excessive grazing.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Stressor: Rural development Medium

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Acquire land or conservation easements to protect key conservation areas.
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).
- Renovate aquatic systems to remove undesirable species.

Category: Invasive species Priority

Stressor: Disease/pathogens/parasites High

- Adopt national standards and efforts to reduce and control nuisance species.

Stressor: Nuisance animals High

- Ensure regulatory mechanisms are updated (for example: restrictive live wildlife under Article 4 (ARS R12-4-406).
- Adopt national standards and efforts to reduce and control nuisance species.
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Evaluate and modify Department regulations where appropriate.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.
- Support and participate in the multi-agency Governor's Invasive Species Task Force.
- Use integrated management activities in concert to address nuisance plants.
- Build a central database that identifies the distribution of aquatic nuisance species in relation to sensitive habitats and wildlife of concern.
- Identify watersheds and other conservation areas to prioritize renovation activities.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

Category: Pollution

Priority

Stressor: Sediment/ash flows

High

- Protect and restore riparian areas.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Revegetate disturbed areas with native plants.

Species

Scores

Relict Leopard Frog

Community/Focal: 2

Rana onca

Responsibility: 2

Tier 1a amphibian

Category: Abiotic resource use

Priority

Stressor: Water diversion/water catchments

High

- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Promote water conservation methods.
- Remove artificial stream barriers where appropriate.
- Protect sensitive habitats from excessive grazing.
- Prevent or minimize recreational impacts in sensitive habitats.

Category: Changes in Ecological Processes

Priority

Stressor: Streambank alteration/channelization

Medium

- Protect sensitive habitats from excessive grazing.
- Protect and restore riparian areas.

Stressor: Unnatural fire regimes

Medium

- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Use integrated management activities in concert to address nuisance plants.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Manage upland watersheds to retain vegetation as a buffer against drought effects.

Category: Habitat conversion

Priority

Stressor: Agricultural conversion

Medium

- Mitigate habitat loss from agricultural conversion and/or urban/rural development.

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Acquire land or conservation easements to protect key conservation areas.

Stressor: Livestock management **Medium**

- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Revegetate disturbed areas with native plants.
- Protect and restore riparian areas.
- Protect sensitive habitats from excessive grazing.
- Use integrated management activities in concert to address nuisance plants.

Category: Invasive species **Priority**

Stressor: Disease/pathogens/parasites **High**

- Adopt national standards and efforts to reduce and control nuisance species.

Stressor: Nuisance animals **High**

- Identify watersheds and other conservation areas to prioritize renovation activities.
- Evaluate and modify Department regulations where appropriate.
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Adopt national standards and efforts to reduce and control nuisance species.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Build a central database that identifies the distribution of aquatic nuisance species in relation to sensitive habitats and wildlife of concern.
- Ensure regulatory mechanisms are updated (for example: restrictive live wildlife under Article 4 (ARS R12-4-406).
- Support and participate in the multi-agency Governor's Invasive Species Task Force.
- Use integrated management activities in concert to address nuisance plants.

Category: Transportation and infrastructure **Priority**

Stressor: Roads for motorized vehicles **Medium**

- Promote design and construction of overpasses, underpasses or culverts to increase permeability of existing or planned roads.
- Encourage wildlife friendly design for all road building.

Species

Northern Leopard Frog

Rana pipiens

Tier 1b amphibian

Category: Abiotic resource use

Scores

Community/Focal: 2

Responsibility: 1

Priority

Stressor: Groundwater depletion and springhead use High

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Stressor: Water diversion/water catchments Medium

- Promote water conservation methods.
- Remove artificial stream barriers where appropriate.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Prevent or minimize recreational impacts in sensitive habitats.
- Protect sensitive habitats from excessive grazing.

Category: Changes in Ecological Processes **Priority**

Stressor: Unnatural fire regimes High

- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Use integrated management activities in concert to address nuisance plants.

Category: Climate Change **Priority**

Stressor: Drought High

- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Habitat conversion **Priority**

Stressor: Livestock management High

- Protect and restore riparian areas.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Protect sensitive habitats from excessive grazing.
- Use integrated management activities in concert to address nuisance plants.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Revegetate disturbed areas with native plants.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Category: Invasive species **Priority**

Stressor: Disease/pathogens/parasites High

- Adopt national standards and efforts to reduce and control nuisance species.

Stressor: Nuisance animals High

- Implement recovery plans, habitat conservation plans, and other cooperative agreements

for sustaining wildlife resources..

- Use integrated management activities in concert to address nuisance plants.
- Support and participate in the multi-agency Governor's Invasive Species Task Force.
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.
- Ensure regulatory mechanisms are updated (for example: restrictive live wildlife under Article 4 (ARS R12-4-406).
- Adopt national standards and efforts to reduce and control nuisance species.
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Identify watersheds and other conservation areas to prioritize renovation activities.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Build a central database that identifies the distribution of aquatic nuisance species in relation to sensitive habitats and wildlife of concern.
- Evaluate and modify Department regulations where appropriate.

Category: Non-consumptive resource use

Priority

Stressor: Motorized recreation off-trail

Medium

- Increase enforcement for laws governing recreational activities.
- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.
- Increase public awareness of responsible OHV use and laws.
- Prevent or minimize recreational impacts in sensitive habitats.

Category: Pollution

Priority

Stressor: Sediment/ash flows

High

- Revegetate disturbed areas with native plants.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Protect and restore riparian areas.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.

Category: Transportation and infrastructure

Priority

Stressor: Roads for motorized vehicles

Medium

- Promote design and construction of overpasses, underpasses or culverts to increase permeability of existing or planned roads.
- Encourage wildlife friendly design for all road building.

Species

Ramsey Canyon Leopard Frog

Rana subaquavocalis

Tier 1b amphibian

Category: Abiotic resource use

Stressor: Groundwater depletion and springhead use

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Border issues

Stressor: Enforcement activities along the border

Scores

Community/Focal: 2

Responsibility: 1

Priority

High

Priority

Medium

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Category: Changes in Ecological Processes

Priority

Stressor: Habitat fragmentation/barriers

Medium

- Identify and protect key wildlife corridors for landscape connectivity.
- Remove artificial stream barriers where appropriate.
- Acquire land to protect important habitat and wildlife corridors.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Stressor: Soil erosion

High

- Implement watershed based approaches aimed at preventing excessive soil erosion.
- Promote guidelines for timber harvesting and associated road building that positively effect wildlife.
- Protect and restore riparian areas.
- Install streambank stabilization structures or habitat features to reduce erosion and loss of sediment.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.

Stressor: Unnatural fire regimes

High

- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Use integrated management activities in concert to address nuisance plants.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Manage upland watersheds to retain vegetation as a buffer against drought effects.

Category: Habitat conversion

Priority

Stressor: Agricultural conversion

Medium

- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Acquire land or conservation easements to protect key conservation areas.

Stressor: Livestock management

Medium

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect sensitive habitats from excessive grazing.
- Protect and restore riparian areas.

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Use integrated management activities in concert to address nuisance plants.
- Revegetate disturbed areas with native plants.

Stressor: Rural development

High

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Acquire land or conservation easements to protect key conservation areas.
- Renovate aquatic systems to remove undesirable species.
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Stressor: Urban growth

High

- Identify key conservation areas to protect from development.
- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Create and maintain habitat improvement features for aquatic species.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Acquire land or conservation easements to protect key conservation areas.
- Renovate aquatic systems to remove undesirable species.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Identify and protect key wildlife corridors for landscape connectivity.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Category: Invasive species

Priority

Stressor: Disease/pathogens/parasites

High

- Adopt national standards and efforts to reduce and control nuisance species.

Stressor: Nuisance animals

High

- Support and participate in the multi-agency Governor's Invasive Species Task Force.
- Use integrated management activities in concert to address nuisance plants.
- Identify watersheds and other conservation areas to prioritize renovation activities.
- Ensure regulatory mechanisms are updated (for example: restrictive live wildlife under Article 4 (ARS R12-4-406).

- Build a central database that identifies the distribution of aquatic nuisance species in relation to sensitive habitats and wildlife of concern.
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Adopt national standards and efforts to reduce and control nuisance species.
- Evaluate and modify Department regulations where appropriate.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.

Category: Pollution

Priority

Stressor: Sediment/ash flows

High

- Protect and restore riparian areas.
- Revegetate disturbed areas with native plants.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.

Species

Tarahumara Frog

Rana tarahumarae

Tier 1b amphibian

Scores

Community/Focal: 3

Responsibility: 2

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

Medium

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Border issues

Priority

Stressor: Dispersed camping along the border

Medium

- Develop cooperative clean up efforts along the border for the benefit of wildlife.
- Use fencing and/or increased law enforcement presence to reduce unauthorized use and access to sensitive habitats.
- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.
- Work with land managers to develop and implement management plans that incorporate wildlife values.

Category: Changes in Ecological Processes

Priority

Stressor: Unnatural fire regimes

High

- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.
- Use integrated management activities in concert to address nuisance plants.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.

Category: Climate Change

Priority

Stressor: Drought Medium

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

Category: Habitat conversion **Priority**

Stressor: Livestock management Medium

- Use integrated management activities in concert to address nuisance plants.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Revegetate disturbed areas with native plants.
- Protect sensitive habitats from excessive grazing.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect and restore riparian areas.

Category: Invasive species **Priority**

Stressor: Disease/pathogens/parasites High

- Adopt national standards and efforts to reduce and control nuisance species.

Stressor: Nuisance animals High

- Evaluate and modify Department regulations where appropriate.
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Use integrated management activities in concert to address nuisance plants.
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.
- Ensure regulatory mechanisms are updated (for example: restrictive live wildlife under Article 4 (ARS R12-4-406).
- Build a central database that identifies the distribution of aquatic nuisance species in relation to sensitive habitats and wildlife of concern.
- Adopt national standards and efforts to reduce and control nuisance species.
- Identify watersheds and other conservation areas to prioritize renovation activities.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Support and participate in the multi-agency Governor's Invasive Species Task Force.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

Category: Pollution **Priority**

Stressor: Sediment/ash flows High

- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Protect and restore riparian areas.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Revegetate disturbed areas with native plants.

Species

Lowland Leopard Frog

Rana yavapaiensis

Tier 1b amphibian

Category: Abiotic resource use

Stressor: Groundwater depletion and springhead use

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Changes in Ecological Processes

Stressor: Altered river flow regimes

- Protect and restore springheads.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Protect sensitive habitats from excessive grazing.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Stressor: Habitat fragmentation/barriers

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Identify and protect key wildlife corridors for landscape connectivity.
- Acquire land to protect important habitat and wildlife corridors.
- Remove artificial stream barriers where appropriate.

Stressor: Soil erosion

- Install streambank stabilization structures or habitat features to reduce erosion and loss of sediment.
- Implement watershed based approaches aimed at preventing excessive soil erosion.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Promote guidelines for timber harvesting and associated road building that positively effect wildlife.
- Protect and restore riparian areas.

Stressor: Unnatural fire regimes

- Use integrated management activities in concert to address nuisance plants.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.

Category: Climate Change

Stressor: Drought

- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against

Scores

Community/Focal: 3

Responsibility: 1

Priority

High

Priority

High

Medium

Medium

Medium

Priority

Medium

drought effects.

Category: Habitat conversion

Priority

Stressor: Agricultural conversion

Medium

- Acquire land or conservation easements to protect key conservation areas.
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Stressor: Livestock management

Medium

- Revegetate disturbed areas with native plants.
- Use integrated management activities in concert to address nuisance plants.
- Protect sensitive habitats from excessive grazing.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect and restore riparian areas.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Stressor: Rural development

Medium

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).
- Renovate aquatic systems to remove undesirable species.
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Acquire land or conservation easements to protect key conservation areas.
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.

Stressor: Urban growth

High

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Create and maintain habitat improvement features for aquatic species.
- Renovate aquatic systems to remove undesirable species.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Acquire land or conservation easements to protect key conservation areas.
- Identify key conservation areas to protect from development.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Identify and protect key wildlife corridors for landscape connectivity.
- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).

Category: Invasive species

Priority

Stressor: Disease/pathogens/parasites

High

- Adopt national standards and efforts to reduce and control nuisance species.

Stressor: Nuisance animals

High

- Evaluate and modify Department regulations where appropriate.
- Use integrated management activities in concert to address nuisance plants.
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Support and participate in the multi-agency Governor's Invasive Species Task Force.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Identify watersheds and other conservation areas to prioritize renovation activities.
- Adopt national standards and efforts to reduce and control nuisance species.
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.
- Ensure regulatory mechanisms are updated (for example: restrictive live wildlife under Article 4 (ARS R12-4-406).
- Build a central database that identifies the distribution of aquatic nuisance species in relation to sensitive habitats and wildlife of concern.

Category: Non-consumptive resource use

Priority

Stressor: Motorized recreation off-trail

Medium

- Prevent or minimize recreational impacts in sensitive habitats.
- Increase public awareness of responsible OHV use and laws.
- Increase enforcement for laws governing recreational activities.
- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.
- Encourage revegetation and restoration of existing unauthorized roads and trails.

Category: Pollution

Priority

Stressor: Sediment/ash flows

Medium

- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Revegetate disturbed areas with native plants.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Protect and restore riparian areas.

BIRDS

Species

Apache Northern Goshawk

Scores

Community/Focal: 1

<i>Accipiter gentilis apache</i> Tier 1b bird	Responsibility: 2
Category: Abiotic resource use	Priority
Stressor: Groundwater depletion and springhead use	Medium
<ul style="list-style-type: none">- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.	
Category: Changes in Ecological Processes	Priority
Stressor: Unnatural fire regimes	High
<ul style="list-style-type: none">- Design fire management plans and wildland/urban interface policies that consider wildlife values.- Use controlled burning to limit and reduce fuel loads and shrub invasion.- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.	
Category: Climate Change	Priority
Stressor: Drought	Medium
<ul style="list-style-type: none">- Manage upland watersheds to retain vegetation as a buffer against drought effects.	
Category: Habitat conversion	Priority
Stressor: Forest and woodland management - habitat conversion	Medium
<ul style="list-style-type: none">- Encourage revegetation and restoration of existing unauthorized roads and trails.	
Stressor: Livestock management	Medium
<ul style="list-style-type: none">- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.- Protect sensitive habitats from excessive grazing.	
Stressor: Recreational sites/facilities	High
<ul style="list-style-type: none">- Increase enforcement for laws governing recreational activities.- Support prevention of human-caused fire through enforcement of appropriate fire use regulations and education.- Educate the public about maintaining sensitive habitat for wildlife.	
Category: Transportation and infrastructure	Priority
Stressor: Trails for foot, bike, or equine use	Medium
<ul style="list-style-type: none">- Encourage revegetation and restoration of existing unauthorized roads and trails.- Acquire land or conservation easements on portions of rangeland critical to wildlife.- Clearly mark designated roads and trails for recreational users.- Prevent or minimize recreational impacts in sensitive habitats.	

Species

Northern Goshawk

Accipiter gentilis atricapillus

Tier 1b bird

Category: Abiotic resource use

Stressor: Groundwater depletion and springhead use

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

Scores

Community/Focal: 1

Responsibility: 2

Priority

Medium

Category: Changes in Ecological Processes	Priority
Stressor: Insect Infestation	Medium
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.	
Stressor: Soil erosion	Medium
- Promote guidelines for timber harvesting and associated road building that positively effect wildlife.	
- Work with land managers to develop and implement management plans that incorporate wildlife values.	
Stressor: Unnatural fire regimes	High
- Use controlled burning to limit and reduce fuel loads and shrub invasion.	
- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.	
Category: Consumptive use of biological resources	Priority
Stressor: Grazing by ungulates	Medium
- Work with land managers to develop and implement management plans that incorporate wildlife values.	
- Protect sensitive habitats from excessive grazing.	
Category: Habitat conversion	Priority
Stressor: Forest and woodland management - habitat conversion	High
- Encourage revegetation and restoration of existing unauthorized roads and trails.	
Stressor: Livestock management	Medium
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.	
- Protect sensitive habitats from excessive grazing.	
Stressor: Recreational sites/facilities	Medium
- Educate the public about maintaining sensitive habitat for wildlife.	
- Manage watercraft recreation to reduce impacts to shoreline habitats and minimize disturbance to wildlife.	
- Support prevention of human-caused fire through enforcement of appropriate fire use regulations and education.	
- Increase enforcement for laws governing recreational activities.	
- Design recreation site management plans and policies that minimize impacts to wildlife and habitats.	
Category: Non-consumptive resource use	Priority
Stressor: Dispersed camping	Medium
- Increase public awareness of responsible camping practices (low impact camping).	
- Increase enforcement for laws governing recreational activities.	
Stressor: Motorized recreation off-trail	Medium
- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.	
- Prevent or minimize recreational impacts in sensitive habitats.	
- Increase enforcement for laws governing recreational activities.	
- Encourage revegetation and restoration of existing unauthorized roads and trails.	
Stressor: Non-motorized recreation off-trail	Medium

- Prevent or minimize recreational impacts in sensitive habitats.
- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.

Species

Clark's Grebe
Aechmophorus clarkii
Tier 1b bird

Scores

Community/Focal: 1
Responsibility: 3

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

Medium

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Stressor: Management for game animals and sport fish

Medium

- Develop and implement integrated fisheries management plans for watersheds (for native and sport fish).

Stressor: Soil erosion

Medium

- Work with land managers to develop and implement management plans that incorporate wildlife values.

- Implement watershed based approaches aimed at preventing excessive soil erosion.

Category: Habitat conversion

Priority

Stressor: Dams/reservoirs/impoundments

High

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Stressor: Livestock management

Medium

- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.

- Use integrated management activities in concert to address nuisance plants.

- Protect and restore riparian areas.

- Protect sensitive habitats from excessive grazing.

Stressor: Urban growth

Medium

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

- Renovate aquatic systems to remove undesirable species.

- Create and maintain habitat improvement features for aquatic species.

- Promote legislation to increase water conservation.

Category: Non-consumptive resource use

Priority

Stressor: Watercraft operation

Medium

- Increase public awareness on the impacts of watercraft and watercraft operating practices to wildlife and wildlife habitat.

- Manage watercraft recreation to reduce impacts to shoreline habitats and minimize disturbance to wildlife.

- Increase enforcement for laws governing recreational activities.

Category: Pollution

Priority

Stressor: Contaminants from waste water and runoff Medium

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.

Stressor: Sediment/ash flows Medium

- Revegetate disturbed areas with native plants.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Species

Botteri's Sparrow

Aimophila botterii

Tier 1b bird

Scores

Community/Focal: 1

Responsibility: 3

Category: Abiotic resource use **Priority**

Stressor: Groundwater depletion and springhead use Medium

- Promote water conservation methods in growth planning to develop sustainable water use.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

Category: Changes in Ecological Processes **Priority**

Stressor: Altered river flow regimes Medium

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Protect sensitive habitats from excessive grazing.

Stressor: Streambank alteration/channelization Medium

- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.

Stressor: Unnatural fire regimes High

- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Use integrated management activities in concert to address nuisance plants.

Category: Climate Change **Priority**

Stressor: Drought Medium

- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.

Category: Habitat conversion **Priority**

Stressor: Livestock management High

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.

- Protect sensitive habitats from excessive grazing.
- Use integrated management activities in concert to address nuisance plants.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Stressor: Urban growth

High

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Identify key conservation areas to protect from development.

Species

Violet-crowned Hummingbird

Amazilia violiceps

Tier 1b bird

Category: Abiotic resource use

Scores

Community/Focal: 1

Responsibility: 3

Stressor: Groundwater depletion and springhead use

Priority

High

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

Stressor: Water diversion/water catchments

Medium

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Remove artificial stream barriers where appropriate.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Prevent or minimize recreational impacts in sensitive habitats.
- Promote water conservation methods.

Category: Border issues

Priority

Stressor: Altered fire regime as a result of border activities

High

- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.

Category: Changes in Ecological Processes

Priority

Stressor: Habitat fragmentation/barriers

Medium

- Acquire land to protect important habitat and wildlife corridors.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Stressor: Unnatural fire regimes

High

- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

- Manage upland watersheds to retain vegetation as a buffer against drought effects.

Category: Habitat conversion

Priority

Stressor: Livestock management

High

- Use integrated management activities in concert to address nuisance plants.

- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

- Protect and restore riparian areas.

- Protect sensitive habitats from excessive grazing.

Category: Pollution

Priority

Stressor: Sediment/ash flows

Medium

- Revegetate disturbed areas with native plants.

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

- Work with land managers to develop and implement management plans that incorporate wildlife values.

- Protect and restore riparian areas.

Species

Baird's Sparrow

Scores

Community/Focal: 1

Ammodramus bairdii

Responsibility: 3

Tier 1b bird

Category: Changes in Ecological Processes

Priority

Stressor: Habitat degradation/shrub invasions

High

- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.

- Use integrated management activities in concert to address nuisance plants.

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Stressor: Habitat fragmentation/barriers

Medium

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Stressor: Unnatural fire regimes

High

- Use integrated management activities in concert to address nuisance plants.

- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.

- Use controlled burning to limit and reduce fuel loads and shrub invasion.

Category: Habitat conversion

Priority

Stressor: Livestock management

High

- Use integrated management activities in concert to address nuisance plants.

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

- Protect sensitive habitats from excessive grazing.

Stressor: Rural development

High

- Identify key conservation areas to protect from development.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Species

Arizona Grasshopper Sparrow
Ammodramus savannarum ammoregus
Tier 1b bird

Scores
Community/Focal: 1
Responsibility: 2

Category: Changes in Ecological Processes

Priority
High

Stressor: Habitat degradation/shrub invasions

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Use integrated management activities in concert to address nuisance plants.
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.

Stressor: Habitat fragmentation/barriers

Medium

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Stressor: Unnatural fire regimes

High

- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.

Category: Habitat conversion

Priority

Stressor: Livestock management

High

- Use integrated management activities in concert to address nuisance plants.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Stressor: Rural development

High

- Identify key conservation areas to protect from development.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Species

Western Grasshopper Sparrow
Ammodramus savannarum perpallidus
Tier 1b bird

Scores
Community/Focal: 1
Responsibility: 3

Category: Changes in Ecological Processes

Priority

Stressor: Habitat degradation/shrub invasions

Medium

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.
- Use integrated management activities in concert to address nuisance plants.

Stressor: Habitat fragmentation/barriers

High

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Acquire land to protect important habitat and wildlife corridors.

Category: Habitat conversion **Priority**
Stressor: Livestock management Medium

- Protect sensitive habitats from excessive grazing.
- Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Stressor: Rural development High

- Acquire land or conservation easements to protect key conservation areas.
- Identify key conservation areas to protect from development.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Stressor: Urban growth High

- Acquire land or conservation easements to protect key conservation areas.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Species

Sprague's Pipit

Anthus spragueii

Tier 1b bird

Scores

Community/Focal: 1

Responsibility: 3

Category: Changes in Ecological Processes **Priority**
Stressor: Habitat degradation/shrub invasions High

- Use integrated management activities in concert to address nuisance plants.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.

Stressor: Habitat fragmentation/barriers Medium

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Stressor: Unnatural fire regimes Medium

- Use controlled burning to limit and reduce fuel loads and shrub invasion.

Category: Habitat conversion **Priority**
Stressor: Livestock management High

- Use integrated management activities in concert to address nuisance plants.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect sensitive habitats from excessive grazing.

Stressor: Rural development High

- Identify key conservation areas to protect from development.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Species

Great Egret
Ardea alba

Tier 1b bird

Scores

Community/Focal: 2
Responsibility: 3

Category: Abiotic resource use

Priority

Stressor: Water diversion/water catchments

Medium

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Remove artificial stream barriers where appropriate.
- Promote water conservation methods.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Prevent or minimize recreational impacts in sensitive habitats.
- Protect sensitive habitats from excessive grazing.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

Medium

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Protect and restore springheads.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Develop off-channel wetlands and backwaters along rivers to increase wildlife habitat.
- Protect sensitive habitats from excessive grazing.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

Stressor: Habitat fragmentation/barriers

Medium

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Stressor: Streambank alteration/channelization

Medium

- Protect and restore riparian areas.
- Protect sensitive habitats from excessive grazing.
- Prevent or minimize recreational impacts in sensitive habitats.
- Promote water conservation methods.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Stressor: Unnatural fire regimes

High

- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.

Category: Climate Change

Priority

Stressor: Drought

High

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife

and riparian habitat.

- Encourage development of water recycling systems/programs (effluent, storm water run-off) to increase the amount of water available to wildlife.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods in growth planning to develop sustainable water use.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

Category: Habitat conversion

Priority

Stressor: Dams/reservoirs/impoundments

High

- Develop off-channel wetlands and backwaters along rivers to increase wildlife habitat.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Stressor: Rural development

High

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Renovate aquatic systems to remove undesirable species.
- Promote legislation to increase water conservation.
- Acquire land or conservation easements to protect key conservation areas.
- Protect and restore riparian areas.
- Identify key conservation areas to protect from development.
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Stressor: Urban growth

High

- Promote establishment and protection of green belts and other preserves including terrestrial and aquatic corridors.
- Promote legislation to increase water conservation.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).
- Create and maintain habitat improvement features for aquatic species.
- Identify key conservation areas to protect from development.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

- Protect and restore riparian areas.
- Renovate aquatic systems to remove undesirable species.

Category: Non-consumptive resource use

Priority

Stressor: Motorized recreation off-trail

High

- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Increase enforcement for laws governing recreational activities.
- Increase public awareness of responsible OHV use and laws.
- Prevent or minimize recreational impacts in sensitive habitats.

Category: Pollution

Priority

Stressor: Contaminants from waste water and runoff

Medium

- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.
- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Cooperate with municipalities to develop waste management plans that incorporate wildlife values.
- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.

Species

Northern Gray Hawk

Asturina nitida maxima

Tier 1b bird

Scores

Community/Focal: 1

Responsibility: 3

Category: Abiotic resource use

Priority

Stressor: Water diversion/water catchments

Medium

- Protect sensitive habitats from excessive grazing.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Remove artificial stream barriers where appropriate.
- Prevent or minimize recreational impacts in sensitive habitats.
- Promote water conservation methods.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Border issues

Priority

Stressor: Altered fire regime as a result of border activities

High

- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

Medium

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect and restore springheads.
- Protect sensitive habitats from excessive grazing.
- Work with land managers to develop and implement management plans that incorporate wildlife values.

Stressor: Habitat fragmentation/barriers

Medium

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Acquire land to protect important habitat and wildlife corridors.
- Remove artificial stream barriers where appropriate.

Stressor: Streambank alteration/channelization

Medium

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Promote water conservation methods.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Prevent or minimize recreational impacts in sensitive habitats.
- Protect sensitive habitats from excessive grazing.
- Protect and restore riparian areas.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

Stressor: Unnatural fire regimes

High

- Use integrated management activities in concert to address nuisance plants.
- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.

Category: Climate Change

Priority

Stressor: Drought

High

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Habitat conversion

Priority

Stressor: Livestock management High

- Protect sensitive habitats from excessive grazing.
- Use integrated management activities in concert to address nuisance plants.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Protect and restore riparian areas.

Category: Non-consumptive resource use **Priority**

Stressor: Dispersed camping Medium

- Increase enforcement for laws governing recreational activities.
- Increase public awareness of responsible camping practices (low impact camping).

Stressor: Motorized recreation off-trail Medium

- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Prevent or minimize recreational impacts in sensitive habitats.
- Increase public awareness of responsible OHV use and laws.
- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.
- Increase enforcement for laws governing recreational activities.

Species

American Bittern

Botaurus lentiginosus

Tier 1b bird

Scores

Community/Focal: 1

Responsibility: 3

Category: Abiotic resource use **Priority**

Stressor: Groundwater depletion and springhead use Medium

- Encourage gray water use.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Encourage low water use agriculture.

Category: Changes in Ecological Processes **Priority**

Stressor: Altered river flow regimes High

- Develop off-channel wetlands and backwaters along rivers to increase wildlife habitat.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Protect sensitive habitats from excessive grazing.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

Stressor: Unnatural fire regimes Medium

- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.

Category: Climate Change

Priority
High

Stressor: Drought

- Promote water conservation methods.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Encourage development of water recycling systems/programs (effluent, storm water run-off) to increase the amount of water available to wildlife.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

Category: Habitat conversion

Priority
High

Stressor: Dams/reservoirs/impoundments

- Develop off-channel wetlands and backwaters along rivers to increase wildlife habitat.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Stressor: Urban growth

Medium

- Identify key conservation areas to protect from development.
- Acquire land or conservation easements to protect key conservation areas.
- Create and maintain habitat improvement features for aquatic species.
- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).
- Protect and restore riparian areas.
- Promote legislation to increase water conservation.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Category: Species Specific

Priority
Medium

Stressor: Unknown

- Develop research needs to assess population trends and/or habitat needs.

Species

Ferruginous Hawk

Buteo regalis

Tier 1b bird

Scores

Community/Focal: 1

Responsibility: 2

Category: Changes in Ecological Processes

Priority
High

Stressor: Habitat degradation/shrub invasions

- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.
- Use integrated management activities in concert to address nuisance plants.
- Develop and implement livestock and big game management guidelines that minimize

habitat degradation while maintaining stock ponds where appropriate.

Stressor: Habitat fragmentation/barriers High

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Stressor: Unnatural fire regimes Medium

- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Use integrated management activities in concert to address nuisance plants.

Category: Climate Change **Priority**

Stressor: Drought Medium

- Manage upland watersheds to retain vegetation as a buffer against drought effects.

Category: Habitat conversion **Priority**

Stressor: Livestock management High

- Use integrated management activities in concert to address nuisance plants.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect sensitive habitats from excessive grazing.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Stressor: Rural development Medium

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Stressor: Urban growth Medium

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Category: Invasive species **Priority**

Stressor: Nuisance plants High

- Support and participate in the multi-agency Governor's Invasive Species Task Force.
- Use integrated management activities in concert to address nuisance plants.
- Revegetate disturbed areas with native plants.
- Adopt national standards and efforts to reduce and control nuisance species.
- Limit extent and level of disturbance that promotes invasion and spread of nuisance plants.

Category: Non-consumptive resource use **Priority**

Stressor: Motorized recreation off-trail Medium

- Prevent or minimize recreational impacts in sensitive habitats.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Increase enforcement for laws governing recreational activities.
- Increase public awareness of responsible OHV use and laws.

Category: Transportation and infrastructure **Priority**

Stressor: Power lines/wind-harnessing turbines Medium

- Assess and implement current recommendations for power lines/wind-harnessing turbines/telephone lines/cell phone towers/radio towers to minimize impacts to wildlife.
- Encourage use of underground power and telephone lines where feasible.

- Develop guidelines for location and design of new infrastructure installations to minimize effects on wildlife and habitats.

Species

Common Black-Hawk
Buteogallus anthracinus
Tier 1b bird

Scores

Community/Focal: 1
Responsibility: 2

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Stressor: Water diversion/water catchments

Medium

- Protect sensitive habitats from excessive grazing.

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.

- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

- Remove artificial stream barriers where appropriate.

- Promote water conservation methods.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

Medium

- Protect sensitive habitats from excessive grazing.

- Protect and restore springheads.

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

- Remove or modify unnecessary or inoperative dams or diversions.

- Work with land managers to develop and implement management plans that incorporate wildlife values.

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Stressor: Habitat fragmentation/barriers

Medium

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

- Remove or modify unnecessary or inoperative dams or diversions.

Stressor: Streambank alteration/channelization

Medium

- Prevent or minimize recreational impacts in sensitive habitats.

- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.

- Protect sensitive habitats from excessive grazing.

- Protect and restore riparian areas.

- Promote water conservation methods.

- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.

Stressor: Unnatural fire regimes **High**

- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.
- Use integrated management activities in concert to address nuisance plants.
- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.

Category: Climate Change **Priority**

Stressor: Drought **High**

- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Habitat conversion **Priority**

Stressor: Dams/reservoirs/impoundments **Medium**

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Stressor: Forest and woodland management - habitat conversion **Medium**

- Encourage revegetation and restoration of existing unauthorized roads and trails.

Stressor: Livestock management **High**

- Use integrated management activities in concert to address nuisance plants.
- Protect and restore riparian areas.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Protect sensitive habitats from excessive grazing.

Stressor: Recreational sites/facilities **Medium**

- Manage watercraft recreation to reduce impacts to shoreline habitats and minimize disturbance to wildlife.
- Educate the public about maintaining sensitive habitat for wildlife.
- Design recreation site management plans and policies that minimize impacts to wildlife and

habitats.

- Increase enforcement for laws governing recreational activities.
- Support prevention of human-caused fire through enforcement of appropriate fire use regulations and education.

Category: Non-consumptive resource use

Priority

Stressor: Dispersed camping

High

- Increase enforcement for laws governing recreational activities.
- Increase public awareness of responsible camping practices (low impact camping).
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..

Stressor: Motorized recreation off-trail

Medium

- Increase enforcement for laws governing recreational activities.
- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.
- Prevent or minimize recreational impacts in sensitive habitats.
- Increase public awareness of responsible OHV use and laws.

Species

Scores

Crested Caracara

Community/Focal: 2

Caracara cheriway

Responsibility: 3

Tier 1b bird

Category: Changes in Ecological Processes

Priority

Stressor: Unnatural fire regimes

High

- Use integrated management activities in concert to address nuisance plants.
- Incorporate wildlife values in the design of road and trail networks in and around natural areas.

Category: Habitat conversion

Priority

Stressor: Livestock management

Medium

- Use integrated management activities in concert to address nuisance plants.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Species

Scores

Swainson's Thrush

Community/Focal: 1

Catharus ustulatus

Responsibility: 3

Tier 1b bird

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

Medium

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Changes in Ecological Processes

Priority

Stressor: Habitat fragmentation/barriers

High

- Acquire land to protect important habitat and wildlife corridors.

Stressor: Streambank alteration/channelization Medium

- Promote water conservation methods.
- Protect and restore riparian areas.
- Protect sensitive habitats from excessive grazing.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Stressor: Unnatural fire regimes High

- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.

Category: Climate Change **Priority**

Stressor: Drought Medium

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Manage upland watersheds to retain vegetation as a buffer against drought effects.

Category: Consumptive use of biological resources **Priority**

Stressor: Grazing by ungulates High

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Disseminate information to partners on effects of grazing on resources.
- Protect sensitive habitats from excessive grazing.
- Work with land managers to develop and implement management plans that incorporate wildlife values.

Category: Habitat conversion **Priority**

Stressor: Forest and woodland management - habitat conversion High

- Encourage revegetation and restoration of existing unauthorized roads and trails.

Stressor: Livestock management High

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Protect sensitive habitats from excessive grazing.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Protect and restore riparian areas.

Category: Pollution **Priority**

Stressor: Sediment/ash flows High

- Revegetate disturbed areas with native plants.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Protect and restore riparian areas.
- Work with land managers to develop and implement management plans that incorporate wildlife values.

Species

Belted Kingfisher

Ceryle alcyon

Tier 1b bird

Scores

Community/Focal: 1

Responsibility: 3

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

Medium

- Promote water conservation methods in growth planning to develop sustainable water use.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

Stressor: Water diversion/water catchments

Medium

- Remove artificial stream barriers where appropriate.
- Prevent or minimize recreational impacts in sensitive habitats.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Protect sensitive habitats from excessive grazing.
- Promote water conservation methods.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

Medium

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Remove or modify unnecessary or inoperative dams or diversions.
- Protect sensitive habitats from excessive grazing.
- Protect and restore springheads.

Stressor: Habitat fragmentation/barriers

Medium

- Remove or modify unnecessary or inoperative dams or diversions.
- Acquire land to protect important habitat and wildlife corridors.
- Remove artificial stream barriers where appropriate.

Stressor: Streambank alteration/channelization Medium

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Protect sensitive habitats from excessive grazing.
- Prevent or minimize recreational impacts in sensitive habitats.
- Protect and restore riparian areas.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.

Stressor: Unnatural fire regimes High

- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.
- Use integrated management activities in concert to address nuisance plants.

Category: Climate Change **Priority**

Stressor: Drought High

- Promote water conservation methods.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Manage upland watersheds to retain vegetation as a buffer against drought effects.

Category: Habitat conversion **Priority**

Stressor: Livestock management Medium

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Protect and restore riparian areas.
- Use integrated management activities in concert to address nuisance plants.

Category: Non-consumptive resource use **Priority**

Stressor: Dispersed camping Medium

- Increase public awareness of responsible camping practices (low impact camping).
- Increase enforcement for laws governing recreational activities.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..

Category: Pollution

Priority

Stressor: Sediment/ash flows

High

- Protect and restore riparian areas.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Revegetate disturbed areas with native plants.

Species

Scores

Western Snowy Plover

Community/Focal: 2

Charadrius alexandrinus nivosus

Responsibility: 3

Tier 1b bird

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Encourage low water use agriculture.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Climate Change

Priority

Stressor: Drought

High

- Promote water conservation methods.

Category: Habitat conversion

Priority

Stressor: Livestock management

Medium

- Use integrated management activities in concert to address nuisance plants.
- Protect sensitive habitats from excessive grazing.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Category: Non-consumptive resource use

Priority

Stressor: Motorized recreation off-trail

Medium

- Increase enforcement for laws governing recreational activities.
- Increase public awareness of responsible OHV use and laws.
- Prevent or minimize recreational impacts in sensitive habitats.
- Encourage revegetation and restoration of existing unauthorized roads and trails.

Species

Scores

Western Yellow-billed Cuckoo

Community/Focal: 1

Coccyzus americanus occidentalis

Responsibility: 2

Tier 1a bird

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Promote water conservation methods in growth planning to develop sustainable water use.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Encourage gray water use.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Encourage low water use agriculture.

Stressor: Water diversion/water catchments Medium

- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Prevent or minimize recreational impacts in sensitive habitats.
- Promote water conservation methods.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Protect sensitive habitats from excessive grazing.
- Remove artificial stream barriers where appropriate.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

Category: Border issues **Priority**
Stressor: Altered fire regime as a result of border activities High

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.
- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.

Category: Changes in Ecological Processes **Priority**
Stressor: Altered river flow regimes High

- Remove or modify unnecessary or inoperative dams or diversions.
- Protect sensitive habitats from excessive grazing.
- Protect and restore springheads.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Work with land managers to develop and implement management plans that incorporate wildlife values.

Stressor: Habitat fragmentation/barriers High

- Remove or modify unnecessary or inoperative dams or diversions.
- Acquire land to protect important habitat and wildlife corridors.
- Remove artificial stream barriers where appropriate.

Stressor: Streambank alteration/channelization Medium

- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.

- Prevent or minimize recreational impacts in sensitive habitats.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Promote water conservation methods.
- Protect and restore riparian areas.
- Protect sensitive habitats from excessive grazing.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

Stressor: Unnatural fire regimes **High**

- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.
- Use integrated management activities in concert to address nuisance plants.
- Incorporate wildlife values in the design of road and trail networks in and around natural areas.

Category: Climate Change **Priority**

Stressor: Drought **High**

- Promote water conservation methods.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Consumptive use of biological resources **Priority**

Stressor: Grazing by ungulates **Medium**

- Disseminate information to partners on effects of grazing on resources.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Protect sensitive habitats from excessive grazing.

Category: Habitat conversion **Priority**

Stressor: Dams/reservoirs/impoundments **High**

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Stressor: Forest and woodland management - habitat conversion **High**

- Use integrated management activities in concert to address nuisance plants.

Stressor: Livestock management **High**

- Protect sensitive habitats from excessive grazing.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

- Protect and restore riparian areas.
- Use integrated management activities in concert to address nuisance plants.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.

Stressor: Recreational sites/facilities

Medium

- Design recreation site management plans and policies that minimize impacts to wildlife and habitats.
- Use environmentally-friendly materials, landscaping, and structure designs for recreational sites.
- Increase enforcement for laws governing recreational activities.
- Educate the public about maintaining sensitive habitat for wildlife.
- Support prevention of human-caused fire through enforcement of appropriate fire use regulations and education.
- Conduct boat inspections at marina and boat launch ramps to detect and prevent the spread of aquatic nuisance species.

Stressor: Rural development

Medium

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Identify key conservation areas to protect from development.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Acquire land or conservation easements to protect key conservation areas.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Protect and restore riparian areas.
- Renovate aquatic systems to remove undesirable species.
- Promote legislation to increase water conservation.

Stressor: Urban growth

High

- Promote legislation to increase water conservation.
- Protect and restore riparian areas.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Acquire land or conservation easements to protect key conservation areas.
- Promote establishment and protection of green belts and other preserves including terrestrial and aquatic corridors.
- Identify key conservation areas to protect from development.
- Create and maintain habitat improvement features for aquatic species.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Category: Invasive species

Priority

Stressor: Nuisance plants

High

- Limit extent and level of disturbance that promotes invasion and spread of nuisance plants.

- Adopt national standards and efforts to reduce and control nuisance species.
- Use integrated management activities in concert to address nuisance plants.
- Revegetate disturbed areas with native plants.
- Support and participate in the multi-agency Governor's Invasive Species Task Force.

Category: Non-consumptive resource use

Priority

Stressor: Dispersed camping

Medium

- Increase enforcement for laws governing recreational activities.
- Increase public awareness of responsible camping practices (low impact camping).
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..

Stressor: Motorized recreation off-trail

Medium

- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Increase public awareness of responsible OHV use and laws.
- Increase enforcement for laws governing recreational activities.

Species

Scores

Masked Bobwhite

Community/Focal: 1

Colinus virginianus ridgwayi

Responsibility: 1

Tier 1a bird

Category: Border issues

Priority

Stressor: Altered fire regime as a result of border activities

Medium

- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Category: Changes in Ecological Processes

Priority

Stressor: Habitat degradation/shrub invasions

High

- Use integrated management activities in concert to address nuisance plants.
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Stressor: Habitat fragmentation/barriers

Medium

- Acquire land to protect important habitat and wildlife corridors.

Stressor: Soil erosion

Medium

- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Revegetate disturbed areas with native plants.

Stressor: Unnatural fire regimes

High

- Use integrated management activities in concert to address nuisance plants.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.

Category: Climate Change

Priority

Stressor: Shift to warmer climate

Medium

- Develop plans to conserve priority conservation species (Focal Community,

Responsibility, and Vulnerability categories) that are not sufficiently addressed under existing plans.

Category: Habitat conversion **Priority**
Stressor: Livestock management Medium

- Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Protect sensitive habitats from excessive grazing.
- Revegetate disturbed areas with native plants.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Use integrated management activities in concert to address nuisance plants.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Category: Invasive species **Priority**
Stressor: Nuisance plants Medium

- Revegetate disturbed areas with native plants.
- Use integrated management activities in concert to address nuisance plants.

Species

Olive-sided Flycatcher

Contopus cooperi

Tier 1b bird

Scores
Community/Focal: 1
Responsibility: 3

Category: Changes in Ecological Processes **Priority**
Stressor: Habitat fragmentation/barriers High

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Stressor: Unnatural fire regimes High

- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.

Category: Climate Change **Priority**
Stressor: Drought Medium

- Manage upland watersheds to retain vegetation as a buffer against drought effects.

Category: Consumptive use of biological resources **Priority**
Stressor: Grazing by ungulates Medium

- Protect sensitive habitats from excessive grazing.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Category: Habitat conversion **Priority**
Stressor: Forest and woodland management - habitat conversion High

- Encourage revegetation and restoration of existing unauthorized roads and trails.

Stressor: Livestock management Medium

- Protect sensitive habitats from excessive grazing.

Stressor: Urban growth Medium

- Identify key conservation areas to protect from development.
- Promote legislation to increase water conservation.

Species

Black-bellied Whistling-Duck
Dendrocygna autumnalis
Tier 1b bird

Scores

Community/Focal: 2
Responsibility: 3

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Encourage low water use agriculture.
- Encourage gray water use.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

Category: Changes in Ecological Processes

Priority

Stressor: Habitat fragmentation/barriers

Medium

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Acquire land to protect important habitat and wildlife corridors.

Stressor: Unnatural fire regimes

High

- Incorporate wildlife values in the design of road and trail networks in and around natural areas.

- Use integrated management activities in concert to address nuisance plants.

- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.

Category: Climate Change

Priority

Stressor: Drought

High

- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Encourage development of water recycling systems/programs (effluent, storm water run-off) to increase the amount of water available to wildlife.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Promote water conservation methods.

Category: Habitat conversion

Priority

Stressor: Livestock management

Medium

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect sensitive habitats from excessive grazing.
- Protect and restore riparian areas.

Stressor: Rural development

Medium

- Identify key conservation areas to protect from development.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Promote legislation to increase water conservation.
- Protect and restore riparian areas.
- Renovate aquatic systems to remove undesirable species.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Acquire land or conservation easements to protect key conservation areas.
- Promote establishment and protection of green belts and other preserves including terrestrial and aquatic corridors.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).

Stressor: Urban growth

High

- Identify key conservation areas to protect from development.
- Acquire land or conservation easements to protect key conservation areas.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Create and maintain habitat improvement features for aquatic species.
- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Protect and restore riparian areas.
- Promote legislation to increase water conservation.
- Renovate aquatic systems to remove undesirable species.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Promote establishment and protection of green belts and other preserves including terrestrial and aquatic corridors.

Species

Gray Catbird
Dumetella carolinensis
Tier 1b bird

Scores

Community/Focal: 1
Responsibility: 3

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

Medium

- Promote water conservation methods in growth planning to develop sustainable water use.

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

Category: Changes in Ecological Processes

Priority

Stressor: Habitat fragmentation/barriers

Medium

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Acquire land to protect important habitat and wildlife corridors.

Stressor: Streambank alteration/channelization

High

- Protect and restore riparian areas.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Protect sensitive habitats from excessive grazing.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

Stressor: Unnatural fire regimes

High

- Use integrated management activities in concert to address nuisance plants.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

Category: Consumptive use of biological resources

Priority

Stressor: Grazing by ungulates

High

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Protect sensitive habitats from excessive grazing.

Category: Habitat conversion

Priority

Stressor: Livestock management

High

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect and restore riparian areas.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Protect sensitive habitats from excessive grazing.

Stressor: Rural development

High

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Renovate aquatic systems to remove undesirable species.
- Identify key conservation areas to protect from development.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Acquire land or conservation easements to protect key conservation areas.

Stressor: Urban growth

High

- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).
- Protect and restore riparian areas.
- Acquire land or conservation easements to protect key conservation areas.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Renovate aquatic systems to remove undesirable species.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Create and maintain habitat improvement features for aquatic species.

Species

Snowy Egret

Egretta thula

Tier 1b bird

Scores

Community/Focal: 1

Responsibility: 3

Category: Abiotic resource use

Priority

Stressor: Water diversion/water catchments

High

- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Protect sensitive habitats from excessive grazing.
- Promote water conservation methods.
- Remove artificial stream barriers where appropriate.
- Prevent or minimize recreational impacts in sensitive habitats.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

High

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Protect and restore springheads.
- Develop off-channel wetlands and backwaters along rivers to increase wildlife habitat.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

Stressor: Habitat fragmentation/barriers

Medium

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Acquire land to protect important habitat and wildlife corridors.

Stressor: Streambank alteration/channelization

Medium

- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Prevent or minimize recreational impacts in sensitive habitats.
- Promote water conservation methods.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect sensitive habitats from excessive grazing.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Protect and restore riparian areas.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.

Stressor: Unnatural fire regimes

High

- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Encourage development of water recycling systems/programs (effluent, storm water run-off) to increase the amount of water available to wildlife.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Consumptive use of biological resources **Priority**
Stressor: Harvesting/collecting animals **Medium**

- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.
- Increase public awareness of regulations pertaining to illegal harvest.

Category: Habitat conversion **Priority**
Stressor: Dams/reservoirs/impoundments **High**

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Develop off-channel wetlands and backwaters along rivers to increase wildlife habitat.

Stressor: Rural development **High**

- Acquire land or conservation easements to protect key conservation areas.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Promote establishment and protection of green belts and other preserves including terrestrial and aquatic corridors.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Promote legislation to increase water conservation.
- Protect and restore riparian areas.
- Renovate aquatic systems to remove undesirable species.

Stressor: Urban growth **High**

- Acquire land or conservation easements to protect key conservation areas.
- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).
- Protect and restore riparian areas.
- Promote legislation to increase water conservation.
- Renovate aquatic systems to remove undesirable species.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Identify key conservation areas to protect from development.
- Promote establishment and protection of green belts and other preserves including terrestrial and aquatic corridors.
- Create and maintain habitat improvement features for aquatic species.

Category: Non-consumptive resource use **Priority**
Stressor: Motorized recreation off-trail **Medium**

- Increase public awareness of responsible OHV use and laws.
- Prevent or minimize recreational impacts in sensitive habitats.

- Increase enforcement for laws governing recreational activities.
- Encourage revegetation and restoration of existing unauthorized roads and trails.

Category: Pollution

Priority

Stressor: Contaminants from waste water and runoff

High

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Cooperate with municipalities to develop waste management plans that incorporate wildlife values.
- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.

Species

Scores

Northern Buff-breasted Flycatcher

Community/Focal: 1

Empidonax fulvifrons pygmaeus

Responsibility: 3

Tier 1b bird

Category: Border issues

Priority

Stressor: Altered fire regime as a result of border activities

High

- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Category: Changes in Ecological Processes

Priority

Stressor: Unnatural fire regimes

High

- Design fire management plans and wildland/urban interface policies that consider wildlife values.
- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Manage upland watersheds to retain vegetation as a buffer against drought effects.

Category: Habitat conversion

Priority

Stressor: Forest and woodland management - habitat conversion

High

- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.

Stressor: Livestock management

Medium

- Protect sensitive habitats from excessive grazing.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

- Stressor:** Recreational sites/facilities Medium
- Design recreation site management plans and policies that minimize impacts to wildlife and habitats.
 - Support prevention of human-caused fire through enforcement of appropriate fire use regulations and education.
 - Increase public awareness on ways to reduce nuisance wildlife in residential areas (that is: not leaving out pet food, proper disposal of waste, storage of food, fencing gardens or yards).
 - Increase enforcement for laws governing recreational activities.
 - Manage watercraft recreation to reduce impacts to shoreline habitats and minimize disturbance to wildlife.
 - Educate the public about maintaining sensitive habitat for wildlife.

Species

Southwestern Willow Flycatcher
Empidonax traillii extimus
Tier 1a bird

Scores
Community/Focal: 1
Responsibility: 1

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Encourage low water use agriculture.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Encourage gray water use.

Stressor: Water diversion/water catchments

Medium

- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
 - Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
 - Remove artificial stream barriers where appropriate.
 - Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
 - Prevent or minimize recreational impacts in sensitive habitats.
 - Protect sensitive habitats from excessive grazing.
 - Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
 - Promote water conservation methods.
 - Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Category:** Changes in Ecological Processes **Priority**
- Stressor:** Altered river flow regimes **High**
- Protect and restore springheads.
 - Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
 - Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Protect sensitive habitats from excessive grazing.
- Work with land managers to develop and implement management plans that incorporate wildlife values.

Stressor: Habitat fragmentation/barriers High

- Remove or modify unnecessary or inoperative dams or diversions.
- Remove artificial stream barriers where appropriate.
- Acquire land to protect important habitat and wildlife corridors.

Stressor: Streambank alteration/channelization Medium

- Protect sensitive habitats from excessive grazing.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Protect and restore riparian areas.
- Prevent or minimize recreational impacts in sensitive habitats.

Stressor: Unnatural fire regimes High

- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.
- Encourage the utilization of low water use [and native] plants in landscaping.

Category: Climate Change Priority

Stressor: Drought High

- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Promote water conservation methods.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.

Category: Consumptive use of biological resources Priority

Stressor: Grazing by ungulates High

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Disseminate information to partners on effects of grazing on resources.

- Protect sensitive habitats from excessive grazing.

Category: Habitat conversion **Priority**
High
Stressor: Dams/reservoirs/impoundments

- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.

Stressor: Forest and woodland management - habitat conversion High

- Use integrated management activities in concert to address nuisance plants.

Stressor: Livestock management High

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

- Use integrated management activities in concert to address nuisance plants.

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

- Protect and restore riparian areas.

- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.

Stressor: Rural development High

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

- Renovate aquatic systems to remove undesirable species.

- Promote legislation to increase water conservation.

- Acquire land or conservation easements to protect key conservation areas.

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Stressor: Urban growth High

- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

- Renovate aquatic systems to remove undesirable species.

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

- Create and maintain habitat improvement features for aquatic species.

- Acquire land or conservation easements to protect key conservation areas.

- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).

Category: Invasive species **Priority**

Stressor: Nuisance plants High

- Limit extent and level of disturbance that promotes invasion and spread of nuisance plants.

- Revegetate disturbed areas with native plants.

Category: Non-consumptive resource use **Priority**

Stressor: Motorized recreation off-trail Medium

- Increase public awareness on the negative effects of creation and use of unauthorized

roads and trails for recreation.

- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Prevent or minimize recreational impacts in sensitive habitats.
- Increase public awareness of responsible OHV use and laws.
- Increase enforcement for laws governing recreational activities.

Category: Pollution

Priority

Stressor: Sediment/ash flows

High

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Work with land managers to reduce or prevent high sedimentation of aquatic systems where appropriate.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Work with land managers to develop and implement management plans that incorporate wildlife values.

Species

Scores

Northern Aplomado Falcon

Community/Focal: 3

Falco femoralis septentrionalis

Responsibility: 2

Tier 1a bird

Category: Changes in Ecological Processes

Priority

Stressor: Habitat degradation/shrub invasions

High

- Use integrated management activities in concert to address nuisance plants.
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Stressor: Habitat fragmentation/barriers

High

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

- Modify grazing practices of grasslands to allow for natural fire regimes and reduction in undesirable vegetation.

Stressor: Unnatural fire regimes

High

- Use controlled burning to limit and reduce fuel loads and shrub invasion.

- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.

Category: Habitat conversion

Priority

Stressor: Livestock management

High

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

- Use integrated management activities in concert to address nuisance plants.

Stressor: Rural development

Medium

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

- Acquire land or conservation easements to protect key conservation areas.

Species

American Peregrine Falcon
Falco peregrinus anatum
Tier 1b bird

Scores
Community/Focal: 1
Responsibility: 2

Category: Climate Change

Priority

Stressor: Drought

Medium

- Manage upland watersheds to retain vegetation as a buffer against drought effects.

Category: Consumptive use of biological resources

Priority

Stressor: Harvesting/collecting animals

Medium

- Increase public awareness of regulations pertaining to illegal harvest.
- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.

Category: Non-consumptive resource use

Priority

Stressor: Non-motorized recreation off-trail

Medium

- Seasonally close areas to recreational and commercial use when sensitive breeding wildlife are present.

Category: Pollution

Priority

Stressor: Pesticides/herbicides

Medium

- Use alternative means for pest control (biocontrol, genetic control, management practices).

Category: Transportation and infrastructure

Priority

Stressor: Power lines/wind-harnessing turbines

Medium

- Assess and implement current recommendations for power lines/wind-harnessing turbines/telephone lines/cell phone towers/radio towers to minimize impacts to wildlife.
- Develop guidelines for location and design of new infrastructure installations to minimize effects on wildlife and habitats.
- Encourage use of underground power and telephone lines where feasible.

Species

Cactus Ferruginous Pygmy-Owl
Glaucidium brasilianum cactorum
Tier 1a bird

Scores
Community/Focal: 2
Responsibility: 2

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Encourage the utilization of low water use [and native] plants in landscaping.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Stressor: Water diversion/water catchments

Medium

- Protect sensitive habitats from excessive grazing.
- Prevent or minimize recreational impacts in sensitive habitats.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Border issues

Priority

Stressor: Altered fire regime as a result of border activities

High

- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.

- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.

- Use controlled burning to limit and reduce fuel loads and shrub invasion.

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

High

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

Stressor: Habitat fragmentation/barriers

High

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

- Acquire land to protect important habitat and wildlife corridors.

Stressor: Streambank alteration/channelization

Medium

- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

- Protect sensitive habitats from excessive grazing.

- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.

- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.

- Prevent or minimize recreational impacts in sensitive habitats.

- Protect and restore riparian areas.

- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

Stressor: Unnatural fire regimes

High

- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.

- Incorporate wildlife values in the design of road and trail networks in and around natural areas.

- Use integrated management activities in concert to address nuisance plants.

Category: Climate Change

Priority

Stressor: Drought

High

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.

Category: Habitat conversion

Priority

Stressor: Dams/reservoirs/impoundments

Medium

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

- Stressor:** Forest and woodland management - habitat conversion Medium
- Use integrated management activities in concert to address nuisance plants.
- Stressor:** Livestock management Medium
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Use integrated management activities in concert to address nuisance plants.
- Protect and restore riparian areas.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Protect sensitive habitats from excessive grazing.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Stressor:** Rural development High
- Identify key conservation areas to protect from development.
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Acquire land or conservation easements to protect key conservation areas.
- Promote establishment and protection of green belts and other preserves including terrestrial and aquatic corridors.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Identify and protect key wildlife corridors for landscape connectivity.
- Stressor:** Urban growth High
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Promote establishment and protection of green belts and other preserves including terrestrial and aquatic corridors.
- Identify key conservation areas to protect from development.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Protect and restore riparian areas.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Identify and protect key wildlife corridors for landscape connectivity.
- Renovate aquatic systems to remove undesirable species.
- Acquire land or conservation easements to protect key conservation areas.
- Category:** Invasive species **Priority**
Stressor: Nuisance plants High
- Revegetate disturbed areas with native plants.
- Limit extent and level of disturbance that promotes invasion and spread of nuisance plants.
- Adopt national standards and efforts to reduce and control nuisance species.
- Use integrated management activities in concert to address nuisance plants.
- Category:** Non-consumptive resource use **Priority**
Stressor: Motorized recreation off-trail Medium

- Prevent or minimize recreational impacts in sensitive habitats.
- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Increase public awareness of responsible OHV use and laws.
- Increase enforcement for laws governing recreational activities.

Species

California Condor

Gymnogyps californianus

Tier 1a bird

Scores

Community/Focal: 2

Responsibility: 1

Category: Consumptive use of biological resources

Priority

Stressor: Harvesting/collecting animals

Medium

- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.

Category: Invasive species

Priority

Stressor: Disease/pathogens/parasites

High

- Collaborate with partners on disease/pathogen/parasite issues to protect wildlife.

Category: Pollution

Priority

Stressor: Illegal dumping/littering

High

- Increase public awareness of dumping and littering impacts to wildlife and their habitat.

Category: Transportation and infrastructure

Priority

Stressor: Power lines/wind-harnessing turbines

Medium

- Encourage use of underground power and telephone lines where feasible.
- Assess and implement current recommendations for power lines/wind-harnessing turbines/telephone lines/cell phone towers/radio towers to minimize impacts to wildlife.

Species

Bald Eagle

Haliaeetus leucocephalus

Tier 1a bird

Scores

Community/Focal: 2

Responsibility: 1

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

Medium

- Promote water conservation methods in growth planning to develop sustainable water use.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Stressor: Water diversion/water catchments

High

- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.

- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

- Protect sensitive habitats from excessive grazing.

- Remove artificial stream barriers where appropriate.

- Prevent or minimize recreational impacts in sensitive habitats.

- Promote water conservation methods in growth planning to develop sustainable water use.

- Promote water conservation methods.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes High

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Protect and restore springheads.
- Develop off-channel wetlands and backwaters along rivers to increase wildlife habitat.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Protect sensitive habitats from excessive grazing.
- Remove or modify unnecessary or inoperative dams or diversions.

Stressor: Loss of keystone species High

- Protect and restore riparian areas.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Renovate aquatic systems to remove undesirable species.
- Manage habitat to maximize biodiversity by keeping common species common and protecting imperiled species.

Stressor: Management for game animals and sport fish High

- Manage so as to sustain or enhance native fish and sport fish populations.
- Expand hatchery capabilities to propagate native species.
- Develop and implement integrated fisheries management plans for watersheds (for native and sport fish).
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.

Stressor: Soil erosion High

- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Implement 'Best Management Practices' when building roads or other infrastructure (dams, mines, developments, etc.).
- Revegetate disturbed areas with native plants.
- Implement watershed based approaches aimed at preventing excessive soil erosion.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Protect and restore riparian areas.
- Promote guidelines for timber harvesting and associated road building that positively effect wildlife.

Stressor: Streambank alteration/channelization High

- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect and restore riparian areas.

- Promote water conservation methods in growth planning to develop sustainable water use.
- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Prevent or minimize recreational impacts in sensitive habitats.
- Protect sensitive habitats from excessive grazing.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Stressor: Unnatural fire regimes **High**

- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.

Category: Climate Change **Priority**

Stressor: Drought **Medium**

- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Encourage development of water recycling systems/programs (effluent, storm water runoff) to increase the amount of water available to wildlife.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.

Category: Consumptive use of biological resources **Priority**

Stressor: Harvesting/collecting animals **High**

- Increase public awareness of regulations pertaining to illegal harvest.
- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.

Category: Habitat conversion **Priority**

Stressor: Dams/reservoirs/impoundments **High**

- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Develop off-channel wetlands and backwaters along rivers to increase wildlife habitat.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Create and maintain habitat improvement features for aquatic species.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..

Stressor: Livestock management **High**

- Protect sensitive habitats from excessive grazing.
- Develop and implement livestock and big game management guidelines that minimize

habitat degradation while maintaining stock ponds where appropriate.

- Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Protect and restore riparian areas.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.

Stressor: Recreational sites/facilities

High

- Design recreation site management plans and policies that minimize impacts to wildlife and habitats.
- Manage watercraft recreation to reduce impacts to shoreline habitats and minimize disturbance to wildlife.
- Increase enforcement for laws governing recreational activities.
- Educate the public about maintaining sensitive habitat for wildlife.
- Use environmentally-friendly materials, landscaping, and structure designs for recreational sites.

Stressor: Rural development

Medium

- Renovate aquatic systems to remove undesirable species.
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Acquire land or conservation easements to protect key conservation areas.

Stressor: Urban growth

High

- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Protect and restore riparian areas.
- Create and maintain habitat improvement features for aquatic species.
- Renovate aquatic systems to remove undesirable species.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Identify key conservation areas to protect from development.

Category: Invasive species

Priority

Stressor: Disease/pathogens/parasites

Medium

- Collaborate with partners on disease/pathogen/parasite issues to protect wildlife.

Stressor: Nuisance animals

High

- Use integrated management activities in concert to address nuisance plants.
- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.

- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Evaluate and modify Department regulations where appropriate.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Identify watersheds and other conservation areas to prioritize renovation activities.

Stressor: Nuisance plants Medium

- Use integrated management activities in concert to address nuisance plants.
- Support and participate in the multi-agency Governor's Invasive Species Task Force.
- Adopt national standards and efforts to reduce and control nuisance species.

Category: Non-consumptive resource use **Priority**

Stressor: Dispersed camping High

- Increase enforcement for laws governing recreational activities.

Stressor: Motorized recreation off-trail Medium

- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Increase public awareness of responsible OHV use and laws.
- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Prevent or minimize recreational impacts in sensitive habitats.

Stressor: Non-motorized recreation off-trail Medium

- Prevent or minimize recreational impacts in sensitive habitats.

Stressor: Off-range recreational shooting High

- Educate users on responsible recreational shooting behavior and habitat stewardship.
- Increase enforcement for laws governing recreational activities.

Stressor: Watercraft operation High

- Increase enforcement for laws governing recreational activities.
- Increase public awareness on the impacts of watercraft and watercraft operating practices to wildlife and wildlife habitat.
- Manage watercraft recreation to reduce impacts to shoreline habitats and minimize disturbance to wildlife.

Category: Pollution **Priority**

Stressor: Contaminants from waste water and runoff Medium

- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Ensure new and existing landfills are properly lined and sealed from contaminating surrounding habitat and water sources.

Stressor: Heavy metals/mine tailings Medium

- Promote recycling to reduce contamination from landfills and new mine operations.
- Regulate and enforce use of containment measures for commercial operations to prevent

toxins from polluting surrounding habitat.

Stressor: Lead shot/fishing line High

- Increase public awareness on the effects of improper disposal of fishing line.
- Provide more wildlife proof waste receptacles in areas of public recreation.
- Encourage cooperative clean up efforts of aquatic and terrestrial wildlife habitats through existing and new programs.

Stressor: Pesticides/herbicides Medium

- Use appropriate concentrations and types of pesticides, herbicides, or alternatives to control undesirable species, especially near sensitive habitat and watercourses.
- Use alternative means for pest control (biocontrol, genetic control, management practices).
- Promote organic agriculture and gardening practices that do not rely on chemical treatments.

Stressor: Sediment/ash flows High

- Protect and restore riparian areas.
- Work with land managers to reduce or prevent high sedimentation of aquatic systems where appropriate.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.

Category: Species Specific **Priority**

Stressor: Small/localized or highly concentrated population(s) High

- Minimize wildlife access to landfills to discourage use as a source of food.

Category: Transportation and infrastructure **Priority**

Stressor: Air traffic corridors/overflights Medium

- Establish, where necessary, advisory distances for air traffic corridors/overflights in critical wildlife habitats.
- Inform and educate the public on potential negative impacts of low level overflights to wildlife.

Stressor: Power lines/wind-harnessing turbines Medium

- Encourage use of underground power and telephone lines where feasible.
- Develop guidelines for location and design of new infrastructure installations to minimize effects on wildlife and habitats.
- Assess and implement current recommendations for power lines/wind-harnessing turbines/telephone lines/cell phone towers/radio towers to minimize impacts to wildlife.
- Identify problem areas and retrofit existing problem structures to minimize affects on wildlife.

Stressor: Roads for motorized vehicles Medium

- Encourage wildlife friendly design for all road building.
- Reduce sedimentation effects from road and trail construction.

Stressor: Trails for foot, bike, or equine use Medium

- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Prevent or minimize recreational impacts in sensitive habitats.

Stressor: Unauthorized roads & trails High

- Increase enforcement for laws governing recreational activities.
- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Incorporate wildlife values in the design of road and trail networks in and around natural

areas.

- Increase public awareness of responsible OHV use and laws.
- Use fencing and/or increased law enforcement presence to reduce unauthorized use and access to sensitive habitats.

Species

Mississippi Kite

Ictinia mississippiensis

Tier 1b bird

Scores

Community/Focal: 2

Responsibility: 2

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Encourage low water use agriculture.
- Encourage gray water use.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

Stressor: Water diversion/water catchments

High

- Prevent or minimize recreational impacts in sensitive habitats.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect sensitive habitats from excessive grazing.
- Remove artificial stream barriers where appropriate.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

High

- Protect and restore springheads.
- Protect sensitive habitats from excessive grazing.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Stressor: Habitat fragmentation/barriers

High

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Acquire land to protect important habitat and wildlife corridors.

Stressor: Streambank alteration/channelization

Medium

- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

- Protect and restore riparian areas.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Protect sensitive habitats from excessive grazing.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Prevent or minimize recreational impacts in sensitive habitats.

Stressor: Unnatural fire regimes High

- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.
- Incorporate wildlife values in the design of road and trail networks in and around natural areas.
- Use integrated management activities in concert to address nuisance plants.

Category: Climate Change **Priority**

Stressor: Drought High

- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Promote water conservation methods.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

Category: Habitat conversion **Priority**

Stressor: Livestock management High

- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect and restore riparian areas.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Use integrated management activities in concert to address nuisance plants.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect sensitive habitats from excessive grazing.

Stressor: Rural development Medium

- Renovate aquatic systems to remove undesirable species.
- Acquire land or conservation easements to protect key conservation areas.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Work cooperatively with landowners/permittees by providing financial and technical

assistance (thru incentive programs) to conservation projects.

- Identify key conservation areas to protect from development.
- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Category: Invasive species

Priority

Stressor: Nuisance plants

High

- Revegetate disturbed areas with native plants.
- Adopt national standards and efforts to reduce and control nuisance species.
- Use integrated management activities in concert to address nuisance plants.
- Limit extent and level of disturbance that promotes invasion and spread of nuisance plants.

Category: Non-consumptive resource use

Priority

Stressor: Motorized recreation off-trail

Medium

- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Prevent or minimize recreational impacts in sensitive habitats.
- Increase public awareness of responsible OHV use and laws.
- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.
- Increase enforcement for laws governing recreational activities.

Species

California Black Rail

Scores

Community/Focal: 1

Laterallus jamaicensis coturnic

Responsibility: 3

Tier 1b bird

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Promote water conservation methods in growth planning to develop sustainable water use.
- Encourage low water use agriculture.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Stressor: Water diversion/water catchments

Medium

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Prevent or minimize recreational impacts in sensitive habitats.
- Protect sensitive habitats from excessive grazing.
- Remove artificial stream barriers where appropriate.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

High

- Develop off-channel wetlands and backwaters along rivers to increase wildlife habitat.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

- Protect sensitive habitats from excessive grazing.
- Work with land managers to develop and implement management plans that incorporate wildlife values.

- Protect and restore springheads.

Stressor: Habitat fragmentation/barriers **High**

- Acquire land to protect important habitat and wildlife corridors.
- Remove artificial stream barriers where appropriate.

Stressor: Soil erosion **Medium**

- Revegetate disturbed areas with native plants.
- Implement watershed based approaches aimed at preventing excessive soil erosion.
- Work with land managers to develop and implement management plans that incorporate wildlife values.

- Protect and restore riparian areas.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.

Stressor: Streambank alteration/channelization **High**

- Protect sensitive habitats from excessive grazing.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Protect and restore riparian areas.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Prevent or minimize recreational impacts in sensitive habitats.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.

Stressor: Unnatural fire regimes **High**

- Use integrated management activities in concert to address nuisance plants.
- Incorporate wildlife values in the design of road and trail networks in and around natural areas.
- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.

Category: Climate Change **Priority**

Stressor: Drought **Medium**

- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

Category: Habitat conversion **Priority**

Stressor: Dams/reservoirs/impoundments **High**

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Develop off-channel wetlands and backwaters along rivers to increase wildlife habitat.

Category: Invasive species **Priority**

Stressor: Nuisance plants **Medium**

- Use integrated management activities in concert to address nuisance plants.
- Adopt national standards and efforts to reduce and control nuisance species.
- Limit extent and level of disturbance that promotes invasion and spread of nuisance plants.
- Revegetate disturbed areas with native plants.

Species

Sage Thrasher

Oreoscoptes montanus

Tier 1b bird

Scores

Community/Focal: 1

Responsibility: 3

Category: Changes in Ecological Processes

Priority

Stressor: Unnatural fire regimes

High

- Incorporate wildlife values in the design of road and trail networks in and around natural areas.

- Use integrated management activities in concert to address nuisance plants.

Category: Climate Change

Priority

Stressor: Drought

High

- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.

Category: Habitat conversion

Priority

Stressor: Livestock management

Medium

- Revegetate disturbed areas with native plants.

- Use integrated management activities in concert to address nuisance plants.

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

- Protect sensitive habitats from excessive grazing.

- Acquire land or conservation easements on portions of rangeland critical to wildlife.

Stressor: Rural development

Medium

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Category: Invasive species

Priority

Stressor: Nuisance plants

High

- Support and participate in the multi-agency Governor's Invasive Species Task Force.

- Revegetate disturbed areas with native plants.

- Limit extent and level of disturbance that promotes invasion and spread of nuisance plants.

- Adopt national standards and efforts to reduce and control nuisance species.

- Use integrated management activities in concert to address nuisance plants.

Category: Non-consumptive resource use

Priority

Stressor: Motorized recreation off-trail

Medium

- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.

- Increase enforcement for laws governing recreational activities.

- Increase public awareness of responsible OHV use and laws.

- Prevent or minimize recreational impacts in sensitive habitats.

- Encourage revegetation and restoration of existing unauthorized roads and trails.

Species

Rose-throated Becard
Pachyramphus aglaiae
Tier 1b bird

Scores

Community/Focal: 2
Responsibility: 3

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Encourage gray water use.

Stressor: Water diversion/water catchments

Medium

- Protect sensitive habitats from excessive grazing.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Prevent or minimize recreational impacts in sensitive habitats.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Remove artificial stream barriers where appropriate.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

Category: Border issues

Priority

Stressor: Altered fire regime as a result of border activities

High

- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.
- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.

Category: Changes in Ecological Processes

Priority

Stressor: Habitat fragmentation/barriers

High

- Acquire land to protect important habitat and wildlife corridors.

Stressor: Unnatural fire regimes

High

- Use integrated management activities in concert to address nuisance plants.
- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Work with city and county planners to limit or prevent development in flood plains and

areas that impact watershed integrity.

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

Category: Habitat conversion

Priority

Stressor: Forest and woodland management - habitat conversion

Medium

- Use integrated management activities in concert to address nuisance plants.
- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.

Stressor: Livestock management

High

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Protect and restore riparian areas.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect sensitive habitats from excessive grazing.
- Use integrated management activities in concert to address nuisance plants.

Stressor: Rural development

Medium

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Renovate aquatic systems to remove undesirable species.

Species

Scores

Osprey

Community/Focal: 1

Pandion haliaetus

Responsibility: 3

Tier 1b bird

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Encourage gray water use.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Encourage low water use agriculture.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

High

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect sensitive habitats from excessive grazing.

- Protect and restore springheads.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Stressor: Soil erosion Medium

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Protect and restore riparian areas.
- Install streambank stabilization structures or habitat features to reduce erosion and loss of sediment.
- Revegetate disturbed areas with native plants.

Stressor: Streambank alteration/channelization Medium

- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Prevent or minimize recreational impacts in sensitive habitats.
- Protect and restore riparian areas.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect sensitive habitats from excessive grazing.
- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

Stressor: Unnatural fire regimes High

- Use integrated management activities in concert to address nuisance plants.
- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.
- Incorporate wildlife values in the design of road and trail networks in and around natural areas.

Category: Climate Change **Priority**

Stressor: Drought Medium

- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

Category: Habitat conversion **Priority**

Stressor: Dams/reservoirs/impoundments High

- Create and maintain habitat improvement features for aquatic species.

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Stressor: Livestock management High

- Use integrated management activities in concert to address nuisance plants.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect sensitive habitats from excessive grazing.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Stressor: Recreational sites/facilities Medium

- Conduct boat inspections at marina and boat launch ramps to detect and prevent the spread of aquatic nuisance species.
- Manage watercraft recreation to reduce impacts to shoreline habitats and minimize disturbance to wildlife.
- Educate the public about maintaining sensitive habitat for wildlife.
- Support prevention of human-caused fire through enforcement of appropriate fire use regulations and education.
- Design recreation site management plans and policies that minimize impacts to wildlife and habitats.
- Increase enforcement for laws governing recreational activities.

Stressor: Urban growth Medium

- Renovate aquatic systems to remove undesirable species.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Create and maintain habitat improvement features for aquatic species.
- Promote establishment and protection of green belts and other preserves including terrestrial and aquatic corridors.
- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).
- Identify key conservation areas to protect from development.
- Acquire land or conservation easements to protect key conservation areas.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Category: Non-consumptive resource use **Priority**

Stressor: Dispersed camping Medium

- Increase public awareness of responsible camping practices (low impact camping).
- Increase enforcement for laws governing recreational activities.

Stressor: Motorized recreation off-trail Medium

- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Prevent or minimize recreational impacts in sensitive habitats.
- Increase public awareness of responsible OHV use and laws.
- Increase enforcement for laws governing recreational activities.

Category: Pollution

Priority

Stressor: Lead shot/fishing line

High

- Increase public awareness on the effects of improper disposal of fishing line.
- Encourage cooperative clean up efforts of aquatic and terrestrial wildlife habitats through existing and new programs.
- Provide more wildlife proof waste receptacles in areas of public recreation.

Stressor: Sediment/ash flows

High

- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Revegetate disturbed areas with native plants.
- Work with land managers to reduce or prevent high sedimentation of aquatic systems where appropriate.
- Protect and restore riparian areas.
- Work with land managers to develop and implement management plans that incorporate wildlife values.

Category: Transportation and infrastructure

Priority

Stressor: Power lines/wind-harnessing turbines

Medium

- Assess and implement current recommendations for power lines/wind-harnessing turbines/telephone lines/cell phone towers/radio towers to minimize impacts to wildlife.
- Develop guidelines for location and design of new infrastructure installations to minimize effects on wildlife and habitats.
- Encourage use of underground power and telephone lines where feasible.

Species

Scores

Black-billed Magpie

Community/Focal: 2

Pica hudsonia

Responsibility: 3

Tier 1b bird

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

Stressor: Water diversion/water catchments

Medium

- Promote water conservation methods.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Remove artificial stream barriers where appropriate.
- Protect sensitive habitats from excessive grazing.
- Prevent or minimize recreational impacts in sensitive habitats.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

Category: Changes in Ecological Processes	Priority
Stressor: Habitat fragmentation/barriers	Medium
- Remove or modify unnecessary or inoperative dams or diversions.	
Stressor: Unnatural fire regimes	High
- Use integrated management activities in concert to address nuisance plants.	
- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.	
Category: Climate Change	Priority
Stressor: Drought	High
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).	
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.	
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.	
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.	
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.	
- Promote water conservation methods.	
Stressor: Shift to warmer climate	High
- Develop plans to conserve priority conservation species (Focal Community, Responsibility, and Vulnerability categories) that are not sufficiently addressed under existing plans.	
Category: Consumptive use of biological resources	Priority
Stressor: Harvesting/collecting animals	Medium
- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.	
Category: Habitat conversion	Priority
Stressor: Forest and woodland management - habitat conversion	High
- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.	
- Use integrated management activities in concert to address nuisance plants.	
Stressor: Livestock management	High
- Protect and restore riparian areas.	
- Use integrated management activities in concert to address nuisance plants.	
- Protect sensitive habitats from excessive grazing.	
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.	
Stressor: Rural development	Medium
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.	
- Renovate aquatic systems to remove undesirable species.	
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.	
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).	
Category: Invasive species	Priority

- Stressor:** Nuisance plants Medium
- Revegetate disturbed areas with native plants.
 - Limit extent and level of disturbance that promotes invasion and spread of nuisance plants.
 - Adopt national standards and efforts to reduce and control nuisance species.
 - Use integrated management activities in concert to address nuisance plants.

Species

American Three-toed Woodpecker
Picoides dorsalis
Tier 1b bird

Scores
Community/Focal: 2
Responsibility: 3

Category: Climate Change

Priority

Stressor: Drought

Medium

- Manage upland watersheds to retain vegetation as a buffer against drought effects.

Stressor: Shift to warmer climate

High

- Develop plans to conserve priority conservation species (Focal Community, Responsibility, and Vulnerability categories) that are not sufficiently addressed under existing plans.

Category: Consumptive use of biological resources

Priority

Stressor: Forest and woodland management - consumptive use

High

- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.

Category: Habitat conversion

Priority

Stressor: Forest and woodland management - habitat conversion

High

- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.

- Encourage revegetation and restoration of existing unauthorized roads and trails.

Species

Pine Grosbeak
Pinicola enucleator
Tier 1b bird

Scores
Community/Focal: 2
Responsibility: 3

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

Medium

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

Category: Changes in Ecological Processes

Priority

Stressor: Insect Infestation

Medium

- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.

Stressor: Unnatural fire regimes

High

- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.

Category: Climate Change

Priority

Stressor: Drought

High

- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Manage upland watersheds to retain vegetation as a buffer against drought effects.

Stressor: Shift to warmer climate High

- Develop plans to conserve priority conservation species (Focal Community, Responsibility, and Vulnerability categories) that are not sufficiently addressed under existing plans.

Category: Consumptive use of biological resources Priority

Stressor: Forest and woodland management - consumptive use High

- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.

Stressor: Grazing by ungulates High

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Disseminate information to partners on effects of grazing on resources.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Protect sensitive habitats from excessive grazing.

Category: Habitat conversion Priority

Stressor: Forest and woodland management - habitat conversion Medium

- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.

Species

Black-capped Gnatcatcher
Polioptila nigriceps
Tier 1b bird

Scores
Community/Focal: 2
Responsibility: 3

Category: Abiotic resource use Priority

Stressor: Groundwater depletion and springhead use Medium

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

Category: Border issues Priority

Stressor: Altered fire regime as a result of border activities Medium

- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.
- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.

Category: Changes in Ecological Processes **Priority**
Stressor: Unnatural fire regimes **Medium**
- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.
- Use integrated management activities in concert to address nuisance plants.

Category: Climate Change **Priority**
Stressor: Drought **Medium**
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

Species **Scores**
Western Purple Martin Community/Focal: 1
Progne subis arboricola Responsibility: 3
Tier 1b bird

Category: Changes in Ecological Processes **Priority**
Stressor: Insect Infestation **Medium**
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.
Stressor: Unnatural fire regimes **High**
- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.

Category: Consumptive use of biological resources **Priority**
Stressor: Grazing by ungulates **High**
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect sensitive habitats from excessive grazing.
- Work with land managers to develop and implement management plans that incorporate wildlife values.

Category: Habitat conversion **Priority**
Stressor: Forest and woodland management - habitat conversion **Medium**
- Encourage revegetation and restoration of existing unauthorized roads and trails.

Stressor: Livestock management **Medium**
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Stressor: Rural development **Medium**
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Identify key conservation areas to protect from development.

Stressor: Urban growth **Medium**
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Species

Yuma Clapper Rail

Rallus longirostris yumanensis

Tier 1a bird

Scores

Community/Focal: 2

Responsibility: 1

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

Medium

- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

- Encourage low water use agriculture.

- Promote water conservation methods in growth planning to develop sustainable water use.

Stressor: Water diversion/water catchments

Medium

- Prevent or minimize recreational impacts in sensitive habitats.

- Remove artificial stream barriers where appropriate.

- Protect sensitive habitats from excessive grazing.

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.

Category: Border issues

Priority

Stressor: Altered fire regime as a result of border activities

Medium

- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.

- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

- Use controlled burning to limit and reduce fuel loads and shrub invasion.

- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.

Stressor: Light pollution along the border

Medium

- Design lighting projects along the borderlands that minimize disturbance to wildlife, but meet the needs for homeland security.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

Medium

- Work with land managers to develop and implement management plans that incorporate wildlife values.

- Protect sensitive habitats from excessive grazing.

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

- Develop off-channel wetlands and backwaters along rivers to increase wildlife habitat.

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

- Protect and restore springheads.

Stressor: Habitat fragmentation/barriers

Medium

- Acquire land to protect important habitat and wildlife corridors.

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Stressor: Soil erosion

Medium

- Implement watershed based approaches aimed at preventing excessive soil erosion.
- Protect and restore riparian areas.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Revegetate disturbed areas with native plants.
- Install streambank stabilization structures or habitat features to reduce erosion and loss of sediment.

Stressor: Streambank alteration/channelization

Medium

- Protect sensitive habitats from excessive grazing.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect and restore riparian areas.
- Prevent or minimize recreational impacts in sensitive habitats.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Work with other agencies to employ new techniques in lieu of traditional stream bank armoring and flood control measures.

Stressor: Unnatural fire regimes

High

- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.

Category: Climate Change

Priority

Stressor: Drought

High

- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Encourage development of water recycling systems/programs (effluent, storm water run-off) to increase the amount of water available to wildlife.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Encourage the utilization of low water use [and native] plants in landscaping.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

Category: Habitat conversion

Priority

Stressor: Dams/reservoirs/impoundments

High

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

- Develop off-channel wetlands and backwaters along rivers to increase wildlife habitat.

Stressor: Livestock management Medium

- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.

- Protect sensitive habitats from excessive grazing.

- Protect and restore riparian areas.

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Stressor: Rural development Medium

- Protect and restore riparian areas.

- Renovate aquatic systems to remove undesirable species.

- Acquire land or conservation easements to protect key conservation areas.

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

Stressor: Urban growth Medium

- Promote legislation to increase water conservation.

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

- Create and maintain habitat improvement features for aquatic species.

- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

- Protect and restore riparian areas.

- Renovate aquatic systems to remove undesirable species.

Category: Invasive species **Priority**

Stressor: Nuisance plants Medium

- Limit extent and level of disturbance that promotes invasion and spread of nuisance plants.

- Adopt national standards and efforts to reduce and control nuisance species.

Category: Non-consumptive resource use **Priority**

Stressor: Motorized recreation off-trail Medium

- Increase public awareness of responsible OHV use and laws.

- Encourage revegetation and restoration of existing unauthorized roads and trails.

- Prevent or minimize recreational impacts in sensitive habitats.

- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.

- Increase enforcement for laws governing recreational activities.

Category: Pollution

Priority

Stressor: Contaminants from waste water and runoff

Medium

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.

Stressor: Heavy metals/mine tailings

High

- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.
- Support alternative energy and recycling efforts to reduce toxic by-products and wastes from traditional fuels and mineral extraction.

Stressor: Pesticides/herbicides

High

- Increase public awareness on alternative methods to using fertilizers, pesticides, and other contaminants.
- Use appropriate concentrations and types of pesticides, herbicides, or alternatives to control undesirable species, especially near sensitive habitat and watercourses.
- Promote organic agriculture and gardening practices that do not rely on chemical treatments.

Species

Scores

Thick-billed Parrot

Community/Focal: 2

Rhynchopsitta pachyrhyncha

Responsibility: 1

Tier 1b bird

Category: Border issues

Priority

Stressor: Altered fire regime as a result of border activities

High

- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Category: Changes in Ecological Processes

Priority

Stressor: Insect Infestation

Medium

- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.

Stressor: Unnatural fire regimes

High

- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Manage upland watersheds to retain vegetation as a buffer against drought effects.

Species

Scores

Azure Bluebird

Community/Focal: 2

Sialia sialis fulva

Responsibility: 3

Tier 1b bird

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

- Promote water conservation methods in growth planning to develop sustainable water use.

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Border issues

Priority

Stressor: Altered fire regime as a result of border activities

High

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

- Use controlled burning to limit and reduce fuel loads and shrub invasion.

- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.

- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.

Category: Changes in Ecological Processes

Priority

Stressor: Unnatural fire regimes

High

- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.

- Use controlled burning to limit and reduce fuel loads and shrub invasion.

- Use integrated management activities in concert to address nuisance plants.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

- Manage upland watersheds to retain vegetation as a buffer against drought effects.

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

Category: Consumptive use of biological resources

Priority

Stressor: Forest and woodland management - consumptive use

High

- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.

Category: Habitat conversion

Priority

Stressor: Forest and woodland management - habitat conversion

High

- Use integrated management activities in concert to address nuisance plants.

- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.

Stressor: Livestock management

Medium

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

- Protect sensitive habitats from excessive grazing.

- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.

- Work cooperatively with landowners/permittees by providing financial and technical

assistance (thru incentive programs) to conservation projects.

Stressor: Rural development

Medium

- Acquire land or conservation easements to protect key conservation areas.
- Renovate aquatic systems to remove undesirable species.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Species

Red-naped Sapsucker

Sphyrapicus nuchalis

Tier 1b bird

Scores

Community/Focal: 1

Responsibility: 3

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

Medium

- Promote water conservation methods in growth planning to develop sustainable water use.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Changes in Ecological Processes

Priority

Stressor: Unnatural fire regimes

High

- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

Category: Consumptive use of biological resources

Priority

Stressor: Forest and woodland management - consumptive use

Medium

- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.

Stressor: Grazing by ungulates

High

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Category: Habitat conversion

Priority

Stressor: Forest and woodland management - habitat conversion

High

- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.

Stressor: Livestock management

High

- Protect sensitive habitats from excessive grazing.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Stressor: Rural development Medium

- Renovate aquatic systems to remove undesirable species.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Stressor: Urban growth Medium

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Species

Mexican Spotted Owl

Strix occidentalis lucida

Tier 1a bird

Scores

Community/Focal: 2

Responsibility: 2

Category: Abiotic resource use **Priority**

Stressor: Groundwater depletion and springhead use Medium

- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Promote water conservation methods in growth planning to develop sustainable water use.

Category: Border issues **Priority**

Stressor: Altered fire regime as a result of border activities High

- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Category: Changes in Ecological Processes **Priority**

Stressor: Insect Infestation High

- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.

Stressor: Unnatural fire regimes High

- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.

Category: Climate Change **Priority**

Stressor: Drought High

- Manage upland watersheds to retain vegetation as a buffer against drought effects.
Stressor: Shift to warmer climate High
- Develop plans to conserve priority conservation species (Focal Community, Responsibility, and Vulnerability categories) that are not sufficiently addressed under existing plans.
Category: Consumptive use of biological resources **Priority**
- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.
Stressor: Forest and woodland management - consumptive use High
- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.
Stressor: Grazing by ungulates Medium
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect sensitive habitats from excessive grazing.
Category: Habitat conversion **Priority**
- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.
Stressor: Forest and woodland management - habitat conversion High
- Encourage revegetation and restoration of existing unauthorized roads and trails.
Stressor: Livestock management Medium
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
Stressor: Recreational sites/facilities Medium
- Educate the public about maintaining sensitive habitat for wildlife.
- Design recreation site management plans and policies that minimize impacts to wildlife and habitats.
- Support prevention of human-caused fire through enforcement of appropriate fire use regulations and education.
- Increase enforcement for laws governing recreational activities.
Stressor: Rural development Medium
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
Stressor: Urban growth Medium
- Create and maintain habitat improvement features for aquatic species.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
Category: Non-consumptive resource use **Priority**
- Increase enforcement for laws governing recreational activities.
Stressor: Motorized recreation off-trail Medium
- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Prevent or minimize recreational impacts in sensitive habitats.
- Increase public awareness of responsible OHV use and laws.

Species

Scores

Elegant Trogon <i>Trogon elegans</i> Tier 1b bird	Community/Focal: 2 Responsibility: 3
Category: Abiotic resource use	Priority
Stressor: Groundwater depletion and springhead use	High
<ul style="list-style-type: none">- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.- Promote water conservation methods in growth planning to develop sustainable water use.- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.	
Category: Border issues	Priority
Stressor: Altered fire regime as a result of border activities	High
<ul style="list-style-type: none">- Use controlled burning to limit and reduce fuel loads and shrub invasion.- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.	
Stressor: Dispersed camping along the border	High
<ul style="list-style-type: none">- Use fencing and/or increased law enforcement presence to reduce unauthorized use and access to sensitive habitats.- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.	
Category: Changes in Ecological Processes	Priority
Stressor: Altered river flow regimes	Medium
<ul style="list-style-type: none">- Protect sensitive habitats from excessive grazing.- Protect and restore springheads.- Work with land managers to develop and implement management plans that incorporate wildlife values.	
Stressor: Streambank alteration/channelization	Medium
<ul style="list-style-type: none">- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.	
Stressor: Unnatural fire regimes	High
<ul style="list-style-type: none">- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.- Use controlled burning to limit and reduce fuel loads and shrub invasion.	
Category: Climate Change	Priority
Stressor: Drought	High
<ul style="list-style-type: none">- Manage upland watersheds to retain vegetation as a buffer against drought effects.- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.	
Category: Habitat conversion	Priority
Stressor: Forest and woodland management - habitat conversion	High

- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.

Stressor: Livestock management Medium

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect sensitive habitats from excessive grazing.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.

Stressor: Recreational sites/facilities Medium

- Support prevention of human-caused fire through enforcement of appropriate fire use regulations and education.
- Manage watercraft recreation to reduce impacts to shoreline habitats and minimize disturbance to wildlife.
- Increase enforcement for laws governing recreational activities.
- Design recreation site management plans and policies that minimize impacts to wildlife and habitats.
- Educate the public about maintaining sensitive habitat for wildlife.

Category: Non-consumptive resource use Priority

Stressor: Motorized recreation off-trail Medium

- Increase public awareness of responsible OHV use and laws.
- Increase enforcement for laws governing recreational activities.
- Prevent or minimize recreational impacts in sensitive habitats.
- Encourage revegetation and restoration of existing unauthorized roads and trails.

Category: Pollution Priority

Stressor: Sediment/ash flows Medium

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Work with land managers to reduce or prevent high sedimentation of aquatic systems where appropriate.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Protect and restore riparian areas.

Category: Transportation and infrastructure Priority

Stressor: Trails for foot, bike, or equine use High

- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Clearly mark designated roads and trails for recreational users.
- Prevent or minimize recreational impacts in sensitive habitats.

Species

Thick-billed Kingbird

Tyrannus crassirostris

Tier 1b bird

Category: Abiotic resource use

Stressor: Groundwater depletion and springhead use

- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Encourage low water use agriculture.

Scores

Community/Focal: 2

Responsibility: 3

Priority

High

- Promote water conservation methods in growth planning to develop sustainable water use.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Stressor: Water diversion/water catchments Medium

- Promote water conservation methods.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Protect sensitive habitats from excessive grazing.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Prevent or minimize recreational impacts in sensitive habitats.
- Remove artificial stream barriers where appropriate.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

Category: Border issues **Priority**
Stressor: Altered fire regime as a result of border activities High

- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.
- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.

Category: Changes in Ecological Processes **Priority**
Stressor: Altered river flow regimes High

- Protect sensitive habitats from excessive grazing.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect and restore springheads.

Stressor: Soil erosion High

- Protect and restore riparian areas.
- Install streambank stabilization structures or habitat features to reduce erosion and loss of sediment.
- Revegetate disturbed areas with native plants.
- Implement watershed based approaches aimed at preventing excessive soil erosion.

Stressor: Streambank alteration/channelization High

- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Protect sensitive habitats from excessive grazing.
- Prevent or minimize recreational impacts in sensitive habitats.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife

and riparian habitat.

- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Protect and restore riparian areas.

Stressor: Unnatural fire regimes High

- Use integrated management activities in concert to address nuisance plants.
- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.

Category: Climate Change Priority

Stressor: Drought High

- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods.

Category: Habitat conversion Priority

Stressor: Forest and woodland management - habitat conversion High

- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.
- Use integrated management activities in concert to address nuisance plants.

Stressor: Livestock management High

- Protect and restore riparian areas.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Revegetate disturbed areas with native plants.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Protect sensitive habitats from excessive grazing.
- Use integrated management activities in concert to address nuisance plants.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Stressor: Rural development Medium

- Promote establishment and protection of green belts and other preserves including terrestrial and aquatic corridors.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Renovate aquatic systems to remove undesirable species.
- Promote legislation to increase water conservation.

- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Identify key conservation areas to protect from development.

Category: Invasive species

Priority

Stressor: Nuisance plants

Medium

- Adopt national standards and efforts to reduce and control nuisance species.
- Use integrated management activities in concert to address nuisance plants.
- Limit extent and level of disturbance that promotes invasion and spread of nuisance plants.
- Revegetate disturbed areas with native plants.

Category: Non-consumptive resource use

Priority

Stressor: Dispersed camping

Medium

- Increase public awareness of responsible camping practices (low impact camping).
- Increase enforcement for laws governing recreational activities.

Stressor: Motorized recreation off-trail

High

- Increase enforcement for laws governing recreational activities.
- Prevent or minimize recreational impacts in sensitive habitats.
- Increase public awareness of responsible OHV use and laws.
- Encourage revegetation and restoration of existing unauthorized roads and trails.

Stressor: Non-motorized recreation off-trail

Medium

- Prevent or minimize recreational impacts in sensitive habitats.

Category: Pollution

Priority

Stressor: Sediment/ash flows

Medium

- Work with land managers to reduce or prevent high sedimentation of aquatic systems where appropriate.
- Protect and restore riparian areas.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Revegetate disturbed areas with native plants.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.

Species

Tropical Kingbird

Tyrannus melancholicus

Tier 1b bird

Scores

Community/Focal: 2

Responsibility: 3

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Encourage gray water use.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Increase public awareness on the importance of conserving groundwater and springs for

the benefit of wildlife.

- Encourage low water use agriculture.

Stressor: Water diversion/water catchments Medium

- Promote water conservation methods.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Prevent or minimize recreational impacts in sensitive habitats.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Protect sensitive habitats from excessive grazing.
- Remove artificial stream barriers where appropriate.

Category: Border issues **Priority**

Stressor: Altered fire regime as a result of border activities High

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.
- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.

Stressor: Dispersed camping along the border High

- Use fencing and/or increased law enforcement presence to reduce unauthorized use and access to sensitive habitats.
- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Category: Changes in Ecological Processes **Priority**

Stressor: Altered river flow regimes Medium

- Protect sensitive habitats from excessive grazing.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect and restore springheads.
- Work with land managers to develop and implement management plans that incorporate wildlife values.

Stressor: Soil erosion High

- Implement watershed based approaches aimed at preventing excessive soil erosion.
- Protect and restore riparian areas.

Stressor: Streambank alteration/channelization High

- Protect sensitive habitats from excessive grazing.
- Promote water conservation methods.
- Protect and restore riparian areas.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.
- Prevent or minimize recreational impacts in sensitive habitats.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

Stressor: Unnatural fire regimes High

- Reduce salt cedar and exotic grasses to improve recolonization of native vegetation.
- Incorporate wildlife values in the design of road and trail networks in and around natural areas.
- Use integrated management activities in concert to address nuisance plants.

Category: Climate Change **Priority**

Stressor: Drought Medium

- Promote water conservation methods.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.

Category: Habitat conversion **Priority**

Stressor: Forest and woodland management - habitat conversion Medium

- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.
- Use integrated management activities in concert to address nuisance plants.

Stressor: Livestock management High

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Protect and restore riparian areas.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Use integrated management activities in concert to address nuisance plants.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect sensitive habitats from excessive grazing.

Stressor: Rural development Medium

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Promote legislation to increase water conservation.
- Protect and restore riparian areas.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Acquire land or conservation easements to protect key conservation areas.
- Renovate aquatic systems to remove undesirable species.

Category: Invasive species

Priority

Stressor: Nuisance plants

High

- Use integrated management activities in concert to address nuisance plants.
- Revegetate disturbed areas with native plants.
- Limit extent and level of disturbance that promotes invasion and spread of nuisance plants.
- Adopt national standards and efforts to reduce and control nuisance species.

Category: Non-consumptive resource use

Priority

Stressor: Dispersed camping

Medium

- Increase enforcement for laws governing recreational activities.
- Increase public awareness of responsible camping practices (low impact camping).
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..

Stressor: Motorized recreation off-trail

High

- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Prevent or minimize recreational impacts in sensitive habitats.
- Increase enforcement for laws governing recreational activities.
- Increase public awareness of responsible OHV use and laws.

Stressor: Non-motorized recreation off-trail

Medium

- Prevent or minimize recreational impacts in sensitive habitats.

Category: Pollution

Priority

Stressor: Sediment/ash flows

Medium

- Protect and restore riparian areas.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Revegetate disturbed areas with native plants.

FISH

Species

Longfin Dace

Agosia chrysogaster

Tier 1b fish

Category: Abiotic resource use

Scores

Community/Focal: 2

Responsibility: 1

Stressor: Mining

Priority

Medium

- Revegetate disturbed areas with native plants.

- Incorporate wildlife values in planning and locations for new mines, associated structures, and leach fields.

Stressor: Water diversion/water catchments High

- Remove artificial stream barriers where appropriate.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Promote water conservation methods.
- Promote water conservation methods in growth planning to develop sustainable water use.

Category: Changes in Ecological Processes **Priority**

Stressor: Altered river flow regimes Medium

- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Survey for areas of suitable habitat for reestablishment of species.
- Protect and restore springheads.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Stressor: Habitat fragmentation/barriers Medium

- Survey for areas of suitable habitat for reestablishment of species.
- Protect and restore riparian areas.
- Remove artificial stream barriers where appropriate.

Stressor: Soil erosion Medium

- Train resource managers, developers, and private landowners in ways to minimize soil erosion and improve habitat.
- Survey for areas of suitable habitat for reestablishment of species.
- Install streambank stabilization structures or habitat features to reduce erosion and loss of sediment.
- Implement watershed based approaches aimed at preventing excessive soil erosion.
- Protect and restore riparian areas.

Stressor: Streambank alteration/channelization Medium

- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Survey for areas of suitable habitat for reestablishment of species.
- Protect and restore riparian areas.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Promote water conservation methods.
- Survey for areas of suitable habitat for reestablishment of species.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Encourage development of water use plans that protect instream flow.
- Encourage development of water recycling systems/programs (effluent, storm water run-off) to increase the amount of water available to wildlife.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Category: Consumptive use of biological resources

Priority

Stressor: Grazing by ungulates

Medium

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Disseminate information to partners on effects of grazing on resources.

Category: Habitat conversion

Priority

Stressor: Dams/reservoirs/impoundments

Medium

- Create and maintain habitat improvement features for aquatic species.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Remove or modify unnecessary or inoperative dams or diversions.

Stressor: Livestock management

Medium

- Protect and restore riparian areas.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Category: Invasive species

Priority

Stressor: Nuisance animals

High

- Survey for areas of suitable habitat for reestablishment of species.
- Use integrated management activities in concert to address nuisance plants.
- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Identify watersheds and other conservation areas to prioritize renovation activities.

- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

Category: Pollution

Priority

Stressor: Contaminants from waste water and runoff

Medium

- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Ensure new and existing landfills are properly lined and sealed from contaminating surrounding habitat and water sources.

Species

Scores

Mexican Stoneroller

Community/Focal: 1

Campostoma ornatum

Responsibility: 1

Tier 1b fish

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Protect and restore springheads.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Encourage gray water use.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Encourage wise management of ground water.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

Stressor: Water diversion/water catchments

High

- Remove artificial stream barriers where appropriate.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Promote water conservation methods.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

Medium

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Survey for areas of suitable habitat for reestablishment of species.
- Protect and restore springheads.

- Work with land managers to develop and implement management plans that incorporate wildlife values.

Stressor: Streambank alteration/channelization **Medium**

- Survey for areas of suitable habitat for reestablishment of species.
- Protect and restore riparian areas.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Climate Change **Priority**
Stressor: Drought **Medium**

- Encourage the utilization of low water use [and native] plants in landscaping.
- Encourage development of water recycling systems/programs (effluent, storm water run-off) to increase the amount of water available to wildlife.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Encourage development of water use plans that protect instream flow.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Survey for areas of suitable habitat for reestablishment of species.

Category: Habitat conversion **Priority**
Stressor: Dams/reservoirs/impoundments **High**

- Survey for areas of suitable habitat for reestablishment of species.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Remove or modify unnecessary or inoperative dams or diversions.
- Create and maintain habitat improvement features for aquatic species.

Category: Invasive species **Priority**
Stressor: Nuisance animals **High**

- Identify watersheds and other conservation areas to prioritize renovation activities.

- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Survey for areas of suitable habitat for reestablishment of species.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Use integrated management activities in concert to address nuisance plants.

Species

Yaqui Sucker
Catostomus berrardini
Tier 1b fish

Scores

Community/Focal: 1
Responsibility: 3

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Encourage gray water use.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Encourage wise management of ground water.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Protect and restore springheads.

Stressor: Water diversion/water catchments

High

- Promote water conservation methods.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Remove artificial stream barriers where appropriate.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Promote water conservation methods in growth planning to develop sustainable water use.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

Medium

- Protect and restore springheads.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Survey for areas of suitable habitat for reestablishment of species.
- Work with land managers to develop and implement management plans that incorporate wildlife values.

Stressor: Streambank alteration/channelization

Medium

- Promote water conservation methods.

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Survey for areas of suitable habitat for reestablishment of species.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect and restore riparian areas.
- Promote water conservation methods in growth planning to develop sustainable water use.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Promote water conservation methods in growth planning to develop sustainable water use.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Survey for areas of suitable habitat for reestablishment of species.
- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Encourage development of water use plans that protect instream flow.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Category: Habitat conversion

Priority

Stressor: Dams/reservoirs/impoundments

High

- Remove or modify unnecessary or inoperative dams or diversions.
- Survey for areas of suitable habitat for reestablishment of species.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Create and maintain habitat improvement features for aquatic species.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Category: Invasive species

Priority

Stressor: Nuisance animals

High

- Identify watersheds and other conservation areas to prioritize renovation activities.
- Use integrated management activities in concert to address nuisance plants.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Survey for areas of suitable habitat for reestablishment of species.

Species

Desert Sucker
Catostomus clarki

Scores

Community/Focal: 1
Responsibility: 1

Tier 1b fish

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

Medium

- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Encourage wise management of ground water.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Encourage gray water use.
- Encourage low water use agriculture.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Protect and restore springheads.

Stressor: Mining

Medium

- Increase public awareness of wildlife impacts and benefits of mining operations.
- Incorporate wildlife values in planning and locations for new mines, associated structures, and leach fields.

Stressor: Water diversion/water catchments

High

- Promote water conservation methods.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Remove artificial stream barriers where appropriate.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

High

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Survey for areas of suitable habitat for reestablishment of species.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Remove or modify unnecessary or inoperative dams or diversions.
- Protect and restore springheads.

Stressor: Habitat fragmentation/barriers

Medium

- Remove or modify unnecessary or inoperative dams or diversions.
- Remove artificial stream barriers where appropriate.

- Protect and restore riparian areas.
- Survey for areas of suitable habitat for reestablishment of species.

Stressor: Soil erosion

Medium

- Protect and restore riparian areas.
- Survey for areas of suitable habitat for reestablishment of species.
- Install streambank stabilization structures or habitat features to reduce erosion and loss of sediment.
- Implement watershed based approaches aimed at preventing excessive soil erosion.
- Train resource managers, developers, and private landowners in ways to minimize soil erosion and improve habitat.

Stressor: Streambank alteration/channelization

Medium

- Promote water conservation methods.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect and restore riparian areas.
- Survey for areas of suitable habitat for reestablishment of species.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Survey for areas of suitable habitat for reestablishment of species.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Encourage development of water use plans that protect instream flow.
- Encourage development of water recycling systems/programs (effluent, storm water run-off) to increase the amount of water available to wildlife.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

Category: Consumptive use of biological resources

Priority

Stressor: Grazing by ungulates

Medium

- Protect sensitive habitats from excessive grazing.
- Disseminate information to partners on effects of grazing on resources.

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Category: Habitat conversion

Priority

Stressor: Dams/reservoirs/impoundments

High

- Survey for areas of suitable habitat for reestablishment of species.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Remove or modify unnecessary or inoperative dams or diversions.
- Create and maintain habitat improvement features for aquatic species.
- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.

Stressor: Livestock management

Medium

- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Protect and restore riparian areas.
- Protect sensitive habitats from excessive grazing.

Category: Invasive species

Priority

Stressor: Nuisance animals

High

- Use integrated management activities in concert to address nuisance plants.
- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Identify watersheds and other conservation areas to prioritize renovation activities.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Survey for areas of suitable habitat for reestablishment of species.

Category: Pollution

Priority

Stressor: Contaminants from waste water and runoff

Medium

- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Ensure new and existing landfills are properly lined and sealed from contaminating surrounding habitat and water sources.
- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Species

Bluehead Sucker

Catostomus discobolus

Tier 1a fish

Category: Abiotic resource use

Stressor: Groundwater depletion and springhead use

Scores

Community/Focal: 1

Responsibility: 3

Priority

Medium

- Encourage wise management of ground water.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Promote water conservation methods in growth planning to develop sustainable water use.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

High

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Survey for areas of suitable habitat for reestablishment of species.
- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.
- Remove or modify unnecessary or inoperative dams or diversions.

Stressor: Habitat fragmentation/barriers

High

- Remove or modify unnecessary or inoperative dams or diversions.
- Remove artificial stream barriers where appropriate.
- Survey for areas of suitable habitat for reestablishment of species.

Stressor: Management for game animals and sport fish

Medium

- Expand hatchery capabilities to propagate native species.
- Manage so as to sustain or enhance native fish and sport fish populations.
- Develop and implement integrated fisheries management plans for watersheds (for native and sport fish).
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.

Stressor: Streambank alteration/channelization

High

- Survey for areas of suitable habitat for reestablishment of species.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Protect and restore riparian areas.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Promote water conservation methods.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Encourage development of water use plans that protect instream flow.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Encourage development of water recycling systems/programs (effluent, storm water runoff) to increase the amount of water available to wildlife.
- Survey for areas of suitable habitat for reestablishment of species.

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Encourage the utilization of low water use [and native] plants in landscaping.

Category: Habitat conversion

Priority

Stressor: Dams/reservoirs/impoundments

High

- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Survey for areas of suitable habitat for reestablishment of species.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.
- Remove or modify unnecessary or inoperative dams or diversions.
- Create and maintain habitat improvement features for aquatic species.

Category: Invasive species

Priority

Stressor: Bait-bucket dumping/illegal stocking

Medium

- Increase public awareness on the impacts of releasing exotic species, pets, or livestock on wildlife.

Stressor: Disease/pathogens/parasites

Medium

- Collaborate with partners on disease/pathogen/parasite issues to protect wildlife.

Stressor: Hybridization

Medium

- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Address hybridization and replication of rare populations in watershed planning efforts.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

Stressor: Nuisance animals

High

- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Survey for areas of suitable habitat for reestablishment of species.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Identify watersheds and other conservation areas to prioritize renovation activities.
- Use integrated management activities in concert to address nuisance plants.

Species

Zuni Bluehead Sucker
Catostomus discobolus yarrowi
Tier 1a fish

Scores

Community/Focal: 1
Responsibility: 2

Category: Species Specific

Priority

Stressor: Unknown

High

- Develop research needs to assess population trends and/or habitat needs.

Species

Sonora Sucker

Catostomus insignis

Tier 1b fish

Scores

Community/Focal: 1

Responsibility: 1

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

Medium

- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Protect and restore springheads.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Encourage low water use agriculture.
- Encourage wise management of ground water.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Stressor: Water diversion/water catchments

High

- Remove artificial stream barriers where appropriate.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods in growth planning to develop sustainable water use.
- Promote water conservation methods.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

High

- Survey for areas of suitable habitat for reestablishment of species.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Protect and restore springheads.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Remove or modify unnecessary or inoperative dams or diversions.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.

Stressor: Habitat fragmentation/barriers

High

- Survey for areas of suitable habitat for reestablishment of species.

- Protect and restore riparian areas.
- Remove artificial stream barriers where appropriate.
- Remove or modify unnecessary or inoperative dams or diversions.

Stressor: Streambank alteration/channelization

High

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Protect and restore riparian areas.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Survey for areas of suitable habitat for reestablishment of species.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Encourage development of water use plans that protect instream flow.
- Encourage development of water recycling systems/programs (effluent, storm water runoff) to increase the amount of water available to wildlife.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Survey for areas of suitable habitat for reestablishment of species.
- Promote water conservation methods.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

Category: Consumptive use of biological resources

Priority

Stressor: Grazing by ungulates

Medium

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Disseminate information to partners on effects of grazing on resources.
- Protect sensitive habitats from excessive grazing.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Category: Habitat conversion

Priority

Stressor: Dams/reservoirs/impoundments

High

- Create and maintain habitat improvement features for aquatic species.
- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.
- Remove or modify unnecessary or inoperative dams or diversions.
- Survey for areas of suitable habitat for reestablishment of species.

Stressor: Livestock management Medium

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect and restore riparian areas.
- Protect sensitive habitats from excessive grazing.

Category: Invasive species **Priority**
Stressor: Nuisance animals High

- Identify watersheds and other conservation areas to prioritize renovation activities.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Survey for areas of suitable habitat for reestablishment of species.
- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Use integrated management activities in concert to address nuisance plants.

Species

Flannelmouth Sucker
Catostomus latipinnis
Tier 1a fish

Scores
Community/Focal: 1
Responsibility: 3

Category: Abiotic resource use **Priority**
Stressor: Groundwater depletion and springhead use Medium

- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Encourage wise management of ground water.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Promote water conservation methods in growth planning to develop sustainable water use.

Stressor: Mining Medium

- Increase public awareness of wildlife impacts and benefits of mining operations.
- Promote recycling to reduce contamination from landfills and new mine operations.
- Incorporate wildlife values in planning and locations for new mines, associated structures, and leach fields.

Stressor: Water diversion/water catchments High

- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Promote water conservation methods.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Remove artificial stream barriers where appropriate.

Category: Changes in Ecological Processes **Priority**

Stressor: Altered river flow regimes High

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.
- Remove or modify unnecessary or inoperative dams or diversions.
- Survey for areas of suitable habitat for reestablishment of species.

Stressor: Habitat fragmentation/barriers High

- Remove or modify unnecessary or inoperative dams or diversions.
- Survey for areas of suitable habitat for reestablishment of species.
- Protect and restore riparian areas.
- Remove artificial stream barriers where appropriate.

Stressor: Management for game animals and sport fish Medium

- Develop and implement integrated fisheries management plans for watersheds (for native and sport fish).
- Manage so as to sustain or enhance native fish and sport fish populations.
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Expand hatchery capabilities to propagate native species.

Stressor: Streambank alteration/channelization High

- Promote water conservation methods.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect and restore riparian areas.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Survey for areas of suitable habitat for reestablishment of species.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

Category: Consumptive use of biological resources Priority

Stressor: Grazing by ungulates Medium

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Disseminate information to partners on effects of grazing on resources.

Category: Habitat conversion Priority

Stressor: Dams/reservoirs/impoundments High

- Survey for areas of suitable habitat for reestablishment of species.
- Create and maintain habitat improvement features for aquatic species.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Remove or modify unnecessary or inoperative dams or diversions.

- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Stressor: Livestock management Medium

- Protect and restore riparian areas.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

- Protect sensitive habitats from excessive grazing.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Category: Invasive species **Priority**

Stressor: Bait-bucket dumping/illegal stocking Medium

- Renovate aquatic systems to remove undesirable species.
- Increase public awareness on the impacts of releasing exotic species, pets, or livestock on wildlife.

Stressor: Disease/pathogens/parasites Medium

- Collaborate with partners on disease/pathogen/parasite issues to protect wildlife.

Stressor: Hybridization Medium

- Address hybridization and replication of rare populations in watershed planning efforts.

Stressor: Nuisance animals High

- Identify watersheds and other conservation areas to prioritize renovation activities.
- Survey for areas of suitable habitat for reestablishment of species.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Use integrated management activities in concert to address nuisance plants.
- Evaluate and modify Department regulations where appropriate.

Species

Little Colorado Sucker

Catostomus sp.

Tier 1b fish

Scores

Community/Focal: 1

Responsibility: 1

Category: Abiotic resource use **Priority**

Stressor: Groundwater depletion and springhead use Medium

- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Encourage wise management of ground water.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Stressor: Water diversion/water catchments High

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Remove artificial stream barriers where appropriate.

- Promote water conservation methods in growth planning to develop sustainable water use.
- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

High

- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Remove or modify unnecessary or inoperative dams or diversions.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.

Stressor: Habitat fragmentation/barriers

High

- Remove or modify unnecessary or inoperative dams or diversions.
- Remove artificial stream barriers where appropriate.

Stressor: Management for game animals and sport fish

Medium

- Manage so as to sustain or enhance native fish and sport fish populations.
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Develop and implement integrated fisheries management plans for watersheds (for native and sport fish).

Stressor: Streambank alteration/channelization

High

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Protect and restore riparian areas.
- Promote water conservation methods.

Category: Habitat conversion

Priority

Stressor: Dams/reservoirs/impoundments

High

- Survey for areas of suitable habitat for reestablishment of species.
- Create and maintain habitat improvement features for aquatic species.
- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.
- Remove or modify unnecessary or inoperative dams or diversions.

Category: Invasive species

Priority

Stressor: Bait-bucket dumping/illegal stocking

Medium

- Increase public awareness on the impacts of releasing exotic species, pets, or livestock on

wildlife.

Stressor: Disease/pathogens/parasites High

- Collaborate with partners on disease/pathogen/parasite issues to protect wildlife.

Stressor: Hybridization High

- Address hybridization and replication of rare populations in watershed planning efforts.

Stressor: Nuisance animals High

- Identify watersheds and other conservation areas to prioritize renovation activities.
- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Use integrated management activities in concert to address nuisance plants.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

Species

Scores

Beautiful Shiner

Community/Focal: 1

Cyprinella formosa

Responsibility: 2

Tier 1a fish

Category: Abiotic resource use **Priority**

Stressor: Water diversion/water catchments High

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Remove artificial stream barriers where appropriate.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Promote water conservation methods.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.

Category: Border issues **Priority**

Stressor: Water use/contamination from illegal immigrants and drug smugglers Medium

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.
- Develop cooperative clean up efforts along the border for the benefit of wildlife.

Category: Changes in Ecological Processes **Priority**

Stressor: Soil erosion Medium

- Train resource managers, developers, and private landowners in ways to minimize soil erosion and improve habitat.
- Install streambank stabilization structures or habitat features to reduce erosion and loss of sediment.
- Implement watershed based approaches aimed at preventing excessive soil erosion.
- Protect and restore riparian areas.

Stressor: Streambank alteration/channelization Medium

- Protect and restore riparian areas.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Promote water conservation methods.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

Category: Consumptive use of biological resources

Priority

Stressor: Grazing by ungulates

Medium

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect sensitive habitats from excessive grazing.
- Disseminate information to partners on effects of grazing on resources.

Category: Habitat conversion

Priority

Stressor: Livestock management

Medium

- Protect and restore riparian areas.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect sensitive habitats from excessive grazing.

Category: Invasive species

Priority

Stressor: Hybridization

High

- Address hybridization and replication of rare populations in watershed planning efforts.

Stressor: Nuisance animals

High

- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Identify watersheds and other conservation areas to prioritize renovation activities.
- Use integrated management activities in concert to address nuisance plants.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..

Species

Quitobaquito Pupfish

Cyprinodon eremus

Tier 1a fish

Scores

Community/Focal: 1

Responsibility: 1

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Encourage gray water use.

- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

- Encourage wise management of ground water.
- Protect and restore springheads.
- Promote water conservation methods in growth planning to develop sustainable water use.

Stressor: Water diversion/water catchments **Medium**

- Remove artificial stream barriers where appropriate.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

Category: Changes in Ecological Processes **Priority**
Stressor: Altered river flow regimes **High**

- Protect and restore springheads.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Work with land managers to develop and implement management plans that incorporate wildlife values.

Category: Climate Change **Priority**
Stressor: Drought **Medium**

- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Encourage development of water recycling systems/programs (effluent, storm water run-off) to increase the amount of water available to wildlife.
- Promote water conservation methods.
- Encourage development of water use plans that protect instream flow.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

Category: Habitat conversion **Priority**
Stressor: Livestock management **Medium**

- Protect and restore riparian areas.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Protect sensitive habitats from excessive grazing.

Category: Invasive species **Priority**
Stressor: Nuisance animals **High**

- Identify watersheds and other conservation areas to prioritize renovation activities.
- Create barriers between susceptible native species and non-natives to reduce

- hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
 - Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.

Species

Desert Pupfish

Cyprinodon macularius

Tier 1a fish

Scores

Community/Focal: 1

Responsibility: 1

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Protect and restore springheads.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Stressor: Mining

Medium

- Revegetate disturbed areas with native plants.
- Promote recycling to reduce contamination from landfills and new mine operations.
- Increase public awareness of wildlife impacts and benefits of mining operations.
- Incorporate wildlife values in planning and locations for new mines, associated structures, and leach fields.

Stressor: Water diversion/water catchments

High

- Remove artificial stream barriers where appropriate.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Promote water conservation methods.
- Promote water conservation methods in growth planning to develop sustainable water use.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

High

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Develop off-channel wetlands and backwaters along rivers to increase wildlife habitat.
- Protect and restore springheads.
- Survey for areas of suitable habitat for reestablishment of species.

Stressor: Habitat fragmentation/barriers

Medium

- Remove artificial stream barriers where appropriate.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.

- Survey for areas of suitable habitat for reestablishment of species.
- Protect and restore riparian areas.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Stressor: Management for game animals and sport fish Medium

- Develop and implement integrated fisheries management plans for watersheds (for native and sport fish).
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.

Stressor: Soil erosion Medium

- Train resource managers, developers, and private landowners in ways to minimize soil erosion and improve habitat.
- Survey for areas of suitable habitat for reestablishment of species.
- Implement watershed based approaches aimed at preventing excessive soil erosion.
- Protect and restore riparian areas.

Stressor: Streambank alteration/channelization High

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Survey for areas of suitable habitat for reestablishment of species.
- Protect and restore riparian areas.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

Category: Climate Change **Priority**

Stressor: Drought Medium

- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods in growth planning to develop sustainable water use.
- Encourage development of water recycling systems/programs (effluent, storm water run-off) to increase the amount of water available to wildlife.
- Promote water conservation methods.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Survey for areas of suitable habitat for reestablishment of species.

Category: Consumptive use of biological resources **Priority**

Stressor: Grazing by ungulates High

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

- Protect sensitive habitats from excessive grazing.

Category: Habitat conversion

Priority

Stressor: Dams/reservoirs/impoundments

High

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

- Survey for areas of suitable habitat for reestablishment of species.

- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.

- Create and maintain habitat improvement features for aquatic species.

Stressor: Livestock management

High

- Protect and restore riparian areas.

Category: Invasive species

Priority

Stressor: Bait-bucket dumping/illegal stocking

Medium

- Increase public awareness on the impacts of releasing exotic species, pets, or livestock on wildlife.

- Evaluate and modify Department regulations where appropriate.

Stressor: Nuisance animals

High

- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.

- Survey for areas of suitable habitat for reestablishment of species.

- Use integrated management activities in concert to address nuisance plants.

- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.

- Identify watersheds and other conservation areas to prioritize renovation activities.

- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..

- Manage so as to sustain or enhance native fish and sport fish populations.

Category: Pollution

Priority

Stressor: Contaminants from waste water and runoff

Medium

- Ensure new and existing landfills are properly lined and sealed from contaminating surrounding habitat and water sources.

- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.

Stressor: Pesticides/herbicides

Medium

- Increase public awareness on alternative methods to using fertilizers, pesticides, and other contaminants.

- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.

Species

Humpback Chub

Scores

Community/Focal: 1

<i>Gila cypha</i>	Responsibility: 1
Tier 1a fish	
Category: Abiotic resource use	Priority
Stressor: Groundwater depletion and springhead use	Medium
<ul style="list-style-type: none">- Encourage wise management of ground water.- Promote water conservation methods in growth planning to develop sustainable water use.- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.	
Category: Changes in Ecological Processes	Priority
Stressor: Altered river flow regimes	High
<ul style="list-style-type: none">- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.- Remove or modify unnecessary or inoperative dams or diversions.- Work with land managers to develop and implement management plans that incorporate wildlife values.- Develop off-channel wetlands and backwaters along rivers to increase wildlife habitat.- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.	
Stressor: Management for game animals and sport fish	Medium
<ul style="list-style-type: none">- Develop and implement integrated fisheries management plans for watersheds (for native and sport fish).- Manage so as to sustain or enhance native fish and sport fish populations.- Expand hatchery capabilities to propagate native species.- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.	
Stressor: Streambank alteration/channelization	High
<ul style="list-style-type: none">- Promote water conservation methods.- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).- Promote water conservation methods in growth planning to develop sustainable water use.- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.- Protect and restore riparian areas.	
Category: Habitat conversion	Priority
Stressor: Dams/reservoirs/impoundments	High
<ul style="list-style-type: none">- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.- Create and maintain habitat improvement features for aquatic species.- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.- Protect instream flow or acquire water rights (through purchase, conservation agreement,	

etc.) to benefit wildlife habitat.

- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.

- Remove or modify unnecessary or inoperative dams or diversions.

- Develop off-channel wetlands and backwaters along rivers to increase wildlife habitat.

Stressor: Recreational sites/facilities Medium

- Educate the public about maintaining sensitive habitat for wildlife.

- Design recreation site management plans and policies that minimize impacts to wildlife and habitats.

Category: Invasive species **Priority**

Stressor: Disease/pathogens/parasites Medium

- Collaborate with partners on disease/pathogen/parasite issues to protect wildlife.

- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..

Stressor: Hybridization Medium

- Address hybridization and replication of rare populations in watershed planning efforts.

- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..

Stressor: Nuisance animals High

- Use integrated management activities in concert to address nuisance plants.

- Identify watersheds and other conservation areas to prioritize renovation activities.

Category: Pollution **Priority**

Stressor: Contaminants from waste water and runoff Medium

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.

- Ensure new and existing landfills are properly lined and sealed from contaminating surrounding habitat and water sources.

- Cooperate with municipalities to develop waste management plans that incorporate wildlife values.

- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.

Stressor: Pesticides/herbicides Medium

- Increase public awareness on alternative methods to using fertilizers, pesticides, and other contaminants.

Species

Sonora Chub

Gila ditaenia

Tier 1a fish

Category: Abiotic resource use

Stressor: Groundwater depletion and springhead use

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

- Encourage gray water use.

Scores

Community/Focal: 1

Responsibility: 2

Priority

High

- Encourage low water use agriculture.
- Protect and restore springheads.
- Encourage wise management of ground water.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Promote water conservation methods in growth planning to develop sustainable water use.

Stressor: Mining Medium

- Promote recycling to reduce contamination from landfills and new mine operations.
- Revegetate disturbed areas with native plants.
- Incorporate wildlife values in planning and locations for new mines, associated structures, and leach fields.

Stressor: Water diversion/water catchments High

- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Promote water conservation methods.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Remove artificial stream barriers where appropriate.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Changes in Ecological Processes **Priority**

Stressor: Altered river flow regimes Medium

- Survey for areas of suitable habitat for reestablishment of species.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Protect sensitive habitats from excessive grazing.
- Protect and restore springheads.

Stressor: Management for game animals and sport fish Medium

- Develop and implement integrated fisheries management plans for watersheds (for native and sport fish).
- Manage so as to sustain or enhance native fish and sport fish populations.
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Expand hatchery capabilities to propagate native species.

Stressor: Soil erosion Medium

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Install streambank stabilization structures or habitat features to reduce erosion and loss of

sediment.

- Implement watershed based approaches aimed at preventing excessive soil erosion.
- Implement 'Best Management Practices' when building roads or other infrastructure (dams, mines, developments, etc.).
- Survey for areas of suitable habitat for reestablishment of species.
- Train resource managers, developers, and private landowners in ways to minimize soil erosion and improve habitat.
- Protect and restore riparian areas.

Stressor: Streambank alteration/channelization Medium

- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect and restore riparian areas.
- Survey for areas of suitable habitat for reestablishment of species.

Category: Consumptive use of biological resources **Priority**

Stressor: Grazing by ungulates Medium

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Disseminate information to partners on effects of grazing on resources.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Category: Habitat conversion **Priority**

Stressor: Livestock management Medium

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect and restore riparian areas.
- Protect sensitive habitats from excessive grazing.

Stressor: Recreational sites/facilities Medium

- Manage watercraft recreation to reduce impacts to shoreline habitats and minimize disturbance to wildlife.
- Design recreation site management plans and policies that minimize impacts to wildlife and habitats.
- Educate the public about maintaining sensitive habitat for wildlife.
- Use environmentally-friendly materials, landscaping, and structure designs for recreational sites.

Category: Invasive species **Priority**

Stressor: Hybridization Medium

- Address hybridization and replication of rare populations in watershed planning efforts.
- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.

- Regulate or prohibit movement of species with high risk of hybridization with native species.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

Stressor: Nuisance animals **High**

- Survey for areas of suitable habitat for reestablishment of species.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Identify watersheds and other conservation areas to prioritize renovation activities.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Use integrated management activities in concert to address nuisance plants.

Category: Pollution **Priority**

Stressor: Contaminants from waste water and runoff **Medium**

- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.

Stressor: Pesticides/herbicides **Medium**

- Increase public awareness on alternative methods to using fertilizers, pesticides, and other contaminants.
- Identify and use pesticides and herbicides that have limited negative impact to wildlife (a wildlife-safe label).

Category: Transportation and infrastructure **Priority**

Stressor: Roads for motorized vehicles **Medium**

- Encourage wildlife friendly design for all road building.
- Encourage increased partnering and communication with transportation officials on projects that affect wildlife and their habitat.

Species

Bonytail

Gila elegans

Tier 1a fish

Scores

Community/Focal: 1

Responsibility: 1

Category: Abiotic resource use **Priority**

Stressor: Groundwater depletion and springhead use **Medium**

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Encourage wise management of ground water.

- Promote water conservation methods in growth planning to develop sustainable water use.

Stressor: Water diversion/water catchments High

- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Remove artificial stream barriers where appropriate.

Category: Changes in Ecological Processes **Priority**

Stressor: Altered river flow regimes High

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Remove or modify unnecessary or inoperative dams or diversions.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.

Stressor: Habitat fragmentation/barriers High

- Remove or modify unnecessary or inoperative dams or diversions.
- Remove artificial stream barriers where appropriate.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Stressor: Management for game animals and sport fish Medium

- Develop and implement integrated fisheries management plans for watersheds (for native and sport fish).
- Manage so as to sustain or enhance native fish and sport fish populations.
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Expand hatchery capabilities to propagate native species.

Stressor: Soil erosion Medium

- Install streambank stabilization structures or habitat features to reduce erosion and loss of sediment.
- Implement watershed based approaches aimed at preventing excessive soil erosion.
- Protect and restore riparian areas.
- Train resource managers, developers, and private landowners in ways to minimize soil erosion and improve habitat.

Stressor: Streambank alteration/channelization Medium

- Promote water conservation methods in growth planning to develop sustainable water use.

- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Protect and restore riparian areas.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Habitat conversion

Priority

Stressor: Dams/reservoirs/impoundments

High

- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.
- Create and maintain habitat improvement features for aquatic species.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Remove or modify unnecessary or inoperative dams or diversions.

Category: Invasive species

Priority

Stressor: Hybridization

High

- Address hybridization and replication of rare populations in watershed planning efforts.

Stressor: Nuisance animals

High

- Identify watersheds and other conservation areas to prioritize renovation activities.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Use integrated management activities in concert to address nuisance plants.

Category: Pollution

Priority

Stressor: Contaminants from waste water and runoff

Medium

- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.

Stressor: Pesticides/herbicides

Medium

- Increase public awareness on alternative methods to using fertilizers, pesticides, and other contaminants.

Species

Gila Chub

Gila intermedia

Tier 1a fish

Category: Abiotic resource use

Stressor: Groundwater depletion and springhead use

Scores

Community/Focal: 1

Responsibility: 1

Priority

Medium

- Encourage gray water use.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Encourage low water use agriculture.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Protect and restore springheads.
- Encourage wise management of ground water.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Stressor: Mining

Medium

- Promote recycling to reduce contamination from landfills and new mine operations.
- Increase public awareness of wildlife impacts and benefits of mining operations.
- Revegetate disturbed areas with native plants.
- Incorporate wildlife values in planning and locations for new mines, associated structures, and leach fields.

Stressor: Water diversion/water catchments

High

- Promote water conservation methods in growth planning to develop sustainable water use.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Remove artificial stream barriers where appropriate.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

High

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Remove or modify unnecessary or inoperative dams or diversions.
- Protect and restore springheads.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Survey for areas of suitable habitat for reestablishment of species.

Stressor: Habitat fragmentation/barriers

Medium

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Remove or modify unnecessary or inoperative dams or diversions.
- Remove artificial stream barriers where appropriate.
- Protect and restore riparian areas.

- Survey for areas of suitable habitat for reestablishment of species.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.

Stressor: Management for game animals and sport fish Medium

- Manage so as to sustain or enhance native fish and sport fish populations.
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Develop and implement integrated fisheries management plans for watersheds (for native and sport fish).
- Expand hatchery capabilities to propagate native species.

Stressor: Soil erosion Medium

- Protect and restore riparian areas.
- Train resource managers, developers, and private landowners in ways to minimize soil erosion and improve habitat.
- Install streambank stabilization structures or habitat features to reduce erosion and loss of sediment.
- Implement watershed based approaches aimed at preventing excessive soil erosion.

Stressor: Streambank alteration/channelization High

- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods in growth planning to develop sustainable water use.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Protect and restore riparian areas.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Survey for areas of suitable habitat for reestablishment of species.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.

Category: Consumptive use of biological resources **Priority**

Stressor: Grazing by ungulates Medium

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Disseminate information to partners on effects of grazing on resources.
- Protect sensitive habitats from excessive grazing.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Category: Habitat conversion **Priority**

Stressor: Dams/reservoirs/impoundments High

- Survey for areas of suitable habitat for reestablishment of species.
- Remove or modify unnecessary or inoperative dams or diversions.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

- Create and maintain habitat improvement features for aquatic species.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.

Stressor: Livestock management **Medium**

- Protect sensitive habitats from excessive grazing.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Protect and restore riparian areas.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Category: Invasive species **Priority**
Stressor: Nuisance animals **High**

- Survey for areas of suitable habitat for reestablishment of species.
- Identify watersheds and other conservation areas to prioritize renovation activities.
- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Use integrated management activities in concert to address nuisance plants.

Category: Pollution **Priority**
Stressor: Contaminants from waste water and runoff **Medium**

- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.
- Ensure new and existing landfills are properly lined and sealed from contaminating surrounding habitat and water sources.
- Cooperate with municipalities to develop waste management plans that incorporate wildlife values.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Species

Headwater Chub

Gila nigra

Tier 1b fish

Scores

Community/Focal: 1

Responsibility: 1

Category: Abiotic resource use **Priority**

Stressor: Groundwater depletion and springhead use **Medium**

- Encourage low water use agriculture.
- Protect and restore springheads.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Encourage wise management of ground water.

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Encourage gray water use.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

High

- Protect and restore springheads.
- Survey for areas of suitable habitat for reestablishment of species.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Remove or modify unnecessary or inoperative dams or diversions.
- Work with land managers to develop and implement management plans that incorporate wildlife values.

Stressor: Habitat fragmentation/barriers

High

- Protect and restore riparian areas.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Remove or modify unnecessary or inoperative dams or diversions.

Stressor: Management for game animals and sport fish

Medium

- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Develop and implement integrated fisheries management plans for watersheds (for native and sport fish).
- Manage so as to sustain or enhance native fish and sport fish populations.
- Expand hatchery capabilities to propagate native species.

Stressor: Streambank alteration/channelization

High

- Survey for areas of suitable habitat for reestablishment of species.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Protect and restore riparian areas.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.

Category: Habitat conversion

Priority

Stressor: Dams/reservoirs/impoundments

Medium

- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.
- Create and maintain habitat improvement features for aquatic species.

- Remove or modify unnecessary or inoperative dams or diversions.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Survey for areas of suitable habitat for reestablishment of species.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Category: Invasive species **Priority**
Stressor: Bait-bucket dumping/illegal stocking **Medium**

- Increase public awareness on the impacts of releasing exotic species, pets, or livestock on wildlife.
- Evaluate and modify Department regulations where appropriate.

Stressor: Hybridization **High**

- Address hybridization and replication of rare populations in watershed planning efforts.

Stressor: Nuisance animals **High**

- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Survey for areas of suitable habitat for reestablishment of species.
- Identify watersheds and other conservation areas to prioritize renovation activities.
- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Use integrated management activities in concert to address nuisance plants.

Species

Yaqui Chub

Gila purpurea

Tier 1a fish

Scores
Community/Focal: 1
Responsibility: 1

Category: Abiotic resource use **Priority**
Stressor: Water diversion/water catchments **High**

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods in growth planning to develop sustainable water use.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Remove artificial stream barriers where appropriate.
- Promote water conservation methods.

Category: Border issues **Priority**
Stressor: Water use/contamination from illegal immigrants and drug smugglers **Medium**

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.
- Develop cooperative clean up efforts along the border for the benefit of wildlife.

Category: Changes in Ecological Processes

Priority

Stressor: Soil erosion

High

- Train resource managers, developers, and private landowners in ways to minimize soil erosion and improve habitat.
- Implement watershed based approaches aimed at preventing excessive soil erosion.
- Protect and restore riparian areas.

Stressor: Streambank alteration/channelization

High

- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Protect and restore riparian areas.
- Survey for areas of suitable habitat for reestablishment of species.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

Category: Consumptive use of biological resources

Priority

Stressor: Grazing by ungulates

Medium

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect sensitive habitats from excessive grazing.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Disseminate information to partners on effects of grazing on resources.

Category: Habitat conversion

Priority

Stressor: Livestock management

Medium

- Protect sensitive habitats from excessive grazing.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Protect and restore riparian areas.

Category: Invasive species

Priority

Stressor: Hybridization

Medium

- Address hybridization and replication of rare populations in watershed planning efforts.

Stressor: Nuisance animals

High

- Survey for areas of suitable habitat for reestablishment of species.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Use integrated management activities in concert to address nuisance plants.
- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Identify watersheds and other conservation areas to prioritize renovation activities.

Species

Roundtail Chub

Gila robusta

Tier 1b fish

Category: Abiotic resource use

Stressor: Groundwater depletion and springhead use

- Encourage wise management of ground water.
- Encourage gray water use.
- Protect and restore springheads.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Encourage low water use agriculture.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Encourage the utilization of low water use [and native] plants in landscaping.

Stressor: Water diversion/water catchments

- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Remove artificial stream barriers where appropriate.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Promote water conservation methods.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

Category: Changes in Ecological Processes

Stressor: Altered river flow regimes

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Remove or modify unnecessary or inoperative dams or diversions.
- Survey for areas of suitable habitat for reestablishment of species.
- Protect and restore springheads.

Stressor: Habitat fragmentation/barriers

- Protect and restore riparian areas.
- Remove artificial stream barriers where appropriate.

Scores

Community/Focal: 1

Responsibility: 1

Priority

High

High

Priority

High

High

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Survey for areas of suitable habitat for reestablishment of species.
- Remove or modify unnecessary or inoperative dams or diversions.

Stressor: Management for game animals and sport fish Medium

- Expand hatchery capabilities to propagate native species.
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Develop and implement integrated fisheries management plans for watersheds (for native and sport fish).
- Manage so as to sustain or enhance native fish and sport fish populations.

Stressor: Soil erosion Medium

- Train resource managers, developers, and private landowners in ways to minimize soil erosion and improve habitat.
- Implement watershed based approaches aimed at preventing excessive soil erosion.
- Implement 'Best Management Practices' when building roads or other infrastructure (dams, mines, developments, etc.).
- Protect and restore riparian areas.
- Survey for areas of suitable habitat for reestablishment of species.
- Install streambank stabilization structures or habitat features to reduce erosion and loss of sediment.

Stressor: Streambank alteration/channelization High

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect and restore riparian areas.
- Promote water conservation methods.
- Survey for areas of suitable habitat for reestablishment of species.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

Category: Habitat conversion **Priority**

Stressor: Dams/reservoirs/impoundments High

- Remove or modify unnecessary or inoperative dams or diversions.
- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.
- Create and maintain habitat improvement features for aquatic species.
- Survey for areas of suitable habitat for reestablishment of species.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

Stressor: Livestock management **Priority**
Medium

- Protect sensitive habitats from excessive grazing.

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

- Protect and restore riparian areas.

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Category: Invasive species **Priority**

Stressor: Bait-bucket dumping/illegal stocking Medium

- Evaluate and modify Department regulations where appropriate.

- Increase public awareness on the impacts of releasing exotic species, pets, or livestock on wildlife.

Stressor: Hybridization High

- Address hybridization and replication of rare populations in watershed planning efforts.

Stressor: Nuisance animals High

- Use integrated management activities in concert to address nuisance plants.

- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.

- Survey for areas of suitable habitat for reestablishment of species.

- Identify watersheds and other conservation areas to prioritize renovation activities.

Category: Pollution **Priority**

Stressor: Contaminants from waste water and runoff Medium

- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.

- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.

- Ensure new and existing landfills are properly lined and sealed from contaminating surrounding habitat and water sources.

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.

- Cooperate with municipalities to develop waste management plans that incorporate wildlife values.

Species

Virgin Chub

Gila seminuda

Tier 1a fish

Category: Abiotic resource use

Scores

Community/Focal: 1

Responsibility: 2

Priority

Stressor: Mining Medium

- Promote recycling to reduce contamination from landfills and new mine operations.
- Revegetate disturbed areas with native plants.
- Incorporate wildlife values in planning and locations for new mines, associated structures, and leach fields.
- Increase public awareness of wildlife impacts and benefits of mining operations.

Stressor: Water diversion/water catchments High

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Remove artificial stream barriers where appropriate.
- Promote water conservation methods.

Category: Changes in Ecological Processes **Priority**

Stressor: Altered river flow regimes High

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Remove or modify unnecessary or inoperative dams or diversions.
- Protect and restore springheads.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.

Stressor: Management for game animals and sport fish Medium

- Expand hatchery capabilities to propagate native species.
- Manage so as to sustain or enhance native fish and sport fish populations.
- Develop and implement integrated fisheries management plans for watersheds (for native and sport fish).
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.

Stressor: Streambank alteration/channelization High

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

- Promote water conservation methods in growth planning to develop sustainable water use.
- Protect and restore riparian areas.
- Promote water conservation methods.

Category: Consumptive use of biological resources

Priority

Stressor: Grazing by ungulates

Medium

- Disseminate information to partners on effects of grazing on resources.
- Protect sensitive habitats from excessive grazing.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Category: Habitat conversion

Priority

Stressor: Dams/reservoirs/impoundments

High

- Survey for areas of suitable habitat for reestablishment of species.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Remove or modify unnecessary or inoperative dams or diversions.
- Create and maintain habitat improvement features for aquatic species.
- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.

Stressor: Livestock management

Medium

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Protect and restore riparian areas.
- Protect sensitive habitats from excessive grazing.

Category: Invasive species

Priority

Stressor: Bait-bucket dumping/illegal stocking

Medium

- Evaluate and modify Department regulations where appropriate.
- Increase public awareness on the impacts of releasing exotic species, pets, or livestock on wildlife.

Stressor: Nuisance animals

High

- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Identify watersheds and other conservation areas to prioritize renovation activities.
- Use integrated management activities in concert to address nuisance plants.

Species

Yaqui Catfish

Ictalurus pricei

Tier 1a fish

Scores

Community/Focal: 2

Responsibility: 2

Category: Abiotic resource use

Priority

Stressor: Water diversion/water catchments

Medium

- Remove artificial stream barriers where appropriate.

- Promote water conservation methods in growth planning to develop sustainable water use.
- Promote water conservation methods.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

Category: Border issues

Priority

Stressor: Water use/contamination from illegal immigrants and drug smugglers

Medium

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.
- Develop cooperative clean up efforts along the border for the benefit of wildlife.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

High

- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Remove or modify unnecessary or inoperative dams or diversions.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Protect and restore springheads.

Stressor: Soil erosion

Medium

- Survey for areas of suitable habitat for reestablishment of species.
- Train resource managers, developers, and private landowners in ways to minimize soil erosion and improve habitat.
- Install streambank stabilization structures or habitat features to reduce erosion and loss of sediment.
- Implement watershed based approaches aimed at preventing excessive soil erosion.
- Protect and restore riparian areas.

Stressor: Streambank alteration/channelization

High

- Survey for areas of suitable habitat for reestablishment of species.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Protect and restore riparian areas.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Promote water conservation methods.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

Category: Consumptive use of biological resources

Priority

Stressor: Grazing by ungulates

Medium

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect sensitive habitats from excessive grazing.
- Disseminate information to partners on effects of grazing on resources.

Category: Habitat conversion

Priority

Stressor: Livestock management

Medium

- Protect and restore riparian areas.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect sensitive habitats from excessive grazing.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Category: Invasive species

Priority

Stressor: Hybridization

High

- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Regulate or prohibit movement of species with high risk of hybridization with native species.
- Increase public awareness on the impacts of releasing exotic species, pets, or livestock on wildlife.
- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Address hybridization and replication of rare populations in watershed planning efforts.

Stressor: Nuisance animals

High

- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Use integrated management activities in concert to address nuisance plants.
- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

Species

Virgin Spinedace

Lepidomeda mollispinis mollispinis

Tier 1a fish

Category: Abiotic resource use

Stressor: Water diversion/water catchments

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Scores

Community/Focal: 1

Responsibility: 2

Priority

High

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Remove artificial stream barriers where appropriate.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

High

- Remove or modify unnecessary or inoperative dams or diversions.
- Protect and restore springheads.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Work with land managers to develop and implement management plans that incorporate wildlife values.

Stressor: Habitat fragmentation/barriers

High

- Remove artificial stream barriers where appropriate.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Protect and restore riparian areas.
- Remove or modify unnecessary or inoperative dams or diversions.

Stressor: Soil erosion

Medium

- Protect and restore riparian areas.
- Train resource managers, developers, and private landowners in ways to minimize soil erosion and improve habitat.
- Install streambank stabilization structures or habitat features to reduce erosion and loss of sediment.
- Implement watershed based approaches aimed at preventing excessive soil erosion.
- Implement 'Best Management Practices' when building roads or other infrastructure (dams, mines, developments, etc.).

Category: Climate Change

Priority

Stressor: Drought

Medium

- Encourage development of water recycling systems/programs (effluent, storm water run-off) to increase the amount of water available to wildlife.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods.
- Promote water conservation methods in growth planning to develop sustainable water use.

- Encourage development of water use plans that protect instream flow.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Category: Consumptive use of biological resources **Priority**
Stressor: Grazing by ungulates **Medium**

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Disseminate information to partners on effects of grazing on resources.
- Protect sensitive habitats from excessive grazing.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Category: Habitat conversion **Priority**
Stressor: Agricultural conversion **Medium**

- Protect and restore riparian areas.
- Collaborate on public outreach, education, and incentive programs to encourage erosion control techniques on private lands.
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Stressor: Dams/reservoirs/impoundments **High**

- Create and maintain habitat improvement features for aquatic species.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Remove or modify unnecessary or inoperative dams or diversions.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.

Stressor: Livestock management **Medium**

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect and restore riparian areas.
- Protect sensitive habitats from excessive grazing.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Stressor: Recreational sites/facilities **Medium**

- Increase public awareness on the impacts of releasing exotic species, pets, or livestock on wildlife.
- Design recreation site management plans and policies that minimize impacts to wildlife and

habitats.

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Educate the public about maintaining sensitive habitat for wildlife.
- Increase enforcement for laws governing recreational activities.

Stressor: Urban growth

Medium

- Renovate aquatic systems to remove undesirable species.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Create and maintain habitat improvement features for aquatic species.
- Protect and restore riparian areas.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).
- Acquire land or conservation easements to protect key conservation areas.
- Identify key conservation areas to protect from development.

Category: Invasive species

Priority

Stressor: Nuisance animals

High

- Identify watersheds and other conservation areas to prioritize renovation activities.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Use integrated management activities in concert to address nuisance plants.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..

Category: Pollution

Priority

Stressor: Pesticides/herbicides

Medium

- Use alternative means for pest control (biocontrol, genetic control, management practices).
- Increase public awareness on alternative methods to using fertilizers, pesticides, and other contaminants.

Species

Little Colorado Spinedace

Scores
Community/Focal: 1

Lepidomeda vittata

Responsibility: 1

Tier 1a fish

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

Medium

- Promote water conservation methods in growth planning to develop sustainable water use.
- Protect and restore springheads.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Encourage wise management of ground water.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Increase public awareness on the importance of conserving groundwater and springs for

the benefit of wildlife.

Stressor: Water diversion/water catchments High

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Remove artificial stream barriers where appropriate.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Promote water conservation methods.

Category: Changes in Ecological Processes Priority

Stressor: Altered river flow regimes High

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Protect and restore springheads.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Remove or modify unnecessary or inoperative dams or diversions.

Stressor: Management for game animals and sport fish Medium

- Expand hatchery capabilities to propagate native species.
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Develop and implement integrated fisheries management plans for watersheds (for native and sport fish).

Stressor: Soil erosion High

- Protect and restore riparian areas.
- Implement 'Best Management Practices' when building roads or other infrastructure (dams, mines, developments, etc.).
- Implement watershed based approaches aimed at preventing excessive soil erosion.
- Train resource managers, developers, and private landowners in ways to minimize soil erosion and improve habitat.
- Install streambank stabilization structures or habitat features to reduce erosion and loss of sediment.

Stressor: Streambank alteration/channelization High

- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Protect and restore riparian areas.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife

and riparian habitat.

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Work with other agencies to employ new techniques in lieu of traditional stream bank armoring and flood control measures.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

Stressor: Unnatural fire regimes Medium

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.

Category: Climate Change **Priority**
Stressor: Drought High

- Encourage development of water recycling systems/programs (effluent, storm water run-off) to increase the amount of water available to wildlife.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Encourage development of water use plans that protect instream flow.
- Promote water conservation methods.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Consumptive use of biological resources **Priority**
Stressor: Forest and woodland management - consumptive use Medium

Stressor: Grazing by ungulates Medium

- Protect sensitive habitats from excessive grazing.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Disseminate information to partners on effects of grazing on resources.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Category: Habitat conversion **Priority**
Stressor: Dams/reservoirs/impoundments High

- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Remove or modify unnecessary or inoperative dams or diversions.

- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Create and maintain habitat improvement features for aquatic species.

Stressor: Livestock management Medium

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect and restore riparian areas.
- Protect sensitive habitats from excessive grazing.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.

Stressor: Rural development Medium

- Protect and restore riparian areas.
- Promote establishment and protection of green belts and other preserves including terrestrial and aquatic corridors.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).
- Promote legislation to increase water conservation.
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Renovate aquatic systems to remove undesirable species.

Stressor: Urban growth Medium

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Create and maintain habitat improvement features for aquatic species.
- Identify key conservation areas to protect from development.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Protect and restore riparian areas.
- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).

- Renovate aquatic systems to remove undesirable species.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Category: Invasive species **Priority**

Stressor: Bait-bucket dumping/illegal stocking **Medium**

- Increase public awareness on the impacts of releasing exotic species, pets, or livestock on wildlife.
- Evaluate and modify Department regulations where appropriate.

Stressor: Nuisance animals **High**

- Identify watersheds and other conservation areas to prioritize renovation activities.
- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Use integrated management activities in concert to address nuisance plants.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

Category: Pollution **Priority**

Stressor: Contaminants from waste water and runoff **Medium**

- Ensure new and existing landfills are properly lined and sealed from contaminating surrounding habitat and water sources.
- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.

Stressor: Pesticides/herbicides **Medium**

- Use alternative means for pest control (biocontrol, genetic control, management practices).
- Increase public awareness on alternative methods to using fertilizers, pesticides, and other contaminants.

Category: Transportation and infrastructure **Priority**

Stressor: Roads for motorized vehicles **Medium**

- Use appropriate concentrations and types of pesticides, herbicides, or alternatives to control undesirable species, especially near sensitive habitat and watercourses.
- Encourage wildlife friendly design for all road building.
- Reduce sedimentation effects from road and trail construction.

Species

Spikedace

Meda fulgida

Tier 1a fish

Category: Abiotic resource use **Priority**

Stressor: Groundwater depletion and springhead use **Medium**

- Promote water conservation methods in growth planning to develop sustainable water use.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

Scores

Community/Focal: 1

Responsibility: 1

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Encourage wise management of ground water.
- Protect and restore springheads.

Stressor: Mining Medium

- Increase public awareness of wildlife impacts and benefits of mining operations.
- Revegetate disturbed areas with native plants.
- Incorporate wildlife values in planning and locations for new mines, associated structures, and leach fields.

Stressor: Water diversion/water catchments High

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Promote water conservation methods.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Remove artificial stream barriers where appropriate.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

Category: Changes in Ecological Processes **Priority**

Stressor: Altered river flow regimes High

- Remove or modify unnecessary or inoperative dams or diversions.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Protect and restore springheads.
- Survey for areas of suitable habitat for reestablishment of species.

Stressor: Habitat fragmentation/barriers Medium

- Remove or modify unnecessary or inoperative dams or diversions.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Survey for areas of suitable habitat for reestablishment of species.
- Protect and restore riparian areas.
- Remove artificial stream barriers where appropriate.

Stressor: Management for game animals and sport fish Medium

- Manage so as to sustain or enhance native fish and sport fish populations.
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Expand hatchery capabilities to propagate native species.
- Develop and implement integrated fisheries management plans for watersheds (for native and sport fish).

Stressor: Soil erosion Medium

- Train resource managers, developers, and private landowners in ways to minimize soil erosion and improve habitat.
- Install streambank stabilization structures or habitat features to reduce erosion and loss of sediment.
- Protect and restore riparian areas.
- Implement watershed based approaches aimed at preventing excessive soil erosion.
- Promote guidelines for timber harvesting and associated road building that positively effect wildlife.
- Implement 'Best Management Practices' when building roads or other infrastructure (dams, mines, developments, etc.).

Stressor: Streambank alteration/channelization High

- Work with other agencies to employ new techniques in lieu of traditional stream bank armoring and flood control measures.
- Protect and restore riparian areas.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Survey for areas of suitable habitat for reestablishment of species.

Category: Consumptive use of biological resources **Priority**

Stressor: Forest and woodland management - consumptive use Medium

- Encourage design of extractive operations that minimizes disturbance to wildlife.

Stressor: Grazing by ungulates Medium

- Disseminate information to partners on effects of grazing on resources.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Work with land managers to develop and implement management plans that incorporate wildlife values.

Category: Habitat conversion **Priority**

Stressor: Dams/reservoirs/impoundments High

- Remove or modify unnecessary or inoperative dams or diversions.
- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.
- Create and maintain habitat improvement features for aquatic species.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Survey for areas of suitable habitat for reestablishment of species.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.

Stressor: Livestock management Medium

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect sensitive habitats from excessive grazing.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Protect and restore riparian areas.

Category: Invasive species Priority

Stressor: Bait-bucket dumping/illegal stocking Medium

- Increase public awareness on the impacts of releasing exotic species, pets, or livestock on wildlife.
- Evaluate and modify Department regulations where appropriate.

Stressor: Nuisance animals High

- Identify watersheds and other conservation areas to prioritize renovation activities.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Use integrated management activities in concert to address nuisance plants.
- Survey for areas of suitable habitat for reestablishment of species.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

Category: Pollution Priority

Stressor: Contaminants from waste water and runoff Medium

- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.
- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Cooperate with municipalities to develop waste management plans that incorporate wildlife values.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Ensure new and existing landfills are properly lined and sealed from contaminating

surrounding habitat and water sources.

- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.

Stressor: Pesticides/herbicides Medium

- Increase public awareness on alternative methods to using fertilizers, pesticides, and other contaminants.
- Use alternative means for pest control (biocontrol, genetic control, management practices).

Species

Apache (Arizona) Trout

Oncorhynchus gilae apache

Tier 1a fish

Scores

Community/Focal: 1

Responsibility: 1

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes High

- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Survey for areas of suitable habitat for reestablishment of species.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Remove or modify unnecessary or inoperative dams or diversions.
- Protect and restore springheads.

Stressor: Habitat fragmentation/barriers Medium

- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Survey for areas of suitable habitat for reestablishment of species.
- Protect and restore riparian areas.
- Remove artificial stream barriers where appropriate.
- Remove or modify unnecessary or inoperative dams or diversions.

Stressor: Management for game animals and sport fish Medium

- Develop and implement integrated fisheries management plans for watersheds (for native and sport fish).
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Manage so as to sustain or enhance native fish and sport fish populations.
- Expand hatchery capabilities to propagate native species.

Stressor: Unnatural fire regimes High

- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Design fire management plans and wildland/urban interface policies that consider wildlife values.

- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Encourage development of water use plans that protect instream flow.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Encourage development of water recycling systems/programs (effluent, storm water run-off) to increase the amount of water available to wildlife.
- Promote water conservation methods.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Survey for areas of suitable habitat for reestablishment of species.

Category: Consumptive use of biological resources

Priority

Stressor: Forest and woodland management - consumptive use

Medium

- Encourage design of extractive operations that minimizes disturbance to wildlife.

Stressor: Grazing by ungulates

Medium

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect sensitive habitats from excessive grazing.
- Disseminate information to partners on effects of grazing on resources.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Category: Habitat conversion

Priority

Stressor: Livestock management

High

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Protect and restore riparian areas.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect sensitive habitats from excessive grazing.

Stressor: Recreational sites/facilities

Medium

- Increase public awareness on the impacts of releasing exotic species, pets, or livestock on wildlife.
- Educate the public about maintaining sensitive habitat for wildlife.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Category: Invasive species

Priority

Stressor: Bait-bucket dumping/illegal stocking

High

- Increase public awareness on the impacts of releasing exotic species, pets, or livestock on wildlife.
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.

Stressor: Disease/pathogens/parasites

Medium

- Collaborate with partners on disease/pathogen/parasite issues to protect wildlife.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..

Stressor: Hybridization

High

- Regulate or prohibit movement of species with high risk of hybridization with native species.
- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Address hybridization and replication of rare populations in watershed planning efforts.
- Increase public awareness on the impacts of releasing exotic species, pets, or livestock on wildlife.

Stressor: Nuisance animals

High

- Identify watersheds and other conservation areas to prioritize renovation activities.
- Use integrated management activities in concert to address nuisance plants.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Survey for areas of suitable habitat for reestablishment of species.
- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.

Category: Pollution

Priority

Stressor: Heavy metals/mine tailings

Medium

- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.
- Promote recycling to reduce contamination from landfills and new mine operations.

Category: Transportation and infrastructure

Priority

Stressor: Roads for motorized vehicles

Medium

- Use appropriate concentrations and types of pesticides, herbicides, or alternatives to

control undesirable species, especially near sensitive habitat and watercourses.

- Encourage wildlife friendly design for all road building.
- Reduce sedimentation effects from road and trail construction.

Species

Gila Trout

Oncorhynchus gilae gilae

Tier 1a fish

Scores

Community/Focal: 1

Responsibility: 2

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

High

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Remove or modify unnecessary or inoperative dams or diversions.
- Survey for areas of suitable habitat for reestablishment of species.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Protect and restore springheads.

Stressor: Habitat fragmentation/barriers

High

- Protect and restore riparian areas.
- Remove or modify unnecessary or inoperative dams or diversions.
- Remove artificial stream barriers where appropriate.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Stressor: Management for game animals and sport fish

Medium

- Expand hatchery capabilities to propagate native species.
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Manage so as to sustain or enhance native fish and sport fish populations.
- Develop and implement integrated fisheries management plans for watersheds (for native and sport fish).

Stressor: Soil erosion

Medium

- Promote guidelines for timber harvesting and associated road building that positively effect wildlife.
- Protect and restore riparian areas.
- Install streambank stabilization structures or habitat features to reduce erosion and loss of sediment.
- Implement watershed based approaches aimed at preventing excessive soil erosion.
- Implement 'Best Management Practices' when building roads or other infrastructure (dams, mines, developments, etc.).
- Train resource managers, developers, and private landowners in ways to minimize soil erosion and improve habitat.

Stressor: Unnatural fire regimes High

- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Design fire management plans and wildland/urban interface policies that consider wildlife values.

Category: Consumptive use of biological resources **Priority**

Stressor: Grazing by ungulates High

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Protect sensitive habitats from excessive grazing.
- Disseminate information to partners on effects of grazing on resources.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Stressor: Harvesting/collecting animals Medium

- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.
- Increase public awareness of regulations pertaining to illegal harvest.

Category: Habitat conversion **Priority**

Stressor: Forest and woodland management - habitat conversion Medium

- Encourage design of extractive operations that minimizes disturbance to wildlife.

Stressor: Livestock management High

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Protect and restore riparian areas.
- Protect sensitive habitats from excessive grazing.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Stressor: Recreational sites/facilities Medium

- Increase enforcement for laws governing recreational activities.
- Educate the public about maintaining sensitive habitat for wildlife.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Category: Invasive species **Priority**

Stressor: Bait-bucket dumping/illegal stocking High

- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.
- Evaluate and modify Department regulations where appropriate.
- Increase public awareness on the impacts of releasing exotic species, pets, or livestock on wildlife.

Stressor: Disease/pathogens/parasites Medium
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..

- Collaborate with partners on disease/pathogen/parasite issues to protect wildlife.

Stressor: Hybridization High

- Regulate or prohibit movement of species with high risk of hybridization with native species.

- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..

- Address hybridization and replication of rare populations in watershed planning efforts.

- Increase public awareness on the impacts of releasing exotic species, pets, or livestock on wildlife.

- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.

Stressor: Nuisance animals High

- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

- Identify watersheds and other conservation areas to prioritize renovation activities.

- Create barriers between susceptible native species and non-natives to reduce

hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.

- Use integrated management activities in concert to address nuisance plants.

- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..

Species

Woundfin

Plagopterus argentissimus

Tier 1a fish

Scores

Community/Focal: 1

Responsibility: 3

Category: Abiotic resource use

Priority

Stressor: Mining

Medium

- Incorporate wildlife values in planning and locations for new mines, associated structures, and leach fields.

- Increase public awareness of wildlife impacts and benefits of mining operations.

- Revegetate disturbed areas with native plants.

Stressor: Water diversion/water catchments High

- Remove artificial stream barriers where appropriate.

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

- Promote water conservation methods.

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.

- Promote water conservation methods in growth planning to develop sustainable water use.

- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

High

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Remove or modify unnecessary or inoperative dams or diversions.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Protect and restore springheads.
- Survey for areas of suitable habitat for reestablishment of species.

Stressor: Habitat fragmentation/barriers

High

- Protect and restore riparian areas.
- Remove artificial stream barriers where appropriate.
- Remove or modify unnecessary or inoperative dams or diversions.
- Survey for areas of suitable habitat for reestablishment of species.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Stressor: Management for game animals and sport fish

Medium

- Expand hatchery capabilities to propagate native species.
- Develop and implement integrated fisheries management plans for watersheds (for native and sport fish).
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.

Stressor: Streambank alteration/channelization

High

- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect and restore riparian areas.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Promote water conservation methods.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Survey for areas of suitable habitat for reestablishment of species.
- Work with other agencies to employ new techniques in lieu of traditional stream bank armoring and flood control measures.

Category: Consumptive use of biological resources

Priority

Stressor: Grazing by ungulates

Medium

- Work with land managers to develop and implement management plans that incorporate wildlife values.

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect sensitive habitats from excessive grazing.
- Disseminate information to partners on effects of grazing on resources.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Category: Habitat conversion

Priority
High

Stressor: Dams/reservoirs/impoundments

- Survey for areas of suitable habitat for reestablishment of species.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.
- Remove or modify unnecessary or inoperative dams or diversions.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Create and maintain habitat improvement features for aquatic species.

Stressor: Livestock management

Medium

- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect and restore riparian areas.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect sensitive habitats from excessive grazing.
- Acquire land or conservation easements on portions of rangeland critical to wildlife.

Category: Invasive species

Priority
Medium

Stressor: Bait-bucket dumping/illegal stocking

- Renovate aquatic systems to remove undesirable species.
- Evaluate and modify Department regulations where appropriate.
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.
- Increase public awareness on the impacts of releasing exotic species, pets, or livestock on wildlife.

Stressor: Nuisance animals

High

- Use integrated management activities in concert to address nuisance plants.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Survey for areas of suitable habitat for reestablishment of species.
- Identify watersheds and other conservation areas to prioritize renovation activities.
- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.

Species

Scores

Gila Topminnow <i>Poeciliopsis occidentalis occidentalis</i> Tier 1a fish	Community/Focal: 1 Responsibility: 2
Category: Abiotic resource use	Priority
Stressor: Groundwater depletion and springhead use	High
<ul style="list-style-type: none">- Protect and restore springheads.- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.- Encourage wise management of ground water.- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.- Encourage the utilization of low water use [and native] plants in landscaping.- Encourage gray water use.- Encourage low water use agriculture.- Promote water conservation methods in growth planning to develop sustainable water use.	
Stressor: Mining	Medium
<ul style="list-style-type: none">- Incorporate wildlife values in planning and locations for new mines, associated structures, and leach fields.- Increase public awareness of wildlife impacts and benefits of mining operations.- Revegetate disturbed areas with native plants.	
Stressor: Water diversion/water catchments	High
<ul style="list-style-type: none">- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).- Promote water conservation methods in growth planning to develop sustainable water use.- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.- Promote water conservation methods.- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.- Remove artificial stream barriers where appropriate.	
Category: Changes in Ecological Processes	Priority
Stressor: Altered river flow regimes	Medium
<ul style="list-style-type: none">- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.- Work with land managers to develop and implement management plans that incorporate wildlife values.- Protect and restore springheads.- Survey for areas of suitable habitat for reestablishment of species.- Remove or modify unnecessary or inoperative dams or diversions.- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.	

- Develop off-channel wetlands and backwaters along rivers to increase wildlife habitat.

Stressor: Habitat fragmentation/barriers Medium

- Survey for areas of suitable habitat for reestablishment of species.
- Acquire land to protect important habitat and wildlife corridors.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Protect and restore riparian areas.
- Remove artificial stream barriers where appropriate.
- Remove or modify unnecessary or inoperative dams or diversions.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Stressor: Management for game animals and sport fish Medium

- Develop and implement integrated fisheries management plans for watersheds (for native and sport fish).
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.

Stressor: Streambank alteration/channelization Medium

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Protect and restore riparian areas.
- Work with other agencies to employ new techniques in lieu of traditional stream bank armoring and flood control measures.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Survey for areas of suitable habitat for reestablishment of species.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.

Category: Climate Change **Priority**

Stressor: Drought Medium

- Survey for areas of suitable habitat for reestablishment of species.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Promote water conservation methods.
- Encourage development of water recycling systems/programs (effluent, storm water runoff) to increase the amount of water available to wildlife.

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Encourage development of water use plans that protect instream flow.

Category: Consumptive use of biological resources

Priority

Stressor: Grazing by ungulates

Medium

- Protect sensitive habitats from excessive grazing.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Disseminate information to partners on effects of grazing on resources.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Work with land managers to develop and implement management plans that incorporate wildlife values.

Category: Habitat conversion

Priority

Stressor: Dams/reservoirs/impoundments

Medium

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Develop off-channel wetlands and backwaters along rivers to increase wildlife habitat.
- Remove or modify unnecessary or inoperative dams or diversions.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Survey for areas of suitable habitat for reestablishment of species.
- Create and maintain habitat improvement features for aquatic species.

Stressor: Livestock management

Medium

- Protect sensitive habitats from excessive grazing.
- Protect and restore riparian areas.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Acquire land or conservation easements on portions of rangeland critical to wildlife.

Category: Invasive species

Priority

Stressor: Bait-bucket dumping/illegal stocking

Medium

- Evaluate and modify Department regulations where appropriate.
- Increase public awareness on the impacts of releasing exotic species, pets, or livestock on wildlife.
- Renovate aquatic systems to remove undesirable species.
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.

Stressor: Nuisance animals High

- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.
- Survey for areas of suitable habitat for reestablishment of species.
- Identify watersheds and other conservation areas to prioritize renovation activities.
- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Use integrated management activities in concert to address nuisance plants.
- Manage so as to sustain or enhance native fish and sport fish populations.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.

Category: Pollution Priority

Stressor: Contaminants from waste water and runoff Medium

- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.
- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Ensure new and existing landfills are properly lined and sealed from contaminating surrounding habitat and water sources.

Species

Yaqui Topminnow

Poeciliopsis occidentalis sonoriensis

Tier 1a fish

Scores

Community/Focal: 1

Responsibility: 1

Category: Abiotic resource use Priority

Stressor: Groundwater depletion and springhead use High

- Promote water conservation methods in growth planning to develop sustainable water use.
- Encourage wise management of ground water.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Protect and restore springheads.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Encourage low water use agriculture.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Encourage gray water use.

Stressor: Water diversion/water catchments High

- Incorporate stream morphology and wildlife habitat features in canals and flood control

drainages.

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Remove artificial stream barriers where appropriate.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Border issues

Priority

Stressor: Water use/contamination from illegal immigrants and drug smugglers

Medium

- Develop cooperative clean up efforts along the border for the benefit of wildlife.
- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Category: Changes in Ecological Processes

Priority

Stressor: Soil erosion

Medium

- Survey for areas of suitable habitat for reestablishment of species.
- Protect and restore riparian areas.
- Train resource managers, developers, and private landowners in ways to minimize soil erosion and improve habitat.
- Install streambank stabilization structures or habitat features to reduce erosion and loss of sediment.
- Implement watershed based approaches aimed at preventing excessive soil erosion.
- Implement 'Best Management Practices' when building roads or other infrastructure (dams, mines, developments, etc.).

Stressor: Streambank alteration/channelization

High

- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Protect and restore riparian areas.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Survey for areas of suitable habitat for reestablishment of species.
- Promote water conservation methods.
- Work with other agencies to employ new techniques in lieu of traditional stream bank armoring and flood control measures.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

Category: Consumptive use of biological resources

Priority

Stressor: Grazing by ungulates

Medium

- Work with land managers to develop and implement management plans that incorporate wildlife values.

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect sensitive habitats from excessive grazing.
- Disseminate information to partners on effects of grazing on resources.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Category: Habitat conversion

Priority

Stressor: Livestock management

Medium

- Protect sensitive habitats from excessive grazing.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Protect and restore riparian areas.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Category: Invasive species

Priority

Stressor: Hybridization

Medium

- Address hybridization and replication of rare populations in watershed planning efforts.
- Regulate or prohibit movement of species with high risk of hybridization with native species.

Stressor: Nuisance animals

High

- Use integrated management activities in concert to address nuisance plants.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Manage so as to sustain or enhance native fish and sport fish populations.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Survey for areas of suitable habitat for reestablishment of species.
- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Identify watersheds and other conservation areas to prioritize renovation activities.

Species

Colorado Pikeminnow

Ptychocheilus lucius

Tier 1a fish

Scores

Community/Focal: 1

Responsibility: 1

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

Medium

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Encourage wise management of ground water.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

Stressor: Water diversion/water catchments Medium

- Promote water conservation methods in growth planning to develop sustainable water use.
- Remove artificial stream barriers where appropriate.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

Category: Changes in Ecological Processes **Priority**

Stressor: Altered river flow regimes High

- Remove or modify unnecessary or inoperative dams or diversions.

Stressor: Habitat fragmentation/barriers High

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Remove or modify unnecessary or inoperative dams or diversions.
- Remove artificial stream barriers where appropriate.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.

Stressor: Management for game animals and sport fish Medium

- Develop and implement integrated fisheries management plans for watersheds (for native and sport fish).
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Manage so as to sustain or enhance native fish and sport fish populations.
- Expand hatchery capabilities to propagate native species.

Stressor: Streambank alteration/channelization Medium

- Promote water conservation methods.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Protect and restore riparian areas.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

Category: Habitat conversion **Priority**

Stressor: Dams/reservoirs/impoundments High

- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.
- Remove or modify unnecessary or inoperative dams or diversions.
- Protect instream flow or acquire water rights (through purchase, conservation agreement,

etc.) to benefit wildlife habitat.

Category: Invasive species **Priority**
Stressor: Nuisance animals **High**

- Identify watersheds and other conservation areas to prioritize renovation activities.

Category: Pollution **Priority**
Stressor: Contaminants from waste water and runoff **Medium**

- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.
- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.

Species

Speckled Dace

Rhinichthys osculus

Tier 1b fish

Scores
Community/Focal: 1
Responsibility: 1

Category: Abiotic resource use **Priority**
Stressor: Groundwater depletion and springhead use **Medium**

- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Protect and restore springheads.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Encourage low water use agriculture.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Encourage wise management of ground water.
- Encourage gray water use.

Stressor: Mining **Medium**

- Promote recycling to reduce contamination from landfills and new mine operations.
- Increase public awareness of wildlife impacts and benefits of mining operations.
- Incorporate wildlife values in planning and locations for new mines, associated structures, and leach fields.

Stressor: Water diversion/water catchments **High**

- Promote water conservation methods.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Remove artificial stream barriers where appropriate.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

High

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Remove or modify unnecessary or inoperative dams or diversions.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Survey for areas of suitable habitat for reestablishment of species.
- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.
- Protect and restore springheads.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.

Stressor: Streambank alteration/channelization

Medium

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Work with other agencies to employ new techniques in lieu of traditional stream bank armoring and flood control measures.
- Protect and restore riparian areas.
- Survey for areas of suitable habitat for reestablishment of species.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Encourage development of water use plans that protect instream flow.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods.
- Survey for areas of suitable habitat for reestablishment of species.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

Category: Consumptive use of biological resources

Priority

Stressor: Grazing by ungulates

Medium

- Protect sensitive habitats from excessive grazing.
- Disseminate information to partners on effects of grazing on resources.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Category: Habitat conversion

Priority

Stressor: Dams/reservoirs/impoundments

Medium

- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.
- Create and maintain habitat improvement features for aquatic species.
- Survey for areas of suitable habitat for reestablishment of species.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Remove or modify unnecessary or inoperative dams or diversions.

Stressor: Livestock management

Medium

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect and restore riparian areas.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Protect sensitive habitats from excessive grazing.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Category: Invasive species

Priority

Stressor: Nuisance animals

High

- Survey for areas of suitable habitat for reestablishment of species.
- Use integrated management activities in concert to address nuisance plants.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Identify watersheds and other conservation areas to prioritize renovation activities.

Category: Pollution

Priority

Stressor: Contaminants from waste water and runoff

Medium

- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.
- Ensure new and existing landfills are properly lined and sealed from contaminating

surrounding habitat and water sources.

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.

Species

Loach Minnow

Tiaroga cobitis

Tier 1a fish

Scores

Community/Focal: 1

Responsibility: 1

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

Medium

- Encourage gray water use.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Promote water conservation methods.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Encourage wise management of ground water.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Protect and restore springheads.
- Encourage the utilization of low water use [and native] plants in landscaping.

Stressor: Mining

Medium

- Promote recycling to reduce contamination from landfills and new mine operations.
- Incorporate wildlife values in planning and locations for new mines, associated structures, and leach fields.

Stressor: Water diversion/water catchments

High

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Remove artificial stream barriers where appropriate.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Promote water conservation methods.
- Promote water conservation methods in growth planning to develop sustainable water use.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

High

- Remove or modify unnecessary or inoperative dams or diversions.
- Protect and restore springheads.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Survey for areas of suitable habitat for reestablishment of species.
- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.

Stressor: Habitat fragmentation/barriers Medium

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Survey for areas of suitable habitat for reestablishment of species.
- Protect and restore riparian areas.
- Remove artificial stream barriers where appropriate.
- Remove or modify unnecessary or inoperative dams or diversions.

Stressor: Management for game animals and sport fish Medium

- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Develop and implement integrated fisheries management plans for watersheds (for native and sport fish).
- Expand hatchery capabilities to propagate native species.
- Manage so as to sustain or enhance native fish and sport fish populations.

Stressor: Soil erosion Medium

- Protect and restore riparian areas.
- Train resource managers, developers, and private landowners in ways to minimize soil erosion and improve habitat.
- Install streambank stabilization structures or habitat features to reduce erosion and loss of sediment.
- Implement watershed based approaches aimed at preventing excessive soil erosion.
- Survey for areas of suitable habitat for reestablishment of species.
- Promote guidelines for timber harvesting and associated road building that positively effect wildlife.
- Work with land managers to develop and implement management plans that incorporate wildlife values.

Stressor: Streambank alteration/channelization High

- Work with other agencies to employ new techniques in lieu of traditional stream bank armoring and flood control measures.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Survey for areas of suitable habitat for reestablishment of species.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect and restore riparian areas.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Promote water conservation methods.

- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Consumptive use of biological resources

Priority

Stressor: Grazing by ungulates

High

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

- Disseminate information to partners on effects of grazing on resources.

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

- Protect sensitive habitats from excessive grazing.

Category: Habitat conversion

Priority

Stressor: Dams/reservoirs/impoundments

Medium

- Survey for areas of suitable habitat for reestablishment of species.

- Create and maintain habitat improvement features for aquatic species.

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

- Remove or modify unnecessary or inoperative dams or diversions.

- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.

- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.

Stressor: Forest and woodland management - habitat conversion

Medium

- Encourage design of extractive operations that minimizes disturbance to wildlife.

Stressor: Livestock management

High

- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

- Protect and restore riparian areas.

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

- Protect sensitive habitats from excessive grazing.

- Acquire land or conservation easements on portions of rangeland critical to wildlife.

Category: Invasive species

Priority

Stressor: Nuisance animals

High

- Survey for areas of suitable habitat for reestablishment of species.

- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources.

- Identify watersheds and other conservation areas to prioritize renovation activities.

- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.

- Use integrated management activities in concert to address nuisance plants.

- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

Category: Pollution

Priority

Stressor: Contaminants from waste water and runoff

Medium

- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.
- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.
- Ensure new and existing landfills are properly lined and sealed from contaminating surrounding habitat and water sources.

Stressor: Pesticides/herbicides

Medium

- Use appropriate concentrations and types of pesticides, herbicides, or alternatives to control undesirable species, especially near sensitive habitat and watercourses.
- Increase public awareness on alternative methods to using fertilizers, pesticides, and other contaminants.
- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.

Species

Scores

Razorback Sucker

Community/Focal: 1

Xyrauchen texanus

Responsibility: 1

Tier 1a fish

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

Medium

- Encourage wise management of ground water.
- Encourage low water use agriculture.
- Encourage gray water use.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Protect and restore springheads.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

Stressor: Water diversion/water catchments

High

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods in growth planning to develop sustainable water use.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Work with city and county planners to limit or prevent development in flood plains and areas that impact watershed integrity.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

High

- Protect and restore springheads.
- Remove or modify unnecessary or inoperative dams or diversions.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Survey for areas of suitable habitat for reestablishment of species.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.
- Develop off-channel wetlands and backwaters along rivers to increase wildlife habitat.

Stressor: Habitat fragmentation/barriers

High

- Protect and restore riparian areas.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Remove or modify unnecessary or inoperative dams or diversions.
- Acquire land to protect important habitat and wildlife corridors.
- Survey for areas of suitable habitat for reestablishment of species.
- Remove artificial stream barriers where appropriate.

Stressor: Management for game animals and sport fish

Medium

- Develop and implement integrated fisheries management plans for watersheds (for native and sport fish).
- Manage so as to sustain or enhance native fish and sport fish populations.
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Expand hatchery capabilities to propagate native species.

Stressor: Soil erosion

Medium

- Protect and restore riparian areas.
- Train resource managers, developers, and private landowners in ways to minimize soil erosion and improve habitat.
- Implement watershed based approaches aimed at preventing excessive soil erosion.
- Survey for areas of suitable habitat for reestablishment of species.
- Install streambank stabilization structures or habitat features to reduce erosion and loss of sediment.

Stressor: Streambank alteration/channelization

Medium

- Work with other agencies to employ new techniques in lieu of traditional stream bank armoring and flood control measures.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Survey for areas of suitable habitat for reestablishment of species.

- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Promote water conservation methods.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

Category: Consumptive use of biological resources

Priority

Stressor: Grazing by ungulates

Medium

- Disseminate information to partners on effects of grazing on resources.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Protect sensitive habitats from excessive grazing.

Category: Habitat conversion

Priority

Stressor: Dams/reservoirs/impoundments

High

- Remove or modify unnecessary or inoperative dams or diversions.
- Survey for areas of suitable habitat for reestablishment of species.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species.
- Determine if modifying dam operations can simulate natural sediment transport and improve wildlife habitat.
- Develop off-channel wetlands and backwaters along rivers to increase wildlife habitat.
- Create and maintain habitat improvement features for aquatic species.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Stressor: Livestock management

Medium

- Protect and restore riparian areas.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Protect sensitive habitats from excessive grazing.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Category: Invasive species

Priority

Stressor: Bait-bucket dumping/illegal stocking

Medium

- Renovate aquatic systems to remove undesirable species.

- Evaluate and modify Department regulations where appropriate.
- Increase public awareness on the impacts of releasing exotic species, pets, or livestock on wildlife.
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.

Stressor: Nuisance animals

High

- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.
- Identify watersheds and other conservation areas to prioritize renovation activities.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Survey for areas of suitable habitat for reestablishment of species.
- Use integrated management activities in concert to address nuisance plants.

Category: Pollution

Priority

Stressor: Contaminants from waste water and runoff

Medium

- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.
- Ensure new and existing landfills are properly lined and sealed from contaminating surrounding habitat and water sources.
- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
 - Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

CRUSTACEANS AND MOLLUSKS

Species

California Floater

Anodonta californiensis

Tier 1b invertebrate

Scores

Community/Focal: 1

Responsibility: 3

Category: Changes in Ecological Processes

Priority

Stressor: Loss of keystone species

High

- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Protect and restore riparian areas.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Category: Consumptive use of biological resources

Priority

Stressor: Forest and woodland management - consumptive use

High

- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.
- Work with fire fighting services to develop fire management plans that minimize effects of

fire retardants and water drawing on wildlife and wildlife habitats.

Category: Habitat conversion

Priority

Stressor: Forest and woodland management - habitat conversion

Medium

- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.

Category: Invasive species

Priority

Stressor: Nuisance animals

High

- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.

- Build a central database that identifies the distribution of aquatic nuisance species in relation to sensitive habitats and wildlife of concern.

- Identify watersheds and other conservation areas to prioritize renovation activities.

- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..

- Evaluate and modify Department regulations where appropriate.

- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.

- Support and participate in the multi-agency Governor's Invasive Species Task Force.

- Use integrated management activities in concert to address nuisance plants.

- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.

- Adopt national standards and efforts to reduce and control nuisance species.

- Conduct inspections at state borders to detect and prevent the spread of nuisance plants and animals.

Species

Cockerell's Striate Disc (Snail)

Discus shimekii cockerelli

Tier 1b invertebrate

Scores

Community/Focal: 3

Responsibility: 3

Category: Consumptive use of biological resources

Priority

Stressor: Grazing by ungulates

High

- Work with land managers to develop and implement management plans that incorporate wildlife values.

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

- Disseminate information to partners on effects of grazing on resources.

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

- Protect sensitive habitats from excessive grazing.

Category: Habitat conversion

Priority

Stressor: Livestock management

High

- Acquire land or conservation easements on portions of rangeland critical to wildlife.

- Protect and restore riparian areas.

- Protect sensitive habitats from excessive grazing.

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Species

Pinaleno Mountainsnail

Oreohelix grahamensis

Tier 1b invertebrate

Category: Changes in Ecological Processes

Stressor: Unnatural fire regimes

- Design fire management plans and wildland/urban interface policies that consider wildlife values.

- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.

- Use controlled burning to limit and reduce fuel loads and shrub invasion.

Category: Consumptive use of biological resources

Stressor: Forest and woodland management - consumptive use

- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.

- Work with fire fighting services to develop fire management plans that minimize effects of fire retardants and water drawing on wildlife and wildlife habitats.

Category: Habitat conversion

Stressor: Recreational sites/facilities

- Educate the public about maintaining sensitive habitat for wildlife.

- Design recreation site management plans and policies that minimize impacts to wildlife and habitats.

- Increase enforcement for laws governing recreational activities.

Species

Oreohelix yavapai cummingsi

Tier 1b invertebrate

Category: Consumptive use of biological resources

Stressor: Grazing by ungulates

- Work with land managers to develop and implement management plans that incorporate wildlife values.

- Protect sensitive habitats from excessive grazing.

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

- Disseminate information to partners on effects of grazing on resources.

Category: Habitat conversion

Stressor: Livestock management

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

- Protect and restore riparian areas.

- Develop and implement livestock and big game management guidelines that minimize

Scores

Community/Focal: 1

Responsibility: 1

Priority

High

Priority

High

Priority

Medium

Scores

Community/Focal: 3

Responsibility: 3

Priority

High

Priority

High

habitat degradation while maintaining stock ponds where appropriate.

- Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Protect sensitive habitats from excessive grazing.

Species

Niobrara Ambersnail

Oxyloma haydeni haydeni

Tier 1b invertebrate

Scores

Community/Focal: 1

Responsibility: 1

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

High

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

- Remove or modify unnecessary or inoperative dams or diversions.

Category: Climate Change

Priority

Stressor: Drought

High

- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

- Manage upland watersheds to retain vegetation as a buffer against drought effects.

Stressor: Shift to warmer climate

High

- Develop plans to conserve priority conservation species (Focal Community, Responsibility, and Vulnerability categories) that are not sufficiently addressed under existing plans.

Category: Habitat conversion

Priority

Stressor: Dams/reservoirs/impoundments

High

- Remove or modify unnecessary or inoperative dams or diversions.

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Category: Transportation and infrastructure

Priority

Stressor: Unauthorized roads & trails

High

- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.

- Use fencing and/or increased law enforcement presence to reduce unauthorized use and access to sensitive habitats.

- Increase enforcement for laws governing recreational activities.

Species

Kanab Ambersnail

Oxyloma haydeni kanabensis

Tier 1a invertebrate

Scores

Community/Focal: 1

Responsibility: 1

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

High

- Remove or modify unnecessary or inoperative dams or diversions.

- Protect and restore springheads.

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Work with land managers to develop and implement management plans that incorporate wildlife values.

Category: Climate Change

Priority

Stressor: Drought

High

- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

Category: Consumptive use of biological resources

Priority

Stressor: Grazing by ungulates

Medium

- Disseminate information to partners on effects of grazing on resources.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect sensitive habitats from excessive grazing.
- Work with land managers to develop and implement management plans that incorporate wildlife values.

Category: Habitat conversion

Priority

Stressor: Dams/reservoirs/impoundments

High

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Remove or modify unnecessary or inoperative dams or diversions.

Species

Bylas Springsnail

Pyrgulopsis arizonae

Tier 1b invertebrate

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Promote water conservation methods.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Stressor: Water diversion/water catchments

High

- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Protect sensitive habitats from excessive grazing.
- Remove artificial stream barriers where appropriate.
- Promote water conservation methods.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Scores
Community/Focal: 1
Responsibility: 1

Category: Climate Change

Priority

Stressor: Drought

High

- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Encourage development of water recycling systems/programs (effluent, storm water runoff) to increase the amount of water available to wildlife.
- Promote water conservation methods.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

Category: Consumptive use of biological resources

Priority

Stressor: Grazing by ungulates

High

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect sensitive habitats from excessive grazing.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Disseminate information to partners on effects of grazing on resources.

Category: Habitat conversion

Priority

Stressor: Livestock management

High

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect sensitive habitats from excessive grazing.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect and restore riparian areas.

Category: Pollution

Priority

Stressor: Contaminants from waste water and runoff

High

- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.
- Cooperate with municipalities to develop waste management plans that incorporate wildlife values.
- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.

Species

Grand Wash Springsnail

Pyrgulopsis bacchus

Tier 1b invertebrate

Scores

Community/Focal: 1

Responsibility: 1

- Category:** Abiotic resource use **Priority**
Stressor: Groundwater depletion and springhead use High
- Promote water conservation methods.
 - Encourage the utilization of low water use [and native] plants in landscaping.
 - Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
 - Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
 - Promote water conservation methods in growth planning to develop sustainable water use.
- Stressor:** Water diversion/water catchments High
- Protect sensitive habitats from excessive grazing.
 - Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
 - Promote water conservation methods.
 - Remove artificial stream barriers where appropriate.
 - Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
 - Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
 - Prevent or minimize recreational impacts in sensitive habitats.
- Category:** Climate Change **Priority**
Stressor: Drought High
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
 - Manage upland watersheds to retain vegetation as a buffer against drought effects.
 - Encourage the utilization of low water use [and native] plants in landscaping.
 - Promote water conservation methods.
 - Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
 - Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
 - Promote water conservation methods in growth planning to develop sustainable water use.
 - Encourage development of water recycling systems/programs (effluent, storm water run-off) to increase the amount of water available to wildlife.
- Category:** Consumptive use of biological resources **Priority**
Stressor: Grazing by ungulates High
- Protect sensitive habitats from excessive grazing.
 - Disseminate information to partners on effects of grazing on resources.
 - Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
 - Work with land managers to develop and implement management plans that incorporate wildlife values.
 - Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Category:** Habitat conversion **Priority**
Stressor: Livestock management High
- Protect and restore riparian areas.
 - Develop and implement livestock and big game management guidelines that minimize

habitat degradation while maintaining stock ponds where appropriate.

- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect sensitive habitats from excessive grazing.

Category: Pollution

Priority

Stressor: Contaminants from waste water and runoff

High

- Cooperate with municipalities to develop waste management plans that incorporate wildlife values.
- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.
- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.
- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.

Species

San Bernardino Springsnail

Pyrgulopsis bernardina

Tier 1b invertebrate

Scores

Community/Focal: 1

Responsibility: 1

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Promote water conservation methods.

Stressor: Water diversion/water catchments

High

- Remove artificial stream barriers where appropriate.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Protect sensitive habitats from excessive grazing.
- Prevent or minimize recreational impacts in sensitive habitats.
- Promote water conservation methods.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Climate Change

Priority

Stressor: Drought

High

- Promote water conservation methods.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

- Encourage development of water recycling systems/programs (effluent, storm water runoff) to increase the amount of water available to wildlife.

Category: Pollution

Priority

Stressor: Contaminants from waste water and runoff

High

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.
- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.

Species

Scores

Kingman Springsnail

Community/Focal: 1

Pyrgulopsis conica

Responsibility: 1

Tier 1b invertebrate

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Promote water conservation methods in growth planning to develop sustainable water use.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Encourage gray water use.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Stressor: Water diversion/water catchments

High

- Promote water conservation methods.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Protect sensitive habitats from excessive grazing.
- Prevent or minimize recreational impacts in sensitive habitats.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Remove artificial stream barriers where appropriate.

Category: Climate Change

Priority

Stressor: Drought

High

- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

Category: Pollution

Priority

Stressor: Contaminants from waste water and runoff

High

- Cooperate with municipalities to develop waste management plans that incorporate

wildlife values.

- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.
- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.

Species

Desert Springsnail

Pyrgulopsis deserta

Tier 1b invertebrate

Category: Abiotic resource use

Stressor: Groundwater depletion and springhead use

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Promote water conservation methods.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

Stressor: Water diversion/water catchments

- Remove artificial stream barriers where appropriate.
- Promote water conservation methods.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Prevent or minimize recreational impacts in sensitive habitats.
- Protect sensitive habitats from excessive grazing.

Category: Climate Change

Stressor: Drought

- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Manage upland watersheds to retain vegetation as a buffer against drought effects.

Category: Pollution

Stressor: Contaminants from waste water and runoff

- Cooperate with municipalities to develop waste management plans that incorporate wildlife values.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.
- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.

Category: Transportation and infrastructure

Stressor: Roads for motorized vehicles

Scores

Community/Focal: 1

Responsibility: 1

Priority

High

High

Priority

High

Priority

High

Priority

Medium

- Encourage increased partnering and communication with transportation officials on projects that affect wildlife and their habitat.
- Use appropriate concentrations and types of pesticides, herbicides, or alternatives to control undesirable species, especially near sensitive habitat and watercourses.
- Encourage wildlife friendly design for all road building.

Species

Verde Rim Springsnail

Pyrgulopsis glandulosa

Tier 1b invertebrate

Category: Abiotic resource use

Stressor: Groundwater depletion and springhead use

- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

- Promote water conservation methods in growth planning to develop sustainable water use.

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

- Promote water conservation methods.

Stressor: Water diversion/water catchments

- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

- Prevent or minimize recreational impacts in sensitive habitats.

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

- Protect sensitive habitats from excessive grazing.

- Remove artificial stream barriers where appropriate.

Category: Climate Change

Stressor: Drought

- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

- Promote water conservation methods.

- Manage upland watersheds to retain vegetation as a buffer against drought effects.

Category: Pollution

Stressor: Contaminants from waste water and runoff

- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.

- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.

Species

Montezuma Well Springsnail

Pyrgulopsis montezumensis

Scores

Community/Focal: 1

Responsibility: 1

Priority

High

High

Priority

High

Priority

High

Scores

Community/Focal: 1

Responsibility: 1

Tier 1b invertebrate

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Promote water conservation methods.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Promote water conservation methods in growth planning to develop sustainable water use.

Stressor: Water diversion/water catchments

High

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Promote water conservation methods.
- Remove artificial stream barriers where appropriate.

Category: Climate Change

Priority

Stressor: Drought

High

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

Category: Pollution

Priority

Stressor: Contaminants from waste water and runoff

High

- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.
- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.

Species

Page Springsnail

Scores

Community/Focal: 1

Pyrgulopsis morrisoni

Responsibility: 1

Tier 1a invertebrate

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Promote water conservation methods.
- Encourage gray water use.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

- Encourage the utilization of low water use [and native] plants in landscaping.

Stressor: Water diversion/water catchments **High**

- Promote water conservation methods in growth planning to develop sustainable water use.
- Remove artificial stream barriers where appropriate.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Protect sensitive habitats from excessive grazing.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Promote water conservation methods.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Climate Change **Priority**

Stressor: Drought **High**

- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods in growth planning to develop sustainable water use.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Encourage development of water recycling systems/programs (effluent, storm water run-off) to increase the amount of water available to wildlife.
- Promote water conservation methods.

Category: Habitat conversion **Priority**

Stressor: Aquaculture **High**

- Work with aquaculture, game farms, and pet store industries to minimize impacts to wild populations and habitat.

Category: Invasive species **Priority**

Stressor: Nuisance animals **Medium**

- Support and participate in the multi-agency Governor's Invasive Species Task Force.
- Manage so as to sustain or enhance native fish and sport fish populations.
- Limit recreational and commercial use of crayfish and bullfrogs as fishing bait.
- Build a central database that identifies the distribution of aquatic nuisance species in relation to sensitive habitats and wildlife of concern.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Use integrated management activities in concert to address nuisance plants.
- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.
- Evaluate and modify Department regulations where appropriate.
- Identify watersheds and other conservation areas to prioritize renovation activities.
- Adopt national standards and efforts to reduce and control nuisance species.

- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..

Category: Pollution

Priority

Stressor: Contaminants from waste water and runoff

High

- Cooperate with municipalities to develop waste management plans that incorporate wildlife values.
- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.

Category: Species Specific

Priority

Stressor: Small/localized or highly concentrated population(s)

High

- Develop research needs to assess population trends and/or habitat needs.

Species

Fossil Springsnail

Pyrgulopsis simplex

Tier 1b invertebrate

Scores

Community/Focal: 1

Responsibility: 1

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Promote water conservation methods in growth planning to develop sustainable water use.

Category: Climate Change

Priority

Stressor: Drought

High

- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Non-consumptive resource use

Priority

Stressor: Non-motorized recreation off-trail

High

- Clearly mark designated roads and trails for recreational users.
- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Prevent or minimize recreational impacts in sensitive habitats.

Category: Pollution

Priority

Stressor: Contaminants from waste water and runoff High

- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.

Category: Transportation and infrastructure **Priority**

Stressor: Roads for motorized vehicles High

- Encourage increased partnering and communication with transportation officials on projects that affect wildlife and their habitat.
- Encourage wildlife friendly design for all road building.

Species

Brown Springsnail

Pyrgulopsis sola

Tier 1b invertebrate

Scores

Community/Focal: 1

Responsibility: 1

Category: Abiotic resource use **Priority**

Stressor: Groundwater depletion and springhead use High

- Encourage gray water use.
- Encourage low water use agriculture.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Promote water conservation methods.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Stressor: Water diversion/water catchments High

- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Protect sensitive habitats from excessive grazing.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Remove artificial stream barriers where appropriate.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Promote water conservation methods.

Category: Climate Change **Priority**

Stressor: Drought High

- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

- Encourage development of water recycling systems/programs (effluent, storm water runoff) to increase the amount of water available to wildlife.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

Category: Pollution

Priority

Stressor: Contaminants from waste water and runoff

High

- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.
- Cooperate with municipalities to develop waste management plans that incorporate wildlife values.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.

Species

Huachuca Springsnail

Pyrgulopsis thompsoni

Tier 1a invertebrate

Scores

Community/Focal: 1

Responsibility: 1

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Encourage the utilization of low water use [and native] plants in landscaping.
- Promote water conservation methods.
- Encourage gray water use.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Encourage low water use agriculture.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

Stressor: Mining

Medium

- Promote recycling to reduce contamination from landfills and new mine operations.
- Incorporate wildlife values in planning and locations for new mines, associated structures, and leach fields.

Stressor: Water diversion/water catchments

High

- Remove artificial stream barriers where appropriate.
- Promote water conservation methods.
- Protect sensitive habitats from excessive grazing.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Increase public awareness of water cycles, water tables, instream flow, proper stream

morphology, and ecosystem functions (Project WET).

Category: Border issues

Priority

Stressor: Water use/contamination from illegal immigrants and drug smugglers

Medium

- Develop cooperative clean up efforts along the border for the benefit of wildlife.
- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.
- Work with borderland agencies and landowners to minimize vandalism to livestock and wildlife water sources.

Category: Changes in Ecological Processes

Priority

Stressor: Soil erosion

Medium

- Implement watershed based approaches aimed at preventing excessive soil erosion.
- Revegetate disturbed areas with native plants.
- Protect and restore riparian areas.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Work with land managers to develop and implement management plans that incorporate wildlife values.

Stressor: Unnatural fire regimes

High

- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.
- Design fire management plans and wildland/urban interface policies that consider wildlife values.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Work with land managers to develop and implement management plans that incorporate wildlife values.

Category: Climate Change

Priority

Stressor: Drought

High

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Encourage development of water recycling systems/programs (effluent, storm water run-off) to increase the amount of water available to wildlife.
- Promote water conservation methods.
- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

Category: Consumptive use of biological resources

Priority

Stressor: Forest and woodland management - consumptive use

High

- Work with fire fighting services to develop fire management plans that minimize effects of fire retardants and water drawing on wildlife and wildlife habitats.
- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.

Stressor: Grazing by ungulates

High

- Disseminate information to partners on effects of grazing on resources.

- Protect sensitive habitats from excessive grazing.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Category: Habitat conversion

Priority

Stressor: Forest and woodland management - habitat conversion

Medium

- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.

Stressor: Livestock management

High

- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Protect sensitive habitats from excessive grazing.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect and restore riparian areas.

Category: Invasive species

Priority

Stressor: Bait-bucket dumping/illegal stocking

Medium

- Renovate aquatic systems to remove undesirable species.
- Evaluate and modify Department regulations where appropriate.
- Increase public awareness on the impacts of releasing exotic species, pets, or livestock on wildlife.
- Evaluate additional regional guidelines for use of different fishing baits and risks of bait-bucket dumping.
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.

Category: Pollution

Priority

Stressor: Contaminants from waste water and runoff

Medium

- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.
- Cooperate with municipalities to develop waste management plans that incorporate wildlife values.
- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Species

Three Forks Springsnail

Pyrgulopsis trivialis

Tier 1a invertebrate

Scores

Community/Focal: 1

Responsibility: 1

- Category:** Abiotic resource use **Priority**
Stressor: Groundwater depletion and springhead use Medium
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Category:** Changes in Ecological Processes **Priority**
Stressor: Management for game animals and sport fish Medium
- Develop and implement integrated fisheries management plans for watersheds (for native and sport fish).
- Manage so as to sustain or enhance native fish and sport fish populations.
- Expand hatchery capabilities to propagate native species.
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Stressor:** Streambank alteration/channelization High
- Protect sensitive habitats from excessive grazing.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Protect and restore riparian areas.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.
- Category:** Climate Change **Priority**
Stressor: Drought Medium
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Category:** Consumptive use of biological resources **Priority**
Stressor: Forest and woodland management - consumptive use High
- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.
- Work with fire fighting services to develop fire management plans that minimize effects of fire retardants and water drawing on wildlife and wildlife habitats.
- Stressor:** Grazing by ungulates High
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect sensitive habitats from excessive grazing.
- Category:** Invasive species **Priority**
Stressor: Bait-bucket dumping/illegal stocking High
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.
- Evaluate additional regional guidelines for use of different fishing baits and risks of bait-bucket dumping.
- Renovate aquatic systems to remove undesirable species.
- Evaluate and modify Department regulations where appropriate.
- Increase public awareness on the impacts of releasing exotic species, pets, or livestock on wildlife.
- Stressor:** Nuisance animals High
- Limit recreational and commercial use of crayfish and bullfrogs as fishing bait.
- Increase public education and enforcement of rules and regulations on introducing and

spreading nuisance species.

- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Manage so as to sustain or enhance native fish and sport fish populations.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Identify watersheds and other conservation areas to prioritize renovation activities.
- Build a central database that identifies the distribution of aquatic nuisance species in relation to sensitive habitats and wildlife of concern.
- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.
- Adopt national standards and efforts to reduce and control nuisance species.
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Use integrated management activities in concert to address nuisance plants.
- Evaluate and modify Department regulations where appropriate.
- Support and participate in the multi-agency Governor's Invasive Species Task Force.

Category: Pollution

Priority

Stressor: Contaminants from waste water and runoff

High

- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.

Stressor: Sediment/ash flows

High

- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Protect and restore riparian areas.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Revegetate disturbed areas with native plants.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Work with land managers to reduce or prevent high sedimentation of aquatic systems where appropriate.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.

Species

Squaw Peak Talussnail

Sonorella allynsmithi

Tier 1b invertebrate

Category: Habitat conversion

Stressor: Recreational sites/facilities

Scores

Community/Focal: 1

Responsibility: 1

Priority

Medium

- Design recreation site management plans and policies that minimize impacts to wildlife and habitats.
- Increase enforcement for laws governing recreational activities.

- Educate the public about maintaining sensitive habitat for wildlife.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Manage watercraft recreation to reduce impacts to shoreline habitats and minimize disturbance to wildlife.

Stressor: Urban growth

High

- Identify key conservation areas to protect from development.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Acquire land or conservation easements to protect key conservation areas.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.

Category: Transportation and infrastructure

Priority

Stressor: Unauthorized roads & trails

High

- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.
- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Use fencing and/or increased law enforcement presence to reduce unauthorized use and access to sensitive habitats.

Species

Clark Peak Talussnail

Sonorella christenseni

Tier 1b invertebrate

Scores

Community/Focal: 1

Responsibility: 1

Category: Changes in Ecological Processes

Priority

Stressor: Unnatural fire regimes

High

- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.

Category: Consumptive use of biological resources

Priority

Stressor: Forest and woodland management - consumptive use

Medium

- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.
- Work with fire fighting services to develop fire management plans that minimize effects of fire retardants and water drawing on wildlife and wildlife habitats.

Category: Habitat conversion

Priority

Stressor: Recreational sites/facilities

Medium

- Design recreation site management plans and policies that minimize impacts to wildlife and habitats.
- Increase enforcement for laws governing recreational activities.
- Educate the public about maintaining sensitive habitat for wildlife.
- Manage watercraft recreation to reduce impacts to shoreline habitats and minimize disturbance to wildlife.

Species

San Xavier Talussnail

Sonorella eremita

Tier 1a invertebrate

Category: Abiotic resource use

Stressor: Mining

- Incorporate wildlife values in planning and locations for new mines, associated structures, and leach fields.

- Promote recycling to reduce contamination from landfills and new mine operations.

Category: Climate Change

Stressor: Shift to warmer climate

- Develop plans to conserve priority conservation species (Focal Community, Responsibility, and Vulnerability categories) that are not sufficiently addressed under existing plans.

Category: Transportation and infrastructure

Stressor: Roads for motorized vehicles

- Encourage maintenance of paved and unpaved roads in a manner that minimizes impacts on wildlife and wildlife habitats.

- Encourage wildlife friendly design for all road building.

- Encourage increased partnering and communication with transportation officials on projects that affect wildlife and their habitat.

Stressor: Unauthorized roads & trails

- Increase enforcement for laws governing recreational activities.

- Increase public awareness of responsible OHV use and laws.

Scores

Community/Focal: 1

Responsibility: 1

Priority

Medium

Priority

High

Priority

Medium

Medium

Species

Pinaleno Talussnail

Sonorella grahamensis

Tier 1b invertebrate

Category: Changes in Ecological Processes

Stressor: Unnatural fire regimes

- Design fire management plans and wildland/urban interface policies that consider wildlife values.

- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.

Category: Consumptive use of biological resources

Stressor: Forest and woodland management - consumptive use

- Work with fire fighting services to develop fire management plans that minimize effects of fire retardants and water drawing on wildlife and wildlife habitats.

- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.

Category: Habitat conversion

Stressor: Recreational sites/facilities

- Manage watercraft recreation to reduce impacts to shoreline habitats and minimize

Scores

Community/Focal: 1

Responsibility: 1

Priority

High

Priority

Medium

Priority

Medium

disturbance to wildlife.

- Design recreation site management plans and policies that minimize impacts to wildlife and habitats.
- Use environmentally-friendly materials, landscaping, and structure designs for recreational sites.
- Increase enforcement for laws governing recreational activities.
- Educate the public about maintaining sensitive habitat for wildlife.

Species

Mimic Talussnail

Sonorella imitator

Tier 1b invertebrate

Category: Changes in Ecological Processes

Stressor: Unnatural fire regimes

- Design fire management plans and wildland/urban interface policies that consider wildlife values.
- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.

Category: Consumptive use of biological resources

Stressor: Forest and woodland management - consumptive use

- Work with fire fighting services to develop fire management plans that minimize effects of fire retardants and water drawing on wildlife and wildlife habitats.
- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.

Category: Habitat conversion

Stressor: Recreational sites/facilities

- Manage watercraft recreation to reduce impacts to shoreline habitats and minimize disturbance to wildlife.
- Design recreation site management plans and policies that minimize impacts to wildlife and habitats.
- Use environmentally-friendly materials, landscaping, and structure designs for recreational sites.
- Increase enforcement for laws governing recreational activities.
- Educate the public about maintaining sensitive habitat for wildlife.

Species

Wet Canyon Talussnail

Sonorella macrophallus

Tier 1a invertebrate

Category: Changes in Ecological Processes

Stressor: Habitat fragmentation/barriers

- Increase public awareness of the effects of human activities and infrastructure on wildlife habitat fragmentation.
- Identify and protect key wildlife corridors for landscape connectivity.

Stressor: Soil erosion

Scores

Community/Focal: 1

Responsibility: 1

Priority

High

Priority

Medium

Priority

Medium

Scores

Community/Focal: 1

Responsibility: 1

Priority

Medium

Medium

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Protect and restore riparian areas.
- Implement 'Best Management Practices' when building roads or other infrastructure (dams, mines, developments, etc.).
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Revegetate disturbed areas with native plants.
- Train resource managers, developers, and private landowners in ways to minimize soil erosion and improve habitat.

Stressor: Unnatural fire regimes High

- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.
- Design fire management plans and wildland/urban interface policies that consider wildlife values.

Category: Transportation and infrastructure Priority

Stressor: Roads for motorized vehicles Medium

- Encourage wildlife friendly design for all road building.
- Encourage increased partnering and communication with transportation officials on projects that affect wildlife and their habitat.

Stressor: Unauthorized roads & trails High

- Increase enforcement for laws governing recreational activities.
- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.
- Use fencing and/or increased law enforcement presence to reduce unauthorized use and access to sensitive habitats.

Species

Papago Talussnail

Sonorella papagorum

Tier 1b invertebrate

Scores

Community/Focal: 1

Responsibility: 1

Category: Habitat conversion Priority

Stressor: Recreational sites/facilities High

- Use environmentally-friendly materials, landscaping, and structure designs for recreational sites.
- Design recreation site management plans and policies that minimize impacts to wildlife and habitats.
- Educate the public about maintaining sensitive habitat for wildlife.
- Manage watercraft recreation to reduce impacts to shoreline habitats and minimize disturbance to wildlife.
- Increase enforcement for laws governing recreational activities.

Category: Non-consumptive resource use Priority

Stressor: Non-motorized recreation off-trail High

- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.

- Clearly mark designated roads and trails for recreational users.
- Prevent or minimize recreational impacts in sensitive habitats.

Species

Arizona Cave Amphipod

Stygobromus arizonensis

Tier 1b invertebrate

Category: Abiotic resource use

Stressor: Groundwater depletion and springhead use

- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

- Promote water conservation methods.

- Promote water conservation methods in growth planning to develop sustainable water use.

- Encourage the utilization of low water use [and native] plants in landscaping.

Stressor: Water diversion/water catchments

- Remove artificial stream barriers where appropriate.

- Promote water conservation methods.

- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.

- Protect sensitive habitats from excessive grazing.

- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).

Category: Pollution

Stressor: Contaminants from waste water and runoff

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.

- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.

Stressor: Pesticides/herbicides

- Use appropriate concentrations and types of pesticides, herbicides, or alternatives to control undesirable species, especially near sensitive habitat and watercourses.

- Increase public awareness on alternative methods to using fertilizers, pesticides, and other contaminants.

- Identify and use pesticides and herbicides that have limited negative impact to wildlife (a wildlife-safe label).

Scores

Community/Focal: 1

Responsibility: 1

Priority

Medium

Medium

Priority

Medium

Medium

Species

Gila Tryonia

Tryonia gilae

Tier 1b invertebrate

Category: Abiotic resource use

Stressor: Groundwater depletion and springhead use

- Increase public awareness on the importance of conserving groundwater and springs for

Scores

Community/Focal: 1

Responsibility: 1

Priority

High

the benefit of wildlife.

- Promote water conservation methods.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Stressor: Water diversion/water catchments **High**

- Remove artificial stream barriers where appropriate.
- Protect sensitive habitats from excessive grazing.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.

Category: Pollution **Priority**

Stressor: Contaminants from waste water and runoff **Medium**

- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.
- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Cooperate with municipalities to develop waste management plans that incorporate wildlife values.
- Increase public awareness on impacts of fertilizers, pesticides, and other contaminants on wildlife and their habitat.

Species

Quitobaquito Tryonia

Tryonia quitobaquiae

Tier 1a invertebrate

Scores

Community/Focal: 1

Responsibility: 1

Category: Abiotic resource use **Priority**

Stressor: Groundwater depletion and springhead use **Medium**

- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

Category: Border issues **Priority**

Stressor: Unauthorized roads & trails created by illegal immigrants and smugglers **Medium**

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.
- Use fencing and/or increased law enforcement presence to reduce unauthorized use and access to sensitive habitats.

Stressor: Water use/contamination from illegal immigrants and drug smugglers **Medium**

- Develop cooperative clean up efforts along the border for the benefit of wildlife.
- Work with borderland agencies and landowners to minimize vandalism to livestock and wildlife water sources.

Category: Changes in Ecological Processes **Priority**

Stressor: Altered river flow regimes **Medium**

- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Protect and restore springheads.

- Develop off-channel wetlands and backwaters along rivers to increase wildlife habitat.
- Stressor:** Streambank alteration/channelization High
- Protect sensitive habitats from excessive grazing.
 - Work with other agencies to employ new techniques in lieu of traditional stream bank armoring and flood control measures.
 - Protect and restore riparian areas.
 - Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
 - Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.

Category: Climate Change **Priority**
Stressor: Drought High

- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Increase public awareness of water cycles, water tables, instream flow, proper stream morphology, and ecosystem functions (Project WET).
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

Category: Invasive species **Priority**
Stressor: Nuisance animals Medium

- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Evaluate and modify Department regulations where appropriate.
- Identify watersheds and other conservation areas to prioritize renovation activities.
- Adopt national standards and efforts to reduce and control nuisance species.
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Ensure regulatory mechanisms are updated (for example: restrictive live wildlife under Article 4 (ARS R12-4-406).
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.
- Support and participate in the multi-agency Governor's Invasive Species Task Force.
- Use integrated management activities in concert to address nuisance plants.
- Manage so as to sustain or enhance native fish and sport fish populations.
- Build a central database that identifies the distribution of aquatic nuisance species in relation to sensitive habitats and wildlife of concern.

MAMMALS

Species **Scores**
Prospect Valley White-tailed Antelope Squirrel Community/Focal: 3
Ammospermophilus leucurus tersus Responsibility: 1
Tier 1b mammal

Category: Species Specific **Priority**
Stressor: Small/localized or highly concentrated population(s) High

- Acquire land or conservation easements to protect key conservation areas.

- Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Protect sensitive habitats from excessive grazing.

Species

Scores

Sonoran Pronghorn	Community/Focal: 2
<i>Antilocapra americana sonoriensis</i>	Responsibility: 1
Tier 1a mammal	
Category: Border issues	Priority
Stressor: Poaching along the border	Medium
- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.	
Category: Changes in Ecological Processes	Priority
Stressor: Habitat degradation/shrub invasions	High
- Use controlled burning to limit and reduce fuel loads and shrub invasion.	
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.	
- Use integrated management activities in concert to address nuisance plants.	
Stressor: Habitat fragmentation/barriers	High
- Acquire land to protect important habitat and wildlife corridors.	
- Increase public awareness of the effects of human activities and infrastructure on wildlife habitat fragmentation.	
Stressor: Unnatural fire regimes	Medium
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.	
- Use controlled burning to limit and reduce fuel loads and shrub invasion.	
Category: Climate Change	Priority
Stressor: Drought	High
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.	
- Promote adjustment of livestock management practices during droughts to ensure sufficient forage for wildlife.	
Category: Consumptive use of biological resources	Priority
Stressor: Grazing by ungulates	Medium
- Protect sensitive habitats from excessive grazing.	
- Acquire land or conservation easements on portions of rangeland critical to wildlife.	
- Modify grazing practices of grasslands to allow for natural fire regimes and reduction in undesirable vegetation.	
Category: Habitat conversion	Priority
Stressor: Agricultural conversion	Medium
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.	
Stressor: Livestock management	Medium
- Protect sensitive habitats from excessive grazing.	
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.	
- Encourage use of wildlife-friendly fences.	
Stressor: Rural development	Medium

- Acquire land or conservation easements to protect key conservation areas.
- Identify key conservation areas to protect from development.

Stressor: Urban growth **Medium**

- Acquire land or conservation easements to protect key conservation areas.
- Identify key conservation areas to protect from development.

Category: Invasive species **Priority**

Stressor: Disease/pathogens/parasites **Medium**

- Pursue projects to limit spread of disease to sensitive wildlife populations.
- Collaborate with partners on disease/pathogen/parasite issues to protect wildlife.

Category: Non-consumptive resource use **Priority**

Stressor: Scientific research and collection **Medium**

- Collaborate with partners to evaluate effects of capture and sampling techniques on wildlife.

Category: Species Specific **Priority**

Stressor: Small/localized or highly concentrated population(s) **High**

- Acquire land to protect important habitat and wildlife corridors.
- Identify key conservation areas to protect from development.
- Identify and protect key wildlife corridors for landscape connectivity.
- Acquire land or conservation easements to protect key conservation areas.
- Acquire land or conservation easements on portions of rangeland critical to wildlife.

Category: Transportation and infrastructure **Priority**

Stressor: Right-of-way fencing along roadways **High**

- Develop species-specific wildlife friendly fencing guidelines.
- Remove unnecessary fences and barriers to wildlife movement.
- Use exclusion fencing and other design features to funnel wildlife movement to existing underpasses, overpasses or culverts.
- Encourage use of wildlife-friendly fences.

Stressor: Roads for motorized vehicles **Medium**

- Incorporate wildlife values in the design of road and trail networks in and around natural areas.
- Promote design and construction of overpasses, underpasses or culverts to increase permeability of existing or planned roads.
- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Encourage wildlife friendly design for all road building.

Species

Mexican Gray Wolf

Canis lupus baileyi

Tier 1a mammal

Scores

Community/Focal: 1

Responsibility: 1

Category: Changes in Ecological Processes **Priority**

Stressor: Habitat fragmentation/barriers **High**

- Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Acquire land to protect important habitat and wildlife corridors.
- Conduct economic impact analyses for legal designations of critical habitat and listed populations.

- Acquire land or conservation easements to protect key conservation areas.
Category: Consumptive use of biological resources **Priority**
Stressor: Harvesting/collecting animals High
- Increase public awareness of regulations pertaining to illegal harvest.
- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.
Category: Habitat conversion **Priority**
Stressor: Livestock management High
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Protect sensitive habitats from excessive grazing.
Stressor: Rural development Medium
- Acquire land or conservation easements to protect key conservation areas.
- Identify and protect key wildlife corridors for landscape connectivity.
- Identify key conservation areas to protect from development.
Stressor: Urban growth Medium
- Identify key conservation areas to protect from development.
- Acquire land or conservation easements to protect key conservation areas.
Category: Invasive species **Priority**
Stressor: Disease/pathogens/parasites Medium
- Pursue projects to limit spread of disease to sensitive wildlife populations.
- Collaborate with partners on disease/pathogen/parasite issues to protect wildlife.
Stressor: Hybridization Medium
- Increase public awareness on the impacts of releasing exotic species, pets, or livestock on wildlife.
- Category:** Non-consumptive resource use **Priority**
Stressor: Scientific research and collection High
- Collaborate with partners to evaluate effects of capture and sampling techniques on wildlife.

- | <u>Species</u> | <u>Scores</u> |
|--|--------------------|
| Mexican Long-tongued Bat | Community/Focal: 2 |
| <i>Choeronycteris mexicana</i> | Responsibility: 2 |
| Tier 1b mammal | |
| Category: Abiotic resource use Priority | |
| Stressor: Mining Medium | |
| - Retain and secure old mine adits and shafts for wildlife habitat (primarily for bats). | |
| Category: Border issues Priority | |
| Stressor: Dispersed camping along the border Medium | |
| - Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities. | |
| Category: Changes in Ecological Processes Priority | |
| Stressor: Habitat degradation/shrub invasions Medium | |
| - Use integrated management activities in concert to address nuisance plants. | |
| - Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve | |

wildlife habitat.

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Stressor: Habitat fragmentation/barriers Medium

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Stressor: Unnatural fire regimes Medium

- Use controlled burning to limit and reduce fuel loads and shrub invasion.

Category: Habitat conversion **Priority**

Stressor: Livestock management Medium

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Stressor: Rural development Medium

- Acquire land or conservation easements to protect key conservation areas.

- Identify key conservation areas to protect from development.

Category: Non-consumptive resource use **Priority**

Stressor: Non-motorized recreation off-trail Medium

- Prevent or minimize recreational impacts in sensitive habitats.

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Category: Species Specific **Priority**

Stressor: Unknown High

- Acquire land or conservation easements to protect key conservation areas.

Species

Gunnison's Prairie Dog

Cynomys gunnisoni

Tier 1a mammal

Scores

Community/Focal: 1

Responsibility: 2

Category: Abiotic resource use **Priority**

Stressor: Drilling for fuels Medium

- Encourage design of extractive operations that minimizes disturbance to wildlife.

Category: Changes in Ecological Processes **Priority**

Stressor: Habitat degradation/shrub invasions Medium

- Use integrated management activities in concert to address nuisance plants.

- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.

Stressor: Habitat fragmentation/barriers Medium

- Acquire land to protect important habitat and wildlife corridors.

- Acquire land or conservation easements on portions of rangeland critical to wildlife.

- Acquire land or conservation easements to protect key conservation areas.

Category: Climate Change **Priority**

Stressor: Drought High

- Promote adjustment of livestock management practices during droughts to ensure sufficient forage for wildlife.

Category: Consumptive use of biological resources **Priority**

- Stressor:** Grazing by ungulates Medium
- Disseminate information to partners on effects of grazing on resources.
 - Protect sensitive habitats from excessive grazing.
 - Acquire land or conservation easements on portions of rangeland critical to wildlife.
 - Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
 - Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Stressor:** Harvesting/collecting animals Medium
- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.
 - Develop harvest guidelines for sensitive species to minimize impacts to important life stages (breeding, raising young, etc.).
- Category:** Habitat conversion **Priority**
- Stressor:** Agricultural conversion Medium
- Acquire land or conservation easements to protect key conservation areas.
 - Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Stressor:** Livestock management High
- Protect sensitive habitats from excessive grazing.
 - Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
 - Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Stressor:** Rural development High
- Acquire land or conservation easements to protect key conservation areas.
 - Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
 - Identify key conservation areas to protect from development.
- Stressor:** Urban growth High
- Acquire land or conservation easements to protect key conservation areas.
 - Identify key conservation areas to protect from development.
- Category:** Invasive species **Priority**
- Stressor:** Disease/pathogens/parasites High
- Pursue projects to limit spread of disease to sensitive wildlife populations.
 - Collaborate with partners on disease/pathogen/parasite issues to protect wildlife.
- Stressor:** Nuisance plants Medium
- Adopt national standards and efforts to reduce and control nuisance species.
 - Revegetate disturbed areas with native plants.
- Category:** Non-consumptive resource use **Priority**
- Stressor:** Off-range recreational shooting Medium
- Develop harvest guidelines for sensitive species to minimize impacts to important life stages (breeding, raising young, etc.).

Species

Black-tailed Prairie Dog
Cynomys ludovicianus

Scores

Community/Focal: 3
Responsibility: 2

Tier 1a mammal

Category: Changes in Ecological Processes

Priority

Stressor: Habitat degradation/shrub invasions

High

- Use integrated management activities in concert to address nuisance plants.
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.

Stressor: Habitat fragmentation/barriers

High

- Identify key conservation areas to protect from development.
- Acquire land to protect important habitat and wildlife corridors.
- Identify and protect key wildlife corridors for landscape connectivity.

Stressor: Unnatural fire regimes

Medium

- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Promote adjustment of livestock management practices during droughts to ensure sufficient forage for wildlife.

Category: Consumptive use of biological resources

Priority

Stressor: Grazing by ungulates

Medium

- Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Disseminate information to partners on effects of grazing on resources.
- Modify grazing practices of grasslands to allow for natural fire regimes and reduction in undesirable vegetation.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Protect sensitive habitats from excessive grazing.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Category: Habitat conversion

Priority

Stressor: Agricultural conversion

Medium

- Acquire land or conservation easements to protect key conservation areas.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Stressor: Livestock management

High

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect sensitive habitats from excessive grazing.
- Disseminate information to partners on effects of grazing on resources.
- Acquire land or conservation easements on portions of rangeland critical to wildlife.

Stressor: Rural development

High

- Identify key conservation areas to protect from development.

- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Acquire land or conservation easements to protect key conservation areas.
- Stressor:** Urban growth Medium
- Identify key conservation areas to protect from development.
- Acquire land or conservation easements to protect key conservation areas.
- Identify and protect key wildlife corridors for landscape connectivity.
- Category:** Invasive species **Priority**
- Stressor:** Disease/pathogens/parasites High
- Collaborate with partners on disease/pathogen/parasite issues to protect wildlife.
- Pursue projects to limit spread of disease to sensitive wildlife populations.
- Stressor:** Nuisance plants Medium
- Use integrated management activities in concert to address nuisance plants.
- Adopt national standards and efforts to reduce and control nuisance species.
- Revegetate disturbed areas with native plants.
- Category:** Non-consumptive resource use **Priority**
- Stressor:** Off-range recreational shooting Medium
- Develop harvest guidelines for sensitive species to minimize impacts to important life stages (breeding, raising young, etc.).
- Category:** Species Specific **Priority**
- Stressor:** Small/localized or highly concentrated population(s) High
- Acquire land to protect important habitat and wildlife corridors.
- Acquire land or conservation easements to protect key conservation areas.
- Acquire land or conservation easements on portions of rangeland critical to wildlife.

<u>Species</u>	<u>Scores</u>
Houserock Valley Chisel-toothed Kangaroo Rat	Community/Focal: 1
<i>Dipodomys microps leucotis</i>	Responsibility: 3
Tier 1b mammal	
Category: Consumptive use of biological resources	Priority
Stressor: Grazing by ungulates	High
- Disseminate information to partners on effects of grazing on resources.	
- Acquire land or conservation easements on portions of rangeland critical to wildlife.	
- Protect sensitive habitats from excessive grazing.	
Category: Habitat conversion	Priority
Stressor: Livestock management	High
- Acquire land or conservation easements on portions of rangeland critical to wildlife.	
- Protect sensitive habitats from excessive grazing.	
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.	
Category: Invasive species	Priority
Stressor: Feral animals	Medium
- Reduce/eliminate the effects of feral animal populations in sensitive wildlife habitats or near wildlife populations of concern.	
Category: Species Specific	Priority

Stressor: Small/localized or highly concentrated population(s) High
- Acquire land or conservation easements to protect key conservation areas.
- Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Identify and protect key wildlife corridors for landscape connectivity.

Species **Scores**
Spotted Bat Community/Focal: 2
Euderma maculatum Responsibility: 3
Tier 1b mammal

Category: Changes in Ecological Processes **Priority**
Stressor: Habitat degradation/shrub invasions Medium
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.
- Use integrated management activities in concert to address nuisance plants.

Category: Non-consumptive resource use **Priority**
Stressor: Scientific research and collection Medium
- Evaluate and modify Department regulations where appropriate.
- Ensure regulatory mechanisms are updated (for example: restrictive live wildlife under Article 4 (ARS R12-4-406).

Category: Pollution **Priority**
Stressor: Pesticides/herbicides Medium
- Use alternative means for pest control (biocontrol, genetic control, management practices).
- Identify and use pesticides and herbicides that have limited negative impact to wildlife (a wildlife-safe label).

Category: Species Specific **Priority**
Stressor: Unknown High
- Develop research needs to assess population trends and/or habitat needs.

Species **Scores**
Greater Western Mastiff Bat Community/Focal: 2
Eumops perotis californicus Responsibility: 2
Tier 1b mammal

Category: Abiotic resource use **Priority**
Stressor: Groundwater depletion and springhead use High
- Promote water conservation methods in growth planning to develop sustainable water use.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Changes in Ecological Processes **Priority**
Stressor: Altered river flow regimes High
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Work with land managers to develop and implement management plans that incorporate wildlife values.

Stressor: Unnatural fire regimes Medium

- Work with land managers to develop and implement management plans that incorporate wildlife values.

- Use controlled burning to limit and reduce fuel loads and shrub invasion.

Category: Habitat conversion **Priority**

Stressor: Livestock management **Medium**

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

- Revegetate disturbed areas with native plants.

- Use integrated management activities in concert to address nuisance plants.

Stressor: Urban growth **Medium**

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Category: Non-consumptive resource use **Priority**

Stressor: Non-motorized recreation off-trail **Medium**

- Prevent or minimize recreational impacts in sensitive habitats.

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Category: Pollution **Priority**

Stressor: Pesticides/herbicides **High**

- Use appropriate concentrations and types of pesticides, herbicides, or alternatives to control undesirable species, especially near sensitive habitat and watercourses.

- Identify and use pesticides and herbicides that have limited negative impact to wildlife (a wildlife-safe label).

- Use alternative means for pest control (biocontrol, genetic control, management practices).

Category: Species Specific **Priority**

Stressor: Unknown **High**

- Develop research needs to assess population trends and/or habitat needs.

Species

Underwood's Mastiff Bat

Eumops underwoodi

Tier 1b mammal

Scores

Community/Focal: 2

Responsibility: 2

Category: Abiotic resource use **Priority**

Stressor: Groundwater depletion and springhead use **High**

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

- Promote water conservation methods in growth planning to develop sustainable water use.

- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

Stressor: Water diversion/water catchments **High**

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Changes in Ecological Processes **Priority**

Stressor: Unnatural fire regimes **Medium**

- Work with land managers to develop and implement management plans that incorporate wildlife values.

- Use controlled burning to limit and reduce fuel loads and shrub invasion.

Category: Habitat conversion	Priority
Stressor: Livestock management	Medium
- Protect sensitive habitats from excessive grazing.	
- Revegetate disturbed areas with native plants.	
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.	
Stressor: Urban growth	Medium
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.	
- Identify key conservation areas to protect from development.	
Category: Non-consumptive resource use	Priority
Stressor: Non-motorized recreation off-trail	Medium
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.	
- Prevent or minimize recreational impacts in sensitive habitats.	
Category: Pollution	Priority
Stressor: Pesticides/herbicides	High
- Use alternative means for pest control (biocontrol, genetic control, management practices).	
- Identify and use pesticides and herbicides that have limited negative impact to wildlife (a wildlife-safe label).	
- Use appropriate concentrations and types of pesticides, herbicides, or alternatives to control undesirable species, especially near sensitive habitat and watercourses.	
Category: Species Specific	Priority
Stressor: Unknown	High
- Develop research needs to assess population trends and/or habitat needs.	

Species

Western Red Bat

Lasiurus blossevillii

Tier 1b mammal

Scores
Community/Focal: 2
Responsibility: 3

Category: Abiotic resource use	Priority
Stressor: Groundwater depletion and springhead use	Medium
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.	
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.	
- Promote water conservation methods in growth planning to develop sustainable water use.	
Category: Changes in Ecological Processes	Priority
Stressor: Altered river flow regimes	High
- Protect sensitive habitats from excessive grazing.	
- Protect and restore springheads.	
- Work with land managers to develop and implement management plans that incorporate wildlife values.	
Stressor: Streambank alteration/channelization	High
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.	
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife	

and riparian habitat.

- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Pollution **Priority**

Stressor: Pesticides/herbicides Medium

- Use appropriate concentrations and types of pesticides, herbicides, or alternatives to control undesirable species, especially near sensitive habitat and watercourses.

- Use alternative means for pest control (biocontrol, genetic control, management practices).

- Identify and use pesticides and herbicides that have limited negative impact to wildlife (a wildlife-safe label).

Category: Species Specific **Priority**

Stressor: Unknown High

- Develop research needs to assess population trends and/or habitat needs.

Species

Western Yellow Bat

Lasiurus xanthinus

Tier 1b mammal

Scores

Community/Focal: 2

Responsibility: 3

Category: Changes in Ecological Processes **Priority**

Stressor: Altered river flow regimes Medium

- Protect and restore springheads.

- Protect sensitive habitats from excessive grazing.

- Work with land managers to develop and implement management plans that incorporate wildlife values.

Stressor: Streambank alteration/channelization Medium

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Consumptive use of biological resources **Priority**

Stressor: Forest and woodland management - consumptive use High

- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.

- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.

Category: Habitat conversion **Priority**

Stressor: Forest and woodland management - habitat conversion High

- Develop guidelines for location and design of new infrastructure installations to minimize effects on wildlife and habitats.

- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.

Stressor: Urban growth Medium

- Identify key conservation areas to protect from development.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Category: Pollution

Priority

Stressor: Pesticides/herbicides

Medium

- Use alternative means for pest control (biocontrol, genetic control, management practices).
- Use appropriate concentrations and types of pesticides, herbicides, or alternatives to control undesirable species, especially near sensitive habitat and watercourses.
- Identify and use pesticides and herbicides that have limited negative impact to wildlife (a wildlife-safe label).

Category: Species Specific

Priority

Stressor: Unknown

High

- Develop research needs to assess population trends and/or habitat needs.

Species

Ocelot

Scores
Community/Focal: 3
Responsibility: 1

Leopardus pardalis

Tier 1a mammal

Category: Border issues

Priority

Stressor: Poaching along the border

Medium

- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.

Category: Changes in Ecological Processes

Priority

Stressor: Habitat fragmentation/barriers

High

- Identify and protect key wildlife corridors for landscape connectivity.
- Identify key conservation areas to protect from development.
- Acquire land to protect important habitat and wildlife corridors.

Category: Habitat conversion

Priority

Stressor: Agricultural conversion

Medium

- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Acquire land or conservation easements to protect key conservation areas.

Stressor: Rural development

High

- Identify and protect key wildlife corridors for landscape connectivity.
- Identify key conservation areas to protect from development.
- Acquire land or conservation easements to protect key conservation areas.

Stressor: Urban growth

Medium

- Identify and protect key wildlife corridors for landscape connectivity.
- Identify key conservation areas to protect from development.
- Acquire land or conservation easements to protect key conservation areas.

Species

Lesser Long-nosed Bat

Scores
Community/Focal: 1
Responsibility: 2

Leptonycteris curasoae yerbabuena

Tier 1a mammal

Category: Border issues	Priority
Stressor: Enforcement activities along the border	High
- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.	
Stressor: Unauthorized roads & trails created by illegal immigrants and smugglers	High
- Incorporate wildlife values in the design of road and trail networks in and around natural areas.	
- Encourage revegetation and restoration of existing unauthorized roads and trails.	
- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.	
Category: Changes in Ecological Processes	Priority
Stressor: Habitat degradation/shrub invasions	Medium
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.	
- Use integrated management activities in concert to address nuisance plants.	
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.	
Stressor: Habitat fragmentation/barriers	Medium
- Acquire land to protect important habitat and wildlife corridors.	
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.	
Stressor: Unnatural fire regimes	Medium
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.	
- Use controlled burning to limit and reduce fuel loads and shrub invasion.	
Category: Habitat conversion	Priority
Stressor: Livestock management	High
- Revegetate disturbed areas with native plants.	
- Protect sensitive habitats from excessive grazing.	
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.	
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.	
Stressor: Rural development	High
- Identify and protect key wildlife corridors for landscape connectivity.	
- Identify key conservation areas to protect from development.	
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.	
Stressor: Urban growth	High
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.	
- Identify key conservation areas to protect from development.	
Category: Non-consumptive resource use	Priority
Stressor: Non-motorized recreation off-trail	High
- Prevent or minimize recreational impacts in sensitive habitats.	

- Design fire management plans and wildland/urban interface policies that consider wildlife values.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Stressor: Scientific research and collection Medium

- Ensure regulatory mechanisms are updated (for example: restrictive live wildlife under Article 4 (ARS R12-4-406).

Category: Species Specific **Priority**

Stressor: Small/localized or highly concentrated population(s) High

- Prevent or minimize recreational impacts in sensitive habitats.
- Increase enforcement for laws governing recreational activities.
- Retain and secure old mine adits and shafts for wildlife habitat (primarily for bats).

Stressor: Unknown High

- Develop research needs to assess population trends and/or habitat needs.

Species

Southwestern River Otter
Lutra canadensis sonora
Tier 1b mammal

Scores

Community/Focal: 3
Responsibility: 1

Category: Abiotic resource use **Priority**

Stressor: Groundwater depletion and springhead use Medium

- Promote water conservation methods in growth planning to develop sustainable water use.
- Encourage low water use agriculture.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Protect and restore springheads.

Category: Changes in Ecological Processes **Priority**

Stressor: Altered river flow regimes High

- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Remove or modify unnecessary or inoperative dams or diversions.

Stressor: Habitat fragmentation/barriers High

- Remove artificial stream barriers where appropriate.
- Remove or modify unnecessary or inoperative dams or diversions.
- Acquire land to protect important habitat and wildlife corridors.

Stressor: Streambank alteration/channelization High

- Protect and restore riparian areas.
- Work with other agencies to employ new techniques in lieu of traditional stream bank armoring and flood control measures.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.

Category: Climate Change **Priority**
Stressor: Drought Medium

- Encourage development of water use plans that protect instream flow.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Promote water conservation methods.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

Category: Consumptive use of biological resources **Priority**
Stressor: Harvesting/collecting animals High

- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.

Category: Habitat conversion **Priority**
Stressor: Dams/reservoirs/impoundments High

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Remove or modify unnecessary or inoperative dams or diversions.

Category: Invasive species **Priority**
Stressor: Disease/pathogens/parasites Medium

- Pursue projects to limit spread of disease to sensitive wildlife populations.
- Collaborate with partners on disease/pathogen/parasite issues to protect wildlife.

Stressor: Hybridization High

- Regulate or prohibit movement of species with high risk of hybridization with native species.
- Create barriers between susceptible native species and non-natives to reduce hybridization, predation, competition, and transmission of diseases, pathogens, and parasites.

Category: Pollution **Priority**
Stressor: Contaminants from waste water and runoff Medium

- Regulate and enforce use of containment measures for commercial operations to prevent toxins from polluting surrounding habitat.
- Use wetlands to buffer and filter contaminants from storm runoff and irrigation return water in and around urban/rural areas.

Species

California Leaf-nosed Bat

Macrotus californicus

Tier 1b mammal

Scores
Community/Focal: 2
Responsibility: 1

Category: Abiotic resource use **Priority**
Stressor: Mining Medium

- Retain and secure old mine adits and shafts for wildlife habitat (primarily for bats).

Category: Border issues **Priority**
Stressor: Enforcement activities along the border Medium

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Category: Changes in Ecological Processes **Priority**
Stressor: Habitat degradation/shrub invasions Medium

- Use integrated management activities in concert to address nuisance plants.

- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.
- Category:** Habitat conversion **Priority**
- Stressor:** Agricultural conversion Medium
- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).
- Stressor:** Rural development High
- Identify key conservation areas to protect from development.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Stressor:** Urban growth Medium
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Identify key conservation areas to protect from development.
- Category:** Non-consumptive resource use **Priority**
- Stressor:** Non-motorized recreation off-trail High
- Prevent or minimize recreational impacts in sensitive habitats.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Category:** Pollution **Priority**
- Stressor:** Pesticides/herbicides Medium
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Use appropriate concentrations and types of pesticides, herbicides, or alternatives to control undesirable species, especially near sensitive habitat and watercourses.
- Use alternative means for pest control (biocontrol, genetic control, management practices).
- Category:** Species Specific **Priority**
- Stressor:** Roost destruction High
- Retain and secure old mine adits and shafts for wildlife habitat (primarily for bats).
- Stressor:** Unknown High
- Develop research needs to assess population trends and/or habitat needs.

Species

White-bellied Long-tailed Vole
Microtus longicaudus leucophaeus
 Tier 1b mammal

Scores
 Community/Focal: 1
 Responsibility: 1

- Category:** Abiotic resource use **Priority**
- Stressor:** Groundwater depletion and springhead use High
- Protect and restore springheads.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Protect and restore riparian areas.
- Category:** Changes in Ecological Processes **Priority**
- Stressor:** Habitat degradation/shrub invasions Medium
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve

wildlife habitat.

Category: Climate Change **Priority**
Medium
Stressor: Shift to warmer climate

- Support efforts to reduce emission of greenhouse gases.

Category: Consumptive use of biological resources **Priority**
High
Stressor: Grazing by ungulates

- Protect sensitive habitats from excessive grazing.
- Disseminate information to partners on effects of grazing on resources.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

Category: Non-consumptive resource use **Priority**
Medium
Stressor: Dispersed camping

- Increase public awareness of responsible camping practices (low impact camping).

Stressor: Motorized recreation off-trail High

- Prevent or minimize recreational impacts in sensitive habitats.
- Increase public awareness of responsible OHV use and laws.
- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Increase enforcement for laws governing recreational activities.

Category: Species Specific **Priority**
Medium
Stressor: Small/localized or highly concentrated population(s)

- Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Acquire land or conservation easements to protect key conservation areas.

Category: Transportation and infrastructure **Priority**
High
Stressor: Unauthorized roads & trails

- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Increase enforcement for laws governing recreational activities.
- Increase public awareness of responsible OHV use and laws.
- Encourage responsible outdoor recreation through education (for example: "Stay on the Trails," "Leave No Trace," "Be Bear Aware," "Stop Aquatic Hitchhikers").
- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.
- Use fencing and/or increased law enforcement presence to reduce unauthorized use and access to sensitive habitats.

Species

Hualapai Mexican Vole
Microtus mexicanus hualpaiensis
Tier 1a mammal

Scores
Community/Focal: 1
Responsibility: 1

Category: Abiotic resource use **Priority**
Medium
Stressor: Groundwater depletion and springhead use

- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Protect and restore springheads.
- Protect and restore riparian areas.

Category: Changes in Ecological Processes **Priority**

- Stressor:** Habitat fragmentation/barriers Medium
- Acquire land to protect important habitat and wildlife corridors.
 - Increase public awareness of the effects of human activities and infrastructure on wildlife habitat fragmentation.
 - Identify and protect key wildlife corridors for landscape connectivity.
- Stressor:** Unnatural fire regimes Medium
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.
 - Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Category:** Climate Change **Priority**
- Stressor:** Drought Medium
- Promote adjustment of livestock management practices during droughts to ensure sufficient forage for wildlife.
- Category:** Consumptive use of biological resources **Priority**
- Stressor:** Forest and woodland management - consumptive use Medium
- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.
 - Encourage design of extractive operations that minimizes disturbance to wildlife.
- Stressor:** Grazing by ungulates High
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
 - Acquire land or conservation easements on portions of rangeland critical to wildlife.
 - Disseminate information to partners on effects of grazing on resources.
 - Protect sensitive habitats from excessive grazing.
- Category:** Habitat conversion **Priority**
- Stressor:** Livestock management Medium
- Acquire land or conservation easements on portions of rangeland critical to wildlife.
 - Protect sensitive habitats from excessive grazing.
 - Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Stressor:** Recreational sites/facilities High
- Use environmentally-friendly materials, landscaping, and structure designs for recreational sites.
 - Manage watercraft recreation to reduce impacts to shoreline habitats and minimize disturbance to wildlife.
 - Design recreation site management plans and policies that minimize impacts to wildlife and habitats.
- Category:** Species Specific **Priority**
- Stressor:** Small/localized or highly concentrated population(s) Medium
- Acquire land or conservation easements to protect key conservation areas.
 - Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Category:** Transportation and infrastructure **Priority**
- Stressor:** Roads for motorized vehicles Medium
- Encourage revegetation and restoration of existing unauthorized roads and trails.
 - Encourage wildlife friendly design for all road building.

Species

Black-footed Ferret

Mustela nigripes

Tier 1a mammal

Category: Changes in Ecological Processes

Stressor: Habitat fragmentation/barriers

- Acquire land to protect important habitat and wildlife corridors.
- Identify and protect key wildlife corridors for landscape connectivity.
- Identify key conservation areas to protect from development.

Stressor: Loss of keystone species

- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

Category: Habitat conversion

Stressor: Agricultural conversion

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

- Acquire land or conservation easements to protect key conservation areas.

- Mitigate habitat loss from agricultural conversion and/or urban/rural development.

Stressor: Rural development

- Identify and protect key wildlife corridors for landscape connectivity.

- Acquire land or conservation easements to protect key conservation areas.

- Identify key conservation areas to protect from development.

Stressor: Urban growth

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

- Acquire land or conservation easements to protect key conservation areas.

- Identify key conservation areas to protect from development.

Category: Invasive species

Stressor: Disease/pathogens/parasites

- Collaborate with partners on disease/pathogen/parasite issues to protect wildlife.

- Pursue projects to limit spread of disease to sensitive wildlife populations.

Stressor: Feral animals

- Increase public awareness on the need to control feral animals.

- Reduce/eliminate the effects of feral animal populations in sensitive wildlife habitats or near wildlife populations of concern.

Category: Non-consumptive resource use

Stressor: Off-range recreational shooting

- Increase enforcement for laws governing recreational activities.

Category: Species Specific

Stressor: Small/localized or highly concentrated population(s)

- Acquire land or conservation easements to protect key conservation areas.

Scores

Community/Focal: 1

Responsibility: 1

Priority

High

High

Priority

Medium

Medium

Medium

Priority

High

Medium

Priority

Medium

Priority

High

- Acquire land or conservation easements on portions of rangeland critical to wildlife.

Species

Big Free-tailed Bat

Nyctinomops macrotis

Tier 1b mammal

Scores

Community/Focal: 2

Responsibility: 2

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

Medium

- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

- Promote water conservation methods in growth planning to develop sustainable water use.

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

Medium

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

- Work with land managers to develop and implement management plans that incorporate wildlife values.

Stressor: Habitat degradation/shrub invasions

High

- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

- Use integrated management activities in concert to address nuisance plants.

Stressor: Unnatural fire regimes

Medium

- Work with land managers to develop and implement management plans that incorporate wildlife values.

Category: Habitat conversion

Priority

Stressor: Livestock management

Medium

- Use integrated management activities in concert to address nuisance plants.

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

- Revegetate disturbed areas with native plants.

Category: Non-consumptive resource use

Priority

Stressor: Non-motorized recreation off-trail

High

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

- Prevent or minimize recreational impacts in sensitive habitats.

Category: Pollution

Priority

Stressor: Pesticides/herbicides

High

- Use appropriate concentrations and types of pesticides, herbicides, or alternatives to control undesirable species, especially near sensitive habitat and watercourses.

- Use alternative means for pest control (biocontrol, genetic control, management practices).

- Identify and use pesticides and herbicides that have limited negative impact to wildlife (a wildlife-safe label).

Category: Species Specific

Priority

Stressor: Unknown

High

- Develop research needs to assess population trends and/or habitat needs.

Species

Desert Bighorn Sheep

Ovis canadensis mexicana

Tier 1b mammal

Scores

Community/Focal: 2

Responsibility: 2

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

Medium

- Protect and restore riparian areas.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Protect and restore springheads.

Stressor: Mining

Medium

- Revegetate disturbed areas with native plants.
- Incorporate wildlife values in planning and locations for new mines, associated structures, and leach fields.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

Medium

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Encourage development of water use plans that protect instream flow.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

Stressor: Habitat fragmentation/barriers

High

- Increase public awareness of the effects of human activities and infrastructure on wildlife habitat fragmentation.
- Acquire land to protect important habitat and wildlife corridors.
- Identify and protect key wildlife corridors for landscape connectivity.
- Identify key conservation areas to protect from development.

Stressor: Unnatural fire regimes

High

- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Promote adjustment of livestock management practices during droughts to ensure sufficient forage for wildlife.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Promote water conservation methods.

Category: Consumptive use of biological resources

Priority

Stressor: Grazing by ungulates

Medium

- Acquire land or conservation easements on portions of rangeland critical to wildlife.

- Protect sensitive habitats from excessive grazing.
 - Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
 - Protect sensitive habitats from excessive grazing.
 - Disseminate information to partners on effects of grazing on resources.
- Stressor:** Harvesting/collecting animals High
- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.
- Category:** Habitat conversion **Priority**
- Stressor:** Dams/reservoirs/impoundments Medium
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
 - Remove or modify unnecessary or inoperative dams or diversions.
- Stressor:** Rural development Medium
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
 - Identify and protect key wildlife corridors for landscape connectivity.
 - Identify key conservation areas to protect from development.
 - Acquire land or conservation easements to protect key conservation areas.
- Stressor:** Urban growth Medium
- Identify and protect key wildlife corridors for landscape connectivity.
 - Identify key conservation areas to protect from development.
 - Acquire land or conservation easements to protect key conservation areas.
- Category:** Invasive species **Priority**
- Stressor:** Disease/pathogens/parasites High
- Collaborate with partners on disease/pathogen/parasite issues to protect wildlife.
 - Pursue projects to limit spread of disease to sensitive wildlife populations.
- Stressor:** Feral animals Medium
- Increase public awareness on the impacts of releasing exotic species, pets, or livestock on wildlife.
 - Reduce/eliminate the effects of feral animal populations in sensitive wildlife habitats or near wildlife populations of concern.
- Category:** Non-consumptive resource use **Priority**
- Stressor:** Motorized recreation off-trail Medium
- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.
 - Encourage revegetation and restoration of existing unauthorized roads and trails.
 - Increase public awareness of responsible OHV use and laws.
 - Prevent or minimize recreational impacts in sensitive habitats.
 - Increase enforcement for laws governing recreational activities.
- Category:** Transportation and infrastructure **Priority**
- Stressor:** Roads for motorized vehicles Medium
- Encourage wildlife friendly design for all road building.
 - Incorporate wildlife values in the design of road and trail networks in and around natural areas.
 - Encourage revegetation and restoration of existing unauthorized roads and trails.

<u>Species</u>	<u>Scores</u>
Jaguar <i>Panthera onca</i> Tier 1a mammal	Community/Focal: 1 Responsibility: 1
Category: Border issues	Priority
Stressor: Poaching along the border	High
- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.	
Category: Changes in Ecological Processes	Priority
Stressor: Habitat fragmentation/barriers	High
- Identify and protect key wildlife corridors for landscape connectivity.	
- Identify key conservation areas to protect from development.	
- Acquire land to protect important habitat and wildlife corridors.	
Stressor: Unnatural fire regimes	Medium
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.	
Category: Climate Change	Priority
Stressor: Drought	Medium
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.	
- Manage upland watersheds to retain vegetation as a buffer against drought effects.	
Category: Consumptive use of biological resources	Priority
Stressor: Harvesting/collecting animals	High
- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.	
Category: Habitat conversion	Priority
Stressor: Livestock management	High
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.	
Stressor: Rural development	Medium
- Acquire land or conservation easements to protect key conservation areas.	
- Identify key conservation areas to protect from development.	
- Acquire land to protect important habitat and wildlife corridors.	
Stressor: Urban growth	Medium
- Identify and protect key wildlife corridors for landscape connectivity.	
- Acquire land or conservation easements to protect key conservation areas.	
- Identify key conservation areas to protect from development.	
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.	
Category: Non-consumptive resource use	Priority
Stressor: Scientific research and collection	Medium
- Collaborate with partners to evaluate effects of capture and sampling techniques on wildlife.	

<u>Species</u>	<u>Scores</u>
Springerville Pocket Mouse	Community/Focal: 2

<i>Perognathus flavus goodpasteri</i>	Responsibility: 1
Tier 1b mammal	
Category: Climate Change	Priority
Stressor: Drought	Medium
<ul style="list-style-type: none">- Manage upland watersheds to retain vegetation as a buffer against drought effects.- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.- Promote adjustment of livestock management practices during droughts to ensure sufficient forage for wildlife.	
Category: Consumptive use of biological resources	Priority
Stressor: Grazing by ungulates	High
<ul style="list-style-type: none">- Protect sensitive habitats from excessive grazing.- Acquire land or conservation easements on portions of rangeland critical to wildlife.- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.- Disseminate information to partners on effects of grazing on resources.	
Category: Habitat conversion	Priority
Stressor: Agricultural conversion	Medium
<ul style="list-style-type: none">- Mitigate habitat loss from agricultural conversion and/or urban/rural development.- Acquire land or conservation easements to protect key conservation areas.	
Stressor: Rural development	High
<ul style="list-style-type: none">- Identify key conservation areas to protect from development.- Identify and protect key wildlife corridors for landscape connectivity.- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.- Acquire land or conservation easements to protect key conservation areas.	
Category: Invasive species	Priority
Stressor: Nuisance plants	Medium
<ul style="list-style-type: none">- Revegetate disturbed areas with native plants.- Use native plants for roadway landscaping and urban/rural developed areas.- Use integrated management activities in concert to address nuisance plants.	
Category: Species Specific	Priority
Stressor: Small/localized or highly concentrated population(s)	High
<ul style="list-style-type: none">- Acquire land or conservation easements on portions of rangeland critical to wildlife.- Acquire land to protect important habitat and wildlife corridors.- Acquire land or conservation easements to protect key conservation areas.- Identify and protect key wildlife corridors for landscape connectivity.	
Stressor: Unknown	Medium
<ul style="list-style-type: none">- Develop research needs to assess population trends and/or habitat needs.	
Category: Transportation and infrastructure	Priority
Stressor: Unauthorized roads & trails	Medium
<ul style="list-style-type: none">- Increase enforcement for laws governing recreational activities.- Increase public awareness of responsible OHV use and laws.- Encourage revegetation and restoration of existing unauthorized roads and trails.- Use fencing and/or increased law enforcement presence to reduce unauthorized use and	

access to sensitive habitats.

- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.
- Encourage responsible outdoor recreation through education (for example: "Stay on the Trails," "Leave No Trace," "Be Bear Aware," "Stop Aquatic Hitchhikers").

Species

Mesquite Mouse
Peromyscus merriami
 Tier 1b mammal

Scores

Community/Focal: 1
 Responsibility: 1

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.
- Promote water conservation methods in growth planning to develop sustainable water use.
- Protect and restore springheads.
- Encourage low water use agriculture.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

Medium

- Protect and restore riparian areas.

Stressor: Habitat fragmentation/barriers

High

- Increase public awareness of the effects of human activities and infrastructure on wildlife habitat fragmentation.

- Identify and protect key wildlife corridors for landscape connectivity.
- Acquire land to protect important habitat and wildlife corridors.
- Identify key conservation areas to protect from development.

Stressor: Streambank alteration/channelization

Medium

- Protect and restore riparian areas.

Category: Consumptive use of biological resources

Priority

Stressor: Grazing by ungulates

High

- Protect sensitive habitats from excessive grazing.
- Disseminate information to partners on effects of grazing on resources.
- Acquire land or conservation easements on portions of rangeland critical to wildlife.

Category: Habitat conversion

Priority

Stressor: Agricultural conversion

Medium

- Acquire land or conservation easements to protect key conservation areas.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.

Stressor: Dams/reservoirs/impoundments

Medium

- Remove or modify unnecessary or inoperative dams or diversions.

Stressor: Forest and woodland management - habitat conversion

High

- Encourage design of extractive operations that minimizes disturbance to wildlife.
- Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity.

Stressor: Rural development Medium

- Identify and protect key wildlife corridors for landscape connectivity.
- Acquire land or conservation easements to protect key conservation areas.
- Identify key conservation areas to protect from development.

Stressor: Urban growth Medium

- Acquire land to protect important habitat and wildlife corridors.
- Identify key conservation areas to protect from development.
- Acquire land or conservation easements to protect key conservation areas.
- Identify and protect key wildlife corridors for landscape connectivity.

Category: Invasive species **Priority**

Stressor: Nuisance plants Medium

- Use integrated management activities in concert to address nuisance plants.
- Revegetate disturbed areas with native plants.

Species

Chiricahua Fox Squirrel

Sciurus nayaritensis chiricahuae

Tier 1b mammal

Category: Species Specific

Stressor: Small/localized or highly concentrated population(s)

- Acquire land to protect important habitat and wildlife corridors.
- Identify and protect key wildlife corridors for landscape connectivity.
- Acquire land or conservation easements to protect key conservation areas.
- Acquire land or conservation easements on portions of rangeland critical to wildlife.

Stressor: Unknown Medium

- Develop research needs to assess population trends and/or habitat needs.

Species

Yavapai Arizona Cotton Rat

Sigmodon arizonae jacksoni

Tier 1b mammal

Category: Abiotic resource use

Stressor: Groundwater depletion and springhead use

- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

- Protect and restore springheads.

Category: Changes in Ecological Processes

Stressor: Altered river flow regimes

- Remove or modify unnecessary or inoperative dams or diversions.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.
- Encourage development of water use plans that protect instream flow.

Stressor: Habitat fragmentation/barriers High

Scores

Community/Focal: 2

Responsibility: 1

Priority

High

Scores

Community/Focal: 2

Responsibility: 1

Priority

Medium

Priority

High

- Identify and protect key wildlife corridors for landscape connectivity.
- Identify key conservation areas to protect from development.
- Acquire land to protect important habitat and wildlife corridors.

Stressor: Streambank alteration/channelization

Medium

- Protect and restore riparian areas.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Promote adjustment of livestock management practices during droughts to ensure sufficient forage for wildlife.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

Category: Habitat conversion

Priority

Stressor: Agricultural conversion

Medium

- Acquire land or conservation easements to protect key conservation areas.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.

Stressor: Dams/reservoirs/impoundments

Medium

- Remove or modify unnecessary or inoperative dams or diversions.

Category: Species Specific

Priority

Stressor: Small/localized or highly concentrated population(s)

High

- Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Acquire land or conservation easements to protect key conservation areas.
- Acquire land to protect important habitat and wildlife corridors.
- Identify and protect key wildlife corridors for landscape connectivity.

Stressor: Unknown

Medium

- Develop research needs to assess population trends and/or habitat needs.

Species

Yuma Hispid Cotton Rat

Sigmodon hispidus eremicus

Tier 1b mammal

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Encourage low water use agriculture.
- Protect and restore riparian areas.
- Protect and restore springheads.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

High

- Encourage development of water use plans that protect instream flow.
- Develop off-channel wetlands and backwaters along rivers to increase wildlife habitat.
- Encourage development of water use plans that protect instream flow.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Scores
Community/Focal: 2
Responsibility: 2

Stressor: Habitat fragmentation/barriers High

- Identify and protect key wildlife corridors for landscape connectivity.
- Identify key conservation areas to protect from development.
- Acquire land to protect important habitat and wildlife corridors.

Category: Habitat conversion **Priority**

Stressor: Dams/reservoirs/impoundments Medium

- Remove or modify unnecessary or inoperative dams or diversions.
- Encourage development of water use plans that protect instream flow.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Stressor: Rural development Medium

- Acquire land or conservation easements to protect key conservation areas.
- Acquire land to protect important habitat and wildlife corridors.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Identify key conservation areas to protect from development.
- Identify and protect key wildlife corridors for landscape connectivity.

Category: Species Specific **Priority**

Stressor: Small/localized or highly concentrated population(s) High

- Acquire land or conservation easements to protect key conservation areas.
- Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Acquire land to protect important habitat and wildlife corridors.

Stressor: Unknown Medium

- Develop research needs to assess population trends and/or habitat needs.

Species

Arizona Shrew

Sorex arizonae

Tier 1b mammal

Scores

Community/Focal: 2

Responsibility: 1

Category: Abiotic resource use **Priority**

Stressor: Groundwater depletion and springhead use High

- Protect and restore springheads.
- Protect and restore riparian areas.
- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

Category: Changes in Ecological Processes **Priority**

Stressor: Habitat fragmentation/barriers Medium

- Acquire land or conservation easements to protect key conservation areas.
- Identify and protect key wildlife corridors for landscape connectivity.
- Acquire land to protect important habitat and wildlife corridors.

Category: Consumptive use of biological resources **Priority**

Stressor: Grazing by ungulates High

- Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Disseminate information to partners on effects of grazing on resources.
- Develop and implement livestock and big game management guidelines that minimize

habitat degradation while maintaining stock ponds where appropriate.

- Protect sensitive habitats from excessive grazing.

Category: Habitat conversion

Priority

Stressor: Recreational sites/facilities

Medium

- Prevent or minimize recreational impacts in sensitive habitats.

Stressor: Rural development

Medium

- Identify key conservation areas to protect from development.

- Acquire land or conservation easements to protect key conservation areas.

- Identify and protect key wildlife corridors for landscape connectivity.

Species

Scores

Dwarf Shrew

Community/Focal: 3

Sorex nanus

Responsibility: 3

Tier 1b mammal

Category: Species Specific

Priority

Stressor: Small/localized or highly concentrated population(s)

High

- Acquire land or conservation easements to protect key conservation areas.

- Acquire land or conservation easements on portions of rangeland critical to wildlife.

Stressor: Unknown

Medium

- Develop research needs to assess population trends and/or habitat needs.

Species

Scores

Water Shrew

Community/Focal: 1

Sorex palustris

Responsibility: 3

Tier 1b mammal

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Protect and restore springheads.

- Increase public awareness on the importance of conserving groundwater and springs for the benefit of wildlife.

- Promote water conservation methods in growth planning to develop sustainable water use.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

High

- Protect and restore springheads.

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

- Encourage development of water use plans that protect instream flow.

- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).

Stressor: Habitat degradation/shrub invasions

Medium

- Use controlled burning to limit and reduce fuel loads and shrub invasion.

Stressor: Habitat fragmentation/barriers

High

- Identify and protect key wildlife corridors for landscape connectivity.

- Acquire land or conservation easements on portions of rangeland critical to wildlife.

- Acquire land to protect important habitat and wildlife corridors.

- Stressor:** Soil erosion Medium
- Protect and restore riparian areas.
 - Protect and restore springheads.
 - Train resource managers, developers, and private landowners in ways to minimize soil erosion and improve habitat.
 - Protect and restore riparian areas.
 - Protect sensitive habitats from excessive grazing.
- Stressor:** Streambank alteration/channelization High
- Protect and restore riparian areas.
 - Remove or modify unnecessary or inoperative dams or diversions.
- Category:** Climate Change **Priority**
- Stressor:** Drought Medium
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
 - Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Category:** Consumptive use of biological resources **Priority**
- Stressor:** Forest and woodland management - consumptive use Medium
- Encourage design of extractive operations that minimizes disturbance to wildlife.
- Stressor:** Grazing by ungulates High
- Protect sensitive habitats from excessive grazing.
 - Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
 - Disseminate information to partners on effects of grazing on resources.
 - Protect and restore riparian areas.
 - Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Category:** Habitat conversion **Priority**
- Stressor:** Dams/reservoirs/impoundments High
- Remove or modify unnecessary or inoperative dams or diversions.
 - Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Stressor:** Rural development Medium
- Acquire land or conservation easements to protect key conservation areas.
 - Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
 - Identify key conservation areas to protect from development.
 - Identify and protect key wildlife corridors for landscape connectivity.
- Category:** Species Specific **Priority**
- Stressor:** Small/localized or highly concentrated population(s) High
- Acquire land or conservation easements to protect key conservation areas.
 - Acquire land or conservation easements on portions of rangeland critical to wildlife.
 - Acquire land to protect important habitat and wildlife corridors.

Species

Thirteen-lined Ground Squirrel
Spermophilus tridecemlineatus

Scores

Community/Focal: 1
Responsibility: 3

Tier 1b mammal

Category: Changes in Ecological Processes

Priority

Stressor: Habitat fragmentation/barriers

High

- Identify and protect key wildlife corridors for landscape connectivity.
- Acquire land to protect important habitat and wildlife corridors.
- Acquire land or conservation easements to protect key conservation areas.

Category: Consumptive use of biological resources

Priority

Stressor: Grazing by ungulates

Medium

- Protect sensitive habitats from excessive grazing.
- Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Disseminate information to partners on effects of grazing on resources.

Category: Habitat conversion

Priority

Stressor: Agricultural conversion

Medium

- Acquire land or conservation easements to protect key conservation areas.
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Stressor: Recreational sites/facilities

Medium

- Design recreation site management plans and policies that minimize impacts to wildlife and habitats.

- Prevent or minimize recreational impacts in sensitive habitats.

Stressor: Rural development

Medium

- Identify key conservation areas to protect from development.
- Identify and protect key wildlife corridors for landscape connectivity.
- Acquire land or conservation easements to protect key conservation areas.

Category: Non-consumptive resource use

Priority

Stressor: Dispersed camping

Medium

- Prevent or minimize recreational impacts in sensitive habitats.
- Increase enforcement for laws governing recreational activities.
- Increase public awareness of responsible camping practices (low impact camping).

Stressor: Motorized recreation off-trail

Medium

- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Increase public awareness of responsible OHV use and laws.
- Use fencing and/or increased law enforcement presence to reduce unauthorized use and access to sensitive habitats.
- Increase enforcement for laws governing recreational activities.

Category: Species Specific

Priority

Stressor: Small/localized or highly concentrated population(s)

High

- Acquire land to protect important habitat and wildlife corridors.
- Acquire land or conservation easements to protect key conservation areas.
- Acquire land or conservation easements on portions of rangeland critical to wildlife.

Stressor: Unknown

High

- Develop research needs to assess population trends and/or habitat needs.

Category: Transportation and infrastructure

Priority

Stressor: Roads for motorized vehicles

Medium

- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Encourage wildlife friendly design for all road building.

Stressor: Unauthorized roads & trails Medium

- Increase enforcement for laws governing recreational activities.
- Use fencing and/or increased law enforcement presence to reduce unauthorized use and access to sensitive habitats.
- Increase public awareness of responsible OHV use and laws.
- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Encourage responsible outdoor recreation through education (for example: "Stay on the Trails," "Leave No Trace," "Be Bear Aware," "Stop Aquatic Hitchhikers").
- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.

Species

Mt Graham Red Squirrel

Tamiasciurus hudsonicus grahamens

Tier 1a mammal

Scores

Community/Focal: 1

Responsibility: 1

Category: Changes in Ecological Processes **Priority**

Stressor: Habitat fragmentation/barriers High

- Acquire land to protect important habitat and wildlife corridors.
- Identify and protect key wildlife corridors for landscape connectivity.
- Identify key conservation areas to protect from development.

Stressor: Unnatural fire regimes Medium

- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.

Category: Consumptive use of biological resources **Priority**

Stressor: Forest and woodland management - consumptive use High

- Encourage design of extractive operations that minimizes disturbance to wildlife.

Category: Habitat conversion **Priority**

Stressor: Forest and woodland management - habitat conversion High

- Promote guidelines for timber harvesting and associated road building that positively effect wildlife.

Stressor: Recreational sites/facilities High

- Seasonally close areas to recreational and commercial use when sensitive breeding wildlife are present.
- Design recreation site management plans and policies that minimize impacts to wildlife and habitats.
- Prevent or minimize recreational impacts in sensitive habitats.

Stressor: Rural development Medium

- Acquire land or conservation easements to protect key conservation areas.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Identify key conservation areas to protect from development.

Category: Invasive species **Priority**

Stressor: Nuisance animals High

- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.

Category: Species Specific

Priority

Stressor: Small/localized or highly concentrated population(s)

High

- Acquire land to protect important habitat and wildlife corridors.
- Acquire land or conservation easements to protect key conservation areas.
- Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Identify and protect key wildlife corridors for landscape connectivity.

Category: Transportation and infrastructure

Priority

Stressor: Roads for motorized vehicles

Medium

- Encourage revegetation and restoration of existing unauthorized roads and trails.

Stressor: Telephone lines/cellphone towers

Medium

- Develop guidelines for location and design of new infrastructure installations to minimize effects on wildlife and habitats.
- Implement 'Best Management Practices' when building roads or other infrastructure (dams, mines, developments, etc.).

Species

Scores

Harquahala Southern Pocket Gopher

Community/Focal: 2

Thomomys bottae subsimilis

Responsibility: 1

Tier 1b mammal

Category: Changes in Ecological Processes

Priority

Stressor: Habitat fragmentation/barriers

High

- Identify and protect key wildlife corridors for landscape connectivity.
- Acquire land to protect important habitat and wildlife corridors.
- Acquire land or conservation easements to protect key conservation areas.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

Category: Consumptive use of biological resources

Priority

Stressor: Grazing by ungulates

Medium

- Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Disseminate information to partners on effects of grazing on resources.
- Protect sensitive habitats from excessive grazing.

Category: Non-consumptive resource use

Priority

Stressor: Dispersed camping

Medium

- Increase public awareness of responsible camping practices (low impact camping).

Stressor: Motorized recreation off-trail

Medium

- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.
- Encourage responsible outdoor recreation through education (for example: "Stay on the Trails," "Leave No Trace," "Be Bear Aware," "Stop Aquatic Hitchhikers").
- Use fencing and/or increased law enforcement presence to reduce unauthorized use and access to sensitive habitats.

- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Increase public awareness of responsible OHV use and laws.

Category: Species Specific

Priority

Stressor: Small/localized or highly concentrated population(s)

High

- Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Acquire land or conservation easements to protect key conservation areas.

Stressor: Unknown

Medium

- Develop research needs to assess population trends and/or habitat needs.

Category: Transportation and infrastructure

Priority

Stressor: Roads for motorized vehicles

Medium

- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Use fencing and/or increased law enforcement presence to reduce unauthorized use and access to sensitive habitats.

Species

Scores

Southern Pocket Gopher

Community/Focal: 2

Thomomys umbrinus intermedius

Responsibility: 3

Tier 1b mammal

Category: Changes in Ecological Processes

Priority

Stressor: Habitat fragmentation/barriers

Medium

- Identify key conservation areas to protect from development.
- Identify and protect key wildlife corridors for landscape connectivity.
- Acquire land to protect important habitat and wildlife corridors.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

Category: Non-consumptive resource use

Priority

Stressor: Dispersed camping

Medium

- Increase public awareness of responsible camping practices (low impact camping).

Stressor: Motorized recreation off-trail

Medium

- Encourage responsible outdoor recreation through education (for example: "Stay on the Trails," "Leave No Trace," "Be Bear Aware," "Stop Aquatic Hitchhikers").

- Use fencing and/or increased law enforcement presence to reduce unauthorized use and access to sensitive habitats.

- Encourage revegetation and restoration of existing unauthorized roads and trails.

- Increase public awareness of responsible OHV use and laws.

- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.

Category: Species Specific

Priority

Stressor: Small/localized or highly concentrated population(s)

High

- Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Acquire land or conservation easements to protect key conservation areas.

Stressor: Unknown

Medium

- Develop research needs to assess population trends and/or habitat needs.

Species

New Mexican Jumping Mouse
Zapus hudsonius luteus
Tier 1b mammal

Scores

Community/Focal: 2
Responsibility: 1

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Promote water conservation methods in growth planning to develop sustainable water use.
- Protect and restore springheads.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

High

- Encourage development of water use plans that protect instream flow.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

Stressor: Habitat fragmentation/barriers

High

- Protect and restore riparian areas.
- Identify and protect key wildlife corridors for landscape connectivity.
- Acquire land to protect important habitat and wildlife corridors.

Stressor: Streambank alteration/channelization

Medium

- Protect and restore riparian areas.

Category: Consumptive use of biological resources

Priority

Stressor: Forest and woodland management - consumptive use

Medium

- Encourage design of extractive operations that minimizes disturbance to wildlife.

Stressor: Grazing by ungulates

High

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect sensitive habitats from excessive grazing.
- Disseminate information to partners on effects of grazing on resources.

Category: Habitat conversion

Priority

Stressor: Agricultural conversion

Medium

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Protect and restore riparian areas.
- Acquire land or conservation easements to protect key conservation areas.

Stressor: Dams/reservoirs/impoundments

High

- Remove or modify unnecessary or inoperative dams or diversions.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

Stressor: Livestock management

High

- Develop and implement livestock and big game management guidelines that minimize

habitat degradation while maintaining stock ponds where appropriate.

- Protect sensitive habitats from excessive grazing.
- Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Disseminate information to partners on effects of grazing on resources.

Stressor: Rural development

Medium

- Identify key conservation areas to protect from development.
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Identify and protect key wildlife corridors for landscape connectivity.
- Acquire land or conservation easements to protect key conservation areas.

Category: Species Specific

Priority

Stressor: Small/localized or highly concentrated population(s)

High

- Acquire land or conservation easements on portions of rangeland critical to wildlife.
- Acquire land or conservation easements to protect key conservation areas.

REPTILES

Species

Arizona Striped Whiptail

Aspidoscelis arizonae

Tier 1b reptile

Scores

Community/Focal: 1

Responsibility: 1

Category: Changes in Ecological Processes

Priority

Stressor: Habitat degradation/shrub invasions

Medium

- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Use integrated management activities in concert to address nuisance plants.

Stressor: Unnatural fire regimes

Medium

- Use integrated management activities in concert to address nuisance plants.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.

Category: Habitat conversion

Priority

Stressor: Livestock management

Medium

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect sensitive habitats from excessive grazing.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

- Revegetate disturbed areas with native plants.
- Use integrated management activities in concert to address nuisance plants.

Stressor: Rural development **High**

- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Acquire land or conservation easements to protect key conservation areas.
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Category: Non-consumptive resource use **Priority**

Stressor: Motorized recreation off-trail **Medium**

- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.
- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Prevent or minimize recreational impacts in sensitive habitats.
- Increase enforcement for laws governing recreational activities.
- Increase public awareness of responsible OHV use and laws.

Species

Giant Spotted Whiptail

Aspidoscelis stictogrammus

Tier 1b reptile

Category: Changes in Ecological Processes

Stressor: Habitat degradation/shrub invasions

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.
- Use integrated management activities in concert to address nuisance plants.

Stressor: Unnatural fire regimes **High**

- Encourage the utilization of low water use [and native] plants in landscaping.
- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Use integrated management activities in concert to address nuisance plants.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.

Category: Habitat conversion **Priority**

Stressor: Livestock management **Medium**

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect sensitive habitats from excessive grazing.
- Revegetate disturbed areas with native plants.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

- Use integrated management activities in concert to address nuisance plants.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.

Stressor: Rural development **Medium**

- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Acquire land or conservation easements to protect key conservation areas.

Category: Invasive species **Priority**

Stressor: Nuisance plants **Medium**

- Support and participate in the multi-agency Governor's Invasive Species Task Force.
- Use integrated management activities in concert to address nuisance plants.
- Revegetate disturbed areas with native plants.
- Limit extent and level of disturbance that promotes invasion and spread of nuisance plants.
- Develop regulations on the sale and use of potentially invasive plants for landscaping, aquariums, and backyard ponds.
- Adopt national standards and efforts to reduce and control nuisance species.

Category: Non-consumptive resource use **Priority**

Stressor: Motorized recreation off-trail **Medium**

- Increase enforcement for laws governing recreational activities.
- Increase public awareness of responsible OHV use and laws.
- Prevent or minimize recreational impacts in sensitive habitats.
- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.

Species

Red-back Whiptail

Aspidoscelis xanthonota

Tier 1b reptile

Category: Changes in Ecological Processes

Stressor: Unnatural fire regimes

- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Use integrated management activities in concert to address nuisance plants.

Category: Habitat conversion

Stressor: Livestock management

- Revegetate disturbed areas with native plants.
- Use integrated management activities in concert to address nuisance plants.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Scores
Community/Focal: 3
Responsibility: 3

Priority
High

Priority
Medium

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect sensitive habitats from excessive grazing.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.

Stressor: Rural development Medium

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Acquire land or conservation easements to protect key conservation areas.
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.

Category: Invasive species **Priority**
Stressor: Nuisance plants High

- Develop regulations on the sale and use of potentially invasive plants for landscaping, aquariums, and backyard ponds.
- Use integrated management activities in concert to address nuisance plants.
- Support and participate in the multi-agency Governor's Invasive Species Task Force.
- Limit extent and level of disturbance that promotes invasion and spread of nuisance plants.
- Adopt national standards and efforts to reduce and control nuisance species.
- Revegetate disturbed areas with native plants.

Category: Non-consumptive resource use **Priority**
Stressor: Motorized recreation off-trail Medium

- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.
- Increase enforcement for laws governing recreational activities.
- Prevent or minimize recreational impacts in sensitive habitats.
- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Increase public awareness of responsible OHV use and laws.

Species

Tucson Shovel-nosed Snake
Chionactis occipitalis klauberi
Tier 1b reptile

Scores
Community/Focal: 2
Responsibility: 1

Category: Changes in Ecological Processes **Priority**
Stressor: Habitat fragmentation/barriers Medium

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Identify and protect key wildlife corridors for landscape connectivity.
- Acquire land to protect important habitat and wildlife corridors.

Stressor: Unnatural fire regimes High

- Use integrated management activities in concert to address nuisance plants.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.

- Encourage the utilization of low water use [and native] plants in landscaping.

Category: Habitat conversion

Priority

Stressor: Agricultural conversion

High

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Acquire land or conservation easements to protect key conservation areas.

Stressor: Landfills/dumps

Medium

- Locate new landfills in appropriate locations that reduce impacts to wildlife and water sources.

Stressor: Livestock management

Medium

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect sensitive habitats from excessive grazing.
- Revegetate disturbed areas with native plants.
- Use integrated management activities in concert to address nuisance plants.

Stressor: Rural development

High

- Acquire land or conservation easements to protect key conservation areas.
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Stressor: Urban growth

High

- Identify key conservation areas to protect from development.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Acquire land or conservation easements to protect key conservation areas.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Identify and protect key wildlife corridors for landscape connectivity.

Category: Invasive species

Priority

Stressor: Nuisance plants

High

- Limit extent and level of disturbance that promotes invasion and spread of nuisance plants.
- Revegetate disturbed areas with native plants.
- Adopt national standards and efforts to reduce and control nuisance species.
- Develop regulations on the sale and use of potentially invasive plants for landscaping,

aquariums, and backyard ponds.

- Support and participate in the multi-agency Governor's Invasive Species Task Force.
- Use integrated management activities in concert to address nuisance plants.

Category: Non-consumptive resource use

Priority

Stressor: Motorized recreation off-trail

Medium

- Increase enforcement for laws governing recreational activities.
- Increase public awareness of responsible OHV use and laws.
- Prevent or minimize recreational impacts in sensitive habitats.
- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.

Category: Transportation and infrastructure

Priority

Stressor: Roads for motorized vehicles

Medium

- Encourage wildlife friendly design for all road building.
- Promote design and construction of overpasses, underpasses or culverts to increase permeability of existing or planned roads.

Species

Organ Pipe Shovel-nosed Snake

Scores

Community/Focal: 2

Chionactis palarostris organica

Responsibility: 3

Tier 1b reptile

Category: Changes in Ecological Processes

Priority

Stressor: Unnatural fire regimes

High

- Use integrated management activities in concert to address nuisance plants.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.

Category: Invasive species

Priority

Stressor: Nuisance plants

High

- Adopt national standards and efforts to reduce and control nuisance species.
- Use integrated management activities in concert to address nuisance plants.
- Develop regulations on the sale and use of potentially invasive plants for landscaping, aquariums, and backyard ponds.
- Limit extent and level of disturbance that promotes invasion and spread of nuisance plants.
- Support and participate in the multi-agency Governor's Invasive Species Task Force.
- Revegetate disturbed areas with native plants.

Category: Transportation and infrastructure

Priority

Stressor: Roads for motorized vehicles

High

- Encourage wildlife friendly design for all road building.
- Promote design and construction of overpasses, underpasses or culverts to increase permeability of existing or planned roads.

Species

Western Twin-spotted Rattlesnake

Scores

Community/Focal: 1

Crotalus pricei pricei

Responsibility: 3

Tier 1b reptile

Category: Border issues

Priority

Stressor: Altered fire regime as a result of border activities Medium
 - Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.

- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.

Category: Changes in Ecological Processes **Priority**
Stressor: Unnatural fire regimes High

- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Reduce the density of undesirable trees and shrubs (selective thinning and eradication of tamarisk) to prevent crown fires and wildfires in riparian areas.
- Use integrated management activities in concert to address nuisance plants.
- Encourage the utilization of low water use [and native] plants in landscaping.

Category: Climate Change **Priority**
Stressor: Shift to warmer climate High

- Develop plans to conserve priority conservation species (Focal Community, Responsibility, and Vulnerability categories) that are not sufficiently addressed under existing plans.

Category: Consumptive use of biological resources **Priority**
Stressor: Harvesting/collecting animals Medium

- Increase public awareness of regulations pertaining to illegal harvest.
- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.

Category: Invasive species **Priority**
Stressor: Nuisance plants Medium

- Revegetate disturbed areas with native plants.
- Support and participate in the multi-agency Governor's Invasive Species Task Force.
- Limit extent and level of disturbance that promotes invasion and spread of nuisance plants.
- Use integrated management activities in concert to address nuisance plants.
- Develop regulations on the sale and use of potentially invasive plants for landscaping, aquariums, and backyard ponds.
- Adopt national standards and efforts to reduce and control nuisance species.

<u>Species</u>	<u>Scores</u>
New Mexico Ridge-nosed Rattlesnake	Community/Focal: 1
<i>Crotalus willardi obscurus</i>	Responsibility: 3
Tier 1a reptile	

Category: Border issues **Priority**
Stressor: Altered fire regime as a result of border activities Medium

- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.

Stressor: Enforcement activities along the border Medium
 - Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Category: Changes in Ecological Processes

Priority

Stressor: Unnatural fire regimes

High

- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Encourage the utilization of low water use [and native] plants in landscaping.
- Use integrated management activities in concert to address nuisance plants.

Category: Consumptive use of biological resources

Priority

Stressor: Harvesting/collecting animals

High

- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.
- Increase public awareness of regulations pertaining to illegal harvest.

Category: Habitat conversion

Priority

Stressor: Livestock management

Medium

- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Protect and restore riparian areas.
- Use integrated management activities in concert to address nuisance plants.
- Protect sensitive habitats from excessive grazing.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Revegetate disturbed areas with native plants.

Category: Invasive species

Priority

Stressor: Nuisance plants

Medium

- Revegetate disturbed areas with native plants.
- Adopt national standards and efforts to reduce and control nuisance species.
- Limit extent and level of disturbance that promotes invasion and spread of nuisance plants.
- Support and participate in the multi-agency Governor's Invasive Species Task Force.
- Use integrated management activities in concert to address nuisance plants.
- Develop regulations on the sale and use of potentially invasive plants for landscaping, aquariums, and backyard ponds.

Category: Non-consumptive resource use

Priority

Stressor: Motorized recreation off-trail

Medium

- Increase public awareness of responsible OHV use and laws.
- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.
- Increase enforcement for laws governing recreational activities.
- Prevent or minimize recreational impacts in sensitive habitats.

Species

Arizona Ridge-nosed Rattlesnake

Crotalus willardi willardi

Tier 1b reptile

Category: Border issues

Scores

Community/Focal: 2

Responsibility: 2

Priority

- Stressor:** Altered fire regime as a result of border activities Medium
- Use controlled burning to limit and reduce fuel loads and shrub invasion.
 - Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.
 - Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Stressor:** Enforcement activities along the border Medium
- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.
- Category:** Changes in Ecological Processes **Priority**
- Stressor:** Unnatural fire regimes High
- Use integrated management activities in concert to address nuisance plants.
 - Use controlled burning to limit and reduce fuel loads and shrub invasion.
 - Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
 - Encourage the utilization of low water use [and native] plants in landscaping.
- Category:** Consumptive use of biological resources **Priority**
- Stressor:** Harvesting/collecting animals High
- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.
 - Increase public awareness of regulations pertaining to illegal harvest.
- Category:** Habitat conversion **Priority**
- Stressor:** Livestock management High
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
 - Use integrated management activities in concert to address nuisance plants.
 - Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
 - Protect sensitive habitats from excessive grazing.
 - Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
 - Revegetate disturbed areas with native plants.
- Category:** Invasive species **Priority**
- Stressor:** Nuisance plants Medium
- Revegetate disturbed areas with native plants.
 - Support and participate in the multi-agency Governor's Invasive Species Task Force.
 - Use integrated management activities in concert to address nuisance plants.
 - Adopt national standards and efforts to reduce and control nuisance species.
 - Limit extent and level of disturbance that promotes invasion and spread of nuisance plants.
 - Develop regulations on the sale and use of potentially invasive plants for landscaping, aquariums, and backyard ponds.
- Category:** Non-consumptive resource use **Priority**
- Stressor:** Motorized recreation off-trail Medium
- Encourage revegetation and restoration of existing unauthorized roads and trails.
 - Prevent or minimize recreational impacts in sensitive habitats.
 - Increase public awareness of responsible OHV use and laws.
 - Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.

- Increase enforcement for laws governing recreational activities.

Species

Arizona Skink

Eumeces gilberti arizonensis

Tier 1b reptile

Category: Abiotic resource use

Stressor: Water diversion/water catchments

- Prevent or minimize recreational impacts in sensitive habitats.
- Protect sensitive habitats from excessive grazing.

Category: Consumptive use of biological resources

Stressor: Harvesting/collecting animals

- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.
- Increase public awareness of regulations pertaining to illegal harvest.

Category: Habitat conversion

Stressor: Livestock management

- Protect and restore riparian areas.
- Use integrated management activities in concert to address nuisance plants.
- Revegetate disturbed areas with native plants.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect sensitive habitats from excessive grazing.

Stressor: Rural development

- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Acquire land or conservation easements to protect key conservation areas.
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.

Category: Transportation and infrastructure

Stressor: Roads for motorized vehicles

- Encourage wildlife friendly design for all road building.
- Promote design and construction of overpasses, underpasses or culverts to increase permeability of existing or planned roads.

Species

Mohave Desert Tortoise

Gopherus agassizii (Mohave Population)

Tier 1a reptile

Category: Changes in Ecological Processes

Stressor: Habitat degradation/shrub invasions

Scores

Community/Focal: 3

Responsibility: 1

Priority

Medium

Priority

Medium

Priority

High

High

Priority

Medium

Scores

Community/Focal: 2

Responsibility: 2

Priority

Medium

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

- Use integrated management activities in concert to address nuisance plants.

Stressor: Habitat fragmentation/barriers

High

- Identify and protect key wildlife corridors for landscape connectivity.

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

- Acquire land to protect important habitat and wildlife corridors.

Stressor: Unnatural fire regimes

High

- Use integrated management activities in concert to address nuisance plants.

- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.

- Encourage the utilization of low water use [and native] plants in landscaping.

Category: Climate Change

Priority

Stressor: Drought

High

- Manage upland watersheds to retain vegetation as a buffer against drought effects.

Category: Habitat conversion

Priority

Stressor: Livestock management

High

- Use integrated management activities in concert to address nuisance plants.

- Revegetate disturbed areas with native plants.

- Protect sensitive habitats from excessive grazing.

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Stressor: Rural development

Medium

- Mitigate habitat loss from agricultural conversion and/or urban/rural development.

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

- Acquire land or conservation easements to protect key conservation areas.

Stressor: Urban growth

Medium

- Acquire land or conservation easements to protect key conservation areas.

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

- Identify key conservation areas to protect from development.

- Identify and protect key wildlife corridors for landscape connectivity.

- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.

Category: Invasive species

Priority

Stressor: Disease/pathogens/parasites

High

- Pursue projects to limit spread of disease to sensitive wildlife populations.
- Collaborate with partners on disease/pathogen/parasite issues to protect wildlife.
- Adopt national standards and efforts to reduce and control nuisance species.

Category: Transportation and infrastructure

Priority

Stressor: Roads for motorized vehicles

High

- Promote design and construction of overpasses, underpasses or culverts to increase permeability of existing or planned roads.
- Encourage wildlife friendly design for all road building.

Stressor: Unauthorized roads & trails

Medium

- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Use fencing and/or increased law enforcement presence to reduce unauthorized use and access to sensitive habitats.
- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.
- Increase enforcement for laws governing recreational activities.

Species

Scores

Sonoran Desert Tortoise

Community/Focal: 2

Gopherus agassizii (Sonoran Population)

Responsibility: 2

Tier 1b reptile

Category: Abiotic resource use

Priority

Stressor: Mining

Medium

- Incorporate wildlife values in planning and locations for new mines, associated structures, and leach fields.

Category: Border issues

Priority

Stressor: Dispersed camping along the border

Medium

- Use fencing and/or increased law enforcement presence to reduce unauthorized use and access to sensitive habitats.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.
- Develop cooperative clean up efforts along the border for the benefit of wildlife.

Stressor: Enforcement activities along the border

Medium

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Category: Changes in Ecological Processes

Priority

Stressor: Habitat degradation/shrub invasions

Medium

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Use integrated management activities in concert to address nuisance plants.

Stressor: Habitat fragmentation/barriers

High

- Identify and protect key wildlife corridors for landscape connectivity.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

- Acquire land to protect important habitat and wildlife corridors.
Stressor: Unnatural fire regimes High
- Encourage the utilization of low water use [and native] plants in landscaping.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Use integrated management activities in concert to address nuisance plants.
Category: Climate Change **Priority**
- Stressor:** Drought High
- Manage upland watersheds to retain vegetation as a buffer against drought effects.
Category: Consumptive use of biological resources **Priority**
- Stressor:** Harvesting/collecting animals Medium
- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.
- Increase public awareness of regulations pertaining to illegal harvest.
Category: Habitat conversion **Priority**
- Stressor:** Livestock management High
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Use integrated management activities in concert to address nuisance plants.
- Protect sensitive habitats from excessive grazing.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Revegetate disturbed areas with native plants.
Stressor: Rural development Medium
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Acquire land or conservation easements to protect key conservation areas.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
Stressor: Urban growth High
- Identify and protect key wildlife corridors for landscape connectivity.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Acquire land or conservation easements to protect key conservation areas.
- Identify key conservation areas to protect from development.
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
Category: Invasive species **Priority**
- Stressor:** Disease/pathogens/parasites High
- Pursue projects to limit spread of disease to sensitive wildlife populations.
- Adopt national standards and efforts to reduce and control nuisance species.
- Collaborate with partners on disease/pathogen/parasite issues to protect wildlife.

Stressor: Nuisance plants High

- Adopt national standards and efforts to reduce and control nuisance species.
- Develop regulations on the sale and use of potentially invasive plants for landscaping, aquariums, and backyard ponds.
- Support and participate in the multi-agency Governor's Invasive Species Task Force.
- Revegetate disturbed areas with native plants.
- Limit extent and level of disturbance that promotes invasion and spread of nuisance plants.
- Use integrated management activities in concert to address nuisance plants.

Category: Transportation and infrastructure **Priority**

Stressor: Roads for motorized vehicles High

- Promote design and construction of overpasses, underpasses or culverts to increase permeability of existing or planned roads.
- Encourage wildlife friendly design for all road building.

Stressor: Unauthorized roads & trails Medium

- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.
- Use fencing and/or increased law enforcement presence to reduce unauthorized use and access to sensitive habitats.
- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Increase enforcement for laws governing recreational activities.

Species

Thornscrub Hook-nosed Snake

Gyalopion quadrangulare

Tier 1b reptile

Scores

Community/Focal: 3

Responsibility: 3

Category: Border issues **Priority**

Stressor: Dispersed camping along the border Medium

- Use fencing and/or increased law enforcement presence to reduce unauthorized use and access to sensitive habitats.
- Work with land managers to develop and implement management plans that incorporate wildlife values.
- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.
- Develop cooperative clean up efforts along the border for the benefit of wildlife.

Stressor: Enforcement activities along the border Medium

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Stressor: Unauthorized roads & trails created for law enforcement along the border Medium

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.
- Incorporate wildlife values in the design of road and trail networks in and around natural areas.

Category: Changes in Ecological Processes **Priority**

Stressor: Unnatural fire regimes Medium

- Encourage the utilization of low water use [and native] plants in landscaping.

- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Use integrated management activities in concert to address nuisance plants.

Category: Consumptive use of biological resources

Priority

Stressor: Harvesting/collecting animals

High

- Increase public awareness of regulations pertaining to illegal harvest.
- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.

Category: Habitat conversion

Priority

Stressor: Livestock management

Medium

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Revegetate disturbed areas with native plants.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Use integrated management activities in concert to address nuisance plants.
- Protect sensitive habitats from excessive grazing.

Stressor: Rural development

High

- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Acquire land or conservation easements to protect key conservation areas.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.

Category: Invasive species

Priority

Stressor: Nuisance plants

Medium

- Use integrated management activities in concert to address nuisance plants.
- Support and participate in the multi-agency Governor's Invasive Species Task Force.
- Revegetate disturbed areas with native plants.
- Limit extent and level of disturbance that promotes invasion and spread of nuisance plants.
- Develop regulations on the sale and use of potentially invasive plants for landscaping, aquariums, and backyard ponds.
- Adopt national standards and efforts to reduce and control nuisance species.

Species

Arizona Mud Turtle

Kinosternon arizonense

Tier 1b reptile

Category: Abiotic resource use

Stressor: Groundwater depletion and springhead use

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Climate Change

Stressor: Drought

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Scores

Community/Focal: 1

Responsibility: 3

Priority

Medium

Priority

Medium

- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

Category: Habitat conversion

Priority

Stressor: Livestock management

High

- Revegetate disturbed areas with native plants.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Use integrated management activities in concert to address nuisance plants.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Protect and restore riparian areas.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect sensitive habitats from excessive grazing.

Species

Scores

Yellow Mud Turtle

Community/Focal: 2

Kinosternon flavescens

Responsibility: 3

Tier 1b reptile

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

Medium

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Habitat conversion

Priority

Stressor: Agricultural conversion

High

- Acquire land or conservation easements to protect key conservation areas.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Stressor: Livestock management

Medium

- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect and restore riparian areas.
- Use integrated management activities in concert to address nuisance plants.
- Develop and implement livestock and big game management guidelines that minimize

habitat degradation while maintaining stock ponds where appropriate.

- Revegetate disturbed areas with native plants.
- Protect sensitive habitats from excessive grazing.

Stressor: Rural development

High

- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Renovate aquatic systems to remove undesirable species.
- Acquire land or conservation easements to protect key conservation areas.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).

Species

Sonoyta Mud Turtle

Kinosternon sonoriense longifemorale

Tier 1a reptile

Scores

Community/Focal: 2

Responsibility: 2

Category: Abiotic resource use

Priority

Stressor: Groundwater depletion and springhead use

High

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Border issues

Priority

Stressor: Water use/contamination from illegal immigrants and drug smugglers

Medium

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.
- Develop cooperative clean up efforts along the border for the benefit of wildlife.

Category: Changes in Ecological Processes

Priority

Stressor: Altered river flow regimes

High

- Work with land managers to develop and implement management plans that incorporate wildlife values.

- Protect and restore springheads.

- Protect sensitive habitats from excessive grazing.

- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

Category: Climate Change

Priority

Stressor: Drought

High

- Manage upland watersheds to retain vegetation as a buffer against drought effects.

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

- Encourage proper functioning riparian areas and aquatic habitats as buffers against

drought effects.

Category: Consumptive use of biological resources

Priority

Stressor: Harvesting/collecting animals

Medium

- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.
- Increase public awareness of regulations pertaining to illegal harvest.

Category: Habitat conversion

Priority

Stressor: Agricultural conversion

Medium

- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.

Stressor: Livestock management

High

- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Use integrated management activities in concert to address nuisance plants.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect sensitive habitats from excessive grazing.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect and restore riparian areas.
- Revegetate disturbed areas with native plants.

Category: Pollution

Priority

Stressor: Pesticides/herbicides

Medium

- Use appropriate concentrations and types of pesticides, herbicides, or alternatives to control undesirable species, especially near sensitive habitat and watercourses.
- Promote organic agriculture and gardening practices that do not rely on chemical treatments.
- Use alternative means for pest control (biocontrol, genetic control, management practices).
- Identify and use pesticides and herbicides that have limited negative impact to wildlife (a wildlife-safe label).

Species

New Mexico Milksnake

Scores

Community/Focal: 3

Lampropeltis triangulum celaenops

Responsibility: 3

Tier 1b reptile

Category: Border issues

Priority

Stressor: Altered fire regime as a result of border activities

Medium

- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.

Stressor: Enforcement activities along the border

Medium

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Category: Changes in Ecological Processes

Priority

- Stressor:** Habitat degradation/shrub invasions Medium
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
 - Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.
 - Use integrated management activities in concert to address nuisance plants.
- Stressor:** Unnatural fire regimes Medium
- Use integrated management activities in concert to address nuisance plants.
 - Use controlled burning to limit and reduce fuel loads and shrub invasion.
 - Encourage the utilization of low water use [and native] plants in landscaping.
 - Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Category:** Climate Change **Priority**
- Stressor:** Drought Medium
- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Category:** Consumptive use of biological resources **Priority**
- Stressor:** Harvesting/collecting animals High
- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.
 - Increase public awareness of regulations pertaining to illegal harvest.
- Category:** Habitat conversion **Priority**
- Stressor:** Agricultural conversion Medium
- Acquire land or conservation easements to protect key conservation areas.
 - Mitigate habitat loss from agricultural conversion and/or urban/rural development.
 - Work with city and county planners to incorporate wildlife values in urban/rural development plans.
 - Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Stressor:** Livestock management High
- Use integrated management activities in concert to address nuisance plants.
 - Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
 - Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
 - Revegetate disturbed areas with native plants.
 - Protect sensitive habitats from excessive grazing.
- Stressor:** Rural development Medium
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
 - Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
 - Mitigate habitat loss from agricultural conversion and/or urban/rural development.
 - Acquire land or conservation easements to protect key conservation areas.
 - Work with city and county planners to promote in-fill development and limit urban/rural sprawl.

Species

Scores

Utah Milksnake <i>Lampropeltis triangulum taylori</i> Tier 1b reptile	Community/Focal: 3 Responsibility: 3
Category: Changes in Ecological Processes	Priority
Stressor: Habitat degradation/shrub invasions	Medium
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.	
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.	
- Use integrated management activities in concert to address nuisance plants.	
Stressor: Unnatural fire regimes	Medium
- Use controlled burning to limit and reduce fuel loads and shrub invasion.	
- Use integrated management activities in concert to address nuisance plants.	
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.	
- Encourage the utilization of low water use [and native] plants in landscaping.	
Category: Climate Change	Priority
Stressor: Drought	Medium
- Manage upland watersheds to retain vegetation as a buffer against drought effects.	
Category: Consumptive use of biological resources	Priority
Stressor: Harvesting/collecting animals	High
- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.	
- Increase public awareness of regulations pertaining to illegal harvest.	
Category: Habitat conversion	Priority
Stressor: Livestock management	High
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.	
- Use integrated management activities in concert to address nuisance plants.	
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.	
- Revegetate disturbed areas with native plants.	
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.	
- Protect sensitive habitats from excessive grazing.	
Stressor: Rural development	Medium
- Acquire land or conservation easements to protect key conservation areas.	
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.	
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.	
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.	
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.	

Species

Brown Vinesnake

Scores

Community/Focal: 3

<i>Oxybelis aeneus</i>	Responsibility: 3
Tier 1b reptile	
Category: Border issues	Priority
Stressor: Altered fire regime as a result of border activities	Medium
- Use controlled burning to limit and reduce fuel loads and shrub invasion.	
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.	
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.	
Stressor: Enforcement activities along the border	Medium
- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.	
Category: Changes in Ecological Processes	Priority
Stressor: Unnatural fire regimes	High
- Use integrated management activities in concert to address nuisance plants.	
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.	
- Use controlled burning to limit and reduce fuel loads and shrub invasion.	
Category: Climate Change	Priority
Stressor: Drought	Medium
- Manage upland watersheds to retain vegetation as a buffer against drought effects.	
Category: Consumptive use of biological resources	Priority
Stressor: Harvesting/collecting animals	Medium
- Increase public awareness of regulations pertaining to illegal harvest.	
- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.	
Category: Habitat conversion	Priority
Stressor: Livestock management	High
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.	
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.	
- Protect sensitive habitats from excessive grazing.	
- Revegetate disturbed areas with native plants.	
- Use integrated management activities in concert to address nuisance plants.	
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.	
Stressor: Rural development	High
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.	
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.	
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.	
- Acquire land or conservation easements to protect key conservation areas.	
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.	
Category: Transportation and infrastructure	Priority
Stressor: Roads for motorized vehicles	Medium

- Encourage wildlife friendly design for all road building.
- Promote design and construction of overpasses, underpasses or culverts to increase permeability of existing or planned roads.

Species

Flat-tailed Horned Lizard
Phrynosoma mcallii
Tier 1a reptile

Scores
Community/Focal: 2
Responsibility: 2

Category: Border issues

Priority

Stressor: Enforcement activities along the border

High

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Stressor: Unauthorized roads & trails created for law enforcement along the border

High

- Incorporate wildlife values in the design of road and trail networks in and around natural areas.

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Category: Changes in Ecological Processes

Priority

Stressor: Unnatural fire regimes

Medium

- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Use integrated management activities in concert to address nuisance plants.
- Encourage the utilization of low water use [and native] plants in landscaping.

Category: Habitat conversion

Priority

Stressor: Agricultural conversion

Medium

- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Acquire land or conservation easements to protect key conservation areas.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Stressor: Urban growth

High

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Identify key conservation areas to protect from development.
- Identify and protect key wildlife corridors for landscape connectivity.
- Acquire land or conservation easements to protect key conservation areas.

Category: Invasive species

Priority

Stressor: Nuisance plants

High

- Support and participate in the multi-agency Governor's Invasive Species Task Force.
- Use integrated management activities in concert to address nuisance plants.
- Adopt national standards and efforts to reduce and control nuisance species.

- Develop regulations on the sale and use of potentially invasive plants for landscaping, aquariums, and backyard ponds.
- Limit extent and level of disturbance that promotes invasion and spread of nuisance plants.
- Revegetate disturbed areas with native plants.

Category: Non-consumptive resource use

Priority

Stressor: Motorized recreation off-trail

High

- Encourage revegetation and restoration of existing unauthorized roads and trails.
- Prevent or minimize recreational impacts in sensitive habitats.
- Increase public awareness of responsible OHV use and laws.
- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.
- Increase enforcement for laws governing recreational activities.

Category: Transportation and infrastructure

Priority

Stressor: Roads for motorized vehicles

Medium

- Promote design and construction of overpasses, underpasses or culverts to increase permeability of existing or planned roads.
- Encourage wildlife friendly design for all road building.

Species

Slevin's Bunchgrass Lizard

Scores

Community/Focal: 1

Sceloporus slevini

Responsibility: 3

Tier 1b reptile

Category: Changes in Ecological Processes

Priority

Stressor: Habitat degradation/shrub invasions

Medium

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.
- Use integrated management activities in concert to address nuisance plants.

Stressor: Unnatural fire regimes

Medium

- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Use integrated management activities in concert to address nuisance plants.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Manage upland watersheds to retain vegetation as a buffer against drought effects.

Category: Habitat conversion

Priority

Stressor: Livestock management

High

- Protect sensitive habitats from excessive grazing.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

- Use integrated management activities in concert to address nuisance plants.
- Revegetate disturbed areas with native plants.

Stressor: Rural development High

- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Acquire land or conservation easements to protect key conservation areas.

Species

Desert Massasauga
Sistrurus catenatus edwardsii
 Tier 1b reptile

Scores
 Community/Focal: 2
 Responsibility: 3

Category: Border issues **Priority**

Stressor: Altered fire regime as a result of border activities Medium

- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.

Stressor: Enforcement activities along the border Medium

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Category: Changes in Ecological Processes **Priority**

Stressor: Habitat degradation/shrub invasions Medium

- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Use integrated management activities in concert to address nuisance plants.
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.

Stressor: Unnatural fire regimes Medium

- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Use integrated management activities in concert to address nuisance plants.

Category: Climate Change **Priority**

Stressor: Drought Medium

- Manage upland watersheds to retain vegetation as a buffer against drought effects.

Category: Consumptive use of biological resources **Priority**

Stressor: Harvesting/collecting animals High

- Increase public awareness of regulations pertaining to illegal harvest.
- Increase enforcement of existing laws pertaining to the illegal harvest of wildlife.

Category: Habitat conversion **Priority**

Stressor: Livestock management High

- Protect sensitive habitats from excessive grazing.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Revegetate disturbed areas with native plants.
- Use integrated management activities in concert to address nuisance plants.

Stressor: Rural development

Medium

- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Acquire land or conservation easements to protect key conservation areas.
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.

Species

Desert Box Turtle

Terrapene ornata luteola

Tier 1b reptile

Category: Border issues

Stressor: Altered fire regime as a result of border activities

- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.

Stressor: Enforcement activities along the border

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Category: Changes in Ecological Processes

Stressor: Unnatural fire regimes

- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Use controlled burning to limit and reduce fuel loads and shrub invasion.
- Use integrated management activities in concert to address nuisance plants.

Category: Climate Change

Stressor: Drought

- Manage upland watersheds to retain vegetation as a buffer against drought effects.

Category: Habitat conversion

Stressor: Agricultural conversion

- Acquire land or conservation easements to protect key conservation areas.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Scores

Community/Focal: 2

Responsibility: 3

Priority

Medium

Medium

Priority

Medium

Priority

Medium

Priority

Medium

- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Stressor:** Livestock management High
- Use integrated management activities in concert to address nuisance plants.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Revegetate disturbed areas with native plants.
- Protect sensitive habitats from excessive grazing.
- Stressor:** Rural development High
- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Acquire land or conservation easements to protect key conservation areas.
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Stressor:** Urban growth Medium
- Acquire land or conservation easements to protect key conservation areas.
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Identify and protect key wildlife corridors for landscape connectivity.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Identify key conservation areas to protect from development.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Category:** Transportation and infrastructure **Priority**
- Stressor:** Roads for motorized vehicles High
- Encourage wildlife friendly design for all road building.
- Promote design and construction of overpasses, underpasses or culverts to increase permeability of existing or planned roads.

Species

Northern Mexican Gartersnake
Thamnophis eques megalops
Tier 1b reptile

Scores
Community/Focal: 2
Responsibility: 2

- Category:** Abiotic resource use **Priority**
- Stressor:** Groundwater depletion and springhead use High
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Category:** Border issues **Priority**
- Stressor:** Enforcement activities along the border Medium

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Category: Changes in Ecological Processes

Priority

Stressor: Streambank alteration/channelization

Medium

- Protect and restore riparian areas.
- Protect sensitive habitats from excessive grazing.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.

Category: Habitat conversion

Priority

Stressor: Livestock management

Medium

- Use integrated management activities in concert to address nuisance plants.
- Protect and restore riparian areas.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.
- Revegetate disturbed areas with native plants.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect sensitive habitats from excessive grazing.

Stressor: Rural development

High

- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Acquire land or conservation easements to protect key conservation areas.
- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Renovate aquatic systems to remove undesirable species.

Category: Invasive species

Priority

Stressor: Nuisance animals

High

- Evaluate and modify Department regulations where appropriate.
- Use integrated management activities in concert to address nuisance plants.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Identify watersheds and other conservation areas to prioritize renovation activities.

- Build a central database that identifies the distribution of aquatic nuisance species in relation to sensitive habitats and wildlife of concern.
- Adopt national standards and efforts to reduce and control nuisance species.
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.
- Support and participate in the multi-agency Governor's Invasive Species Task Force.
- Ensure regulatory mechanisms are updated (for example: restrictive live wildlife under Article 4 (ARS R12-4-406).
- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.

Category: Pollution

Priority

Stressor: Sediment/ash flows

Medium

- Develop contingency plans for rapid salvage of wildlife populations threatened with extirpation in situations of imminent habitat loss.
- Protect and restore riparian areas.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.
- Revegetate disturbed areas with native plants.

Species

Narrow-headed Gartersnake

Thamnophis rufipunctatus

Tier 1b reptile

Category: Abiotic resource use

Stressor: Groundwater depletion and springhead use

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Stressor: Water diversion/water catchments

- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.
- Prevent or minimize recreational impacts in sensitive habitats.
- Incorporate stream morphology and wildlife habitat features in canals and flood control drainages.

- Establish or revise laws and agency policies that protect instream flows to benefit wildlife and riparian habitat.

- Remove artificial stream barriers where appropriate.

- Protect sensitive habitats from excessive grazing.

- Promote water conservation methods.

Category: Changes in Ecological Processes

Stressor: Soil erosion

- Promote guidelines for timber harvesting and associated road building that positively effect wildlife.

- Protect and restore riparian areas.

- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.

- Install streambank stabilization structures or habitat features to reduce erosion and loss of sediment.

- Implement watershed based approaches aimed at preventing excessive soil erosion.

Scores

Community/Focal: 2

Responsibility: 1

Priority

Medium

Medium

Priority

Medium

Stressor: Streambank alteration/channelization Medium

- Protect sensitive habitats from excessive grazing.
- Protect and restore riparian areas.

Category: Climate Change

Priority

Stressor: Drought

Medium

- Encourage proper functioning riparian areas and aquatic habitats as buffers against drought effects.
- Manage upland watersheds to retain vegetation as a buffer against drought effects.
- Manage watersheds to maintain hydrological integrity and incorporate wildlife values.

Category: Habitat conversion

Priority

Stressor: Livestock management

Medium

- Use integrated management activities in concert to address nuisance plants.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.
- Protect and restore riparian areas.
- Develop and implement livestock and big game management guidelines that minimize habitat degradation while maintaining stock ponds where appropriate.
- Protect sensitive habitats from excessive grazing.
- Revegetate disturbed areas with native plants.
- Identify sensitive habitats and associated stressors in watershed planning efforts to prioritize conservation needs.

Stressor: Rural development

Medium

- Mitigate habitat loss from agricultural conversion and/or urban/rural development.
- Promote urban growth planning initiatives that protect instream flow or acquire water rights (through purchase, conservation agreement, etc.).
- Acquire land or conservation easements to protect key conservation areas.
- Renovate aquatic systems to remove undesirable species.
- Protect instream flow or acquire water rights (through purchase, conservation agreement, etc.) to benefit wildlife habitat.
- Work with city and county planners to incorporate wildlife values in urban/rural development plans.
- Work with city and county planners to promote in-fill development and limit urban/rural sprawl.
- Work cooperatively with landowners/permittees by providing financial and technical assistance (thru incentive programs) to conservation projects.

Category: Invasive species

Priority

Stressor: Nuisance animals

High

- Support and participate in the multi-agency Governor's Invasive Species Task Force.
- Evaluate and modify Department regulations where appropriate.
- Renovate/restore suppressed or extirpated wildlife communities, habitats, and connectivity.
- Adopt national standards and efforts to reduce and control nuisance species.
- Build a central database that identifies the distribution of aquatic nuisance species in relation to sensitive habitats and wildlife of concern.
- Increase public education and enforcement of rules and regulations on introducing and spreading nuisance species.

- Develop guidelines for the elimination of nuisance species and re-establishment of native assemblages.
- Implement recovery plans, habitat conservation plans, and other cooperative agreements for sustaining wildlife resources..
- Identify watersheds and other conservation areas to prioritize renovation activities.
- Use integrated management activities in concert to address nuisance plants.
- Ensure regulatory mechanisms are updated (for example: restrictive live wildlife under Article 4 (ARS R12-4-406).

Species

Yuman Desert Fringe-toed Lizard

Uma rufopunctata

Tier 1b reptile

Category: Border issues

Stressor: Enforcement activities along the border

- Work with Department of Homeland Security agencies to identify sensitive habitats, incorporate wildlife values, and mitigation actions for borderland management activities.

Category: Changes in Ecological Processes

Stressor: Unnatural fire regimes

- Use integrated management activities in concert to address nuisance plants.
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.

Category: Invasive species

Stressor: Nuisance plants

- Develop regulations on the sale and use of potentially invasive plants for landscaping, aquariums, and backyard ponds.
- Limit extent and level of disturbance that promotes invasion and spread of nuisance plants.
- Use integrated management activities in concert to address nuisance plants.
- Adopt national standards and efforts to reduce and control nuisance species.
- Revegetate disturbed areas with native plants.
- Support and participate in the multi-agency Governor's Invasive Species Task Force.

Category: Non-consumptive resource use

Stressor: Motorized recreation off-trail

- Prevent or minimize recreational impacts in sensitive habitats.
- Increase public awareness of responsible OHV use and laws.
- Increase enforcement for laws governing recreational activities.
- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.
- Encourage revegetation and restoration of existing unauthorized roads and trails.

Category: Transportation and infrastructure

Stressor: Roads for motorized vehicles

- Promote design and construction of overpasses, underpasses or culverts to increase permeability of existing or planned roads.
- Encourage wildlife friendly design for all road building.

Scores

Community/Focal: 2

Responsibility: 2

Priority

Medium

Priority

High

Priority

High

Priority

High

Priority

Medium

Species

Scores

Mojave Fringe-toed Lizard <i>Uma scoparia</i> Tier 1b reptile	Community/Focal: 2 Responsibility: 3
Category: Changes in Ecological Processes	Priority
Stressor: Unnatural fire regimes	High
- Manage for vegetation types that reduce fuel loads and provide better wildlife habitat.	
- Use integrated management activities in concert to address nuisance plants.	
Category: Invasive species	Priority
Stressor: Nuisance plants	High
- Develop regulations on the sale and use of potentially invasive plants for landscaping, aquariums, and backyard ponds.	
- Adopt national standards and efforts to reduce and control nuisance species.	
- Use integrated management activities in concert to address nuisance plants.	
- Support and participate in the multi-agency Governor's Invasive Species Task Force.	
- Limit extent and level of disturbance that promotes invasion and spread of nuisance plants.	
- Revegetate disturbed areas with native plants.	
Category: Non-consumptive resource use	Priority
Stressor: Motorized recreation off-trail	High
- Increase enforcement for laws governing recreational activities.	
- Increase public awareness of responsible OHV use and laws.	
- Encourage revegetation and restoration of existing unauthorized roads and trails.	
- Prevent or minimize recreational impacts in sensitive habitats.	
- Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.	
Category: Transportation and infrastructure	Priority
Stressor: Roads for motorized vehicles	Medium
- Promote design and construction of overpasses, underpasses or culverts to increase permeability of existing or planned roads.	
- Encourage wildlife friendly design for all road building.	

ACTIONS TO ADDRESS INFORMATION NEEDS RELATED TO STRESSORS

HABITAT CONVERSION CATEGORY

Stress Category

Stressor

Habitat conversion

Agricultural conversion

Strategy: Compile data, programs and information

Compile information on the impacts of the stressor to wildlife and habitats

Strategy: Determine status and distribution

Determine habitat needs for all species

Determine the distribution and extent of native-dominated riparian areas

Strategy: Develop conservation, research, and monitoring tools

Identify priorities and opportunities for acquisitions or easements

Strategy: Research ecosystem conditions

Conduct a remote sensing/GIS analysis of land-use change

Identify locations of areas at risk of conversion to agriculture

Strategy: Research stressors

Determine the hydrological effects of agricultural water use

Investigate technological advances in farming practices

Stress Category

Habitat conversion

Stressor

Dams/reservoirs/impoundments

Strategy: Develop conservation, research, and monitoring tools

Determine dam release patterns that support native wildlife

Determine ways to address sedimentation issues (for example, slurry lines)

Identify waterways to be managed for native and nonnative aquatic wildlife

Stress Category

Habitat conversion

Stressor

Landfills/dumps

Strategy: Compile data, programs and information

Compile information from partners regarding existing strategies and actions

Strategy: Research stressors

Determine contaminants and their impacts

Stress Category

Habitat conversion

Stressor

Livestock management

Strategy: Conservation tools

Develop consensus on methods to assess grazing impacts and levels of acceptable use

Strategy: Develop conservation, research, and monitoring tools

Investigate use of remote sensing to monitor habitat quality

Strategy: Research ecosystem conditions

Investigate the differences between pre-grazing and grazed landscapes and the effects on ecosystem function

Strategy: Research stressors

Develop a better understanding of grazing impacts on ecosystem structure and function, and wildlife

Stress Category

Habitat conversion

Stressor

Recreational sites/facilities

Strategy: Research ecosystem conditions

Identify future recreation needs and high growth areas throughout the state

Strategy: Research species biology

Identify important and sensitive wildlife populations and habitat

Strategy: Research stressors

Compile information on the impacts of the stressor to wildlife and habitats

Increase monitoring of recreation sites to detect of problems (nuisance plants, disease, etc.) early

Stress Category

Habitat conversion

Stressor

Rural development

Strategy: Compile data, programs and information

- Compile information from partners regarding existing strategies and actions
- Compile information on growth management efforts outside of the state
- Identify opportunities for urban wildlife area development

Strategy: Determine status and distribution

- Determine the distribution and extent of native-dominated riparian areas
- Determine the distribution and population trends for species impacted by urban and rural sprawl
- Identify areas that would benefit from altered or additional law enforcement activity
- Identify important and sensitive wildlife populations and habitat
- Map the distribution of stressors in relation to habitat
- Update and improve spatial information on land ownership

Strategy: Develop conservation, research, and monitoring tools

- Identify and promote OHV managed use areas
- Identify priorities and opportunities for acquisitions or easements

Strategy: Research ecosystem conditions

- Compile information on the effects of urban attributes on wildlife
- Develop human population growth models including water needs and development

Stress Category

Stressor

Habitat conversion

Urban growth

Strategy: Compile data, programs and information

- Compile information from partners regarding existing strategies and actions
- Compile information on growth management efforts outside of the state
- Identify opportunities for urban wildlife area development

Strategy: Determine status and distribution

- Determine the distribution and extent of native-dominated riparian areas
- Determine the distribution and population trends for species impacted by urban and rural sprawl
- Identify areas that would benefit from altered or additional law enforcement activity
- Identify important and sensitive wildlife populations and habitat
- Map the distribution of stressors in relation to habitat
- Update and improve spatial information on land ownership

Strategy: Develop conservation, research, and monitoring tools

- Identify and promote OHV managed use areas
- Identify priorities and opportunities for acquisitions or easements

Strategy: Research ecosystem conditions

- Compile information on the effects of urban attributes on wildlife
- Develop human population growth models including water needs and development

TRANSPORTATION AND INFRASTRUCTURE CATEGORY

Stress Category

Stressor

Transportation and infrastructure

Canals/pipelines

Strategy: Determine status and distribution

Map locations of canals, pipelines, and associated structures
Strategy: Develop conservation, research, and monitoring tools
Determine feasibility of a wildlife friendly canal design that also meets water transport needs.
Strategy: Research stressors
Compile information on the impacts of the stressor to wildlife and habitats

Stress Category *Stressor*
Transportation and infrastructure **Power lines/wind-harnessing turbines**
Strategy: Determine status and distribution
Identify migration pathways
Strategy: Develop conservation, research, and monitoring tools
Investigate deterrence devices for retrofitting problem structures
Investigate removal/reduction of guide wire use on towers
Monitor fatality at existing sites to determine scope of problem
Standardize bird and bat fatality monitoring protocols
Strategy: Research ecosystem conditions
Compile information on the impacts of the stressor to wildlife and habitats
Strategy: Research stressors
Investigate different light sources on towers to reduce impacts on birds and bats

Stress Category *Stressor*
Transportation and infrastructure **Right-of-way fencing along roadways**
Strategy: Determine status and distribution
Determine the locations of barriers to wildlife movement including dams, fences, roads, etc.
Strategy: Develop conservation, research, and monitoring tools
Research/identify which structures (culverts, underpasses, etc.), fencing types, and designs are most effective and will be used by wildlife

Stress Category *Stressor*
Transportation and infrastructure **Roads for motorized vehicles**
Strategy: Compile data, programs and information
Compile information on growth management efforts outside of the state
Strategy: Develop conservation, research, and monitoring tools
Explore possibility of bioaccumulator plants for roadside buffers or and or bio-engineered bacteria to clean up retainage basins
Strategy: Research ecosystem conditions
Develop habitat, vegetation, habitat use, growth and wildlife migration models
Identify important and sensitive wildlife populations and habitat
Strategy: Research stressors
Compile information on the impacts of the stressor to wildlife and habitats
Compile information on the impacts of the stressor to wildlife and habitats

Stress Category *Stressor*
Transportation and infrastructure **Telephone lines/cellphone towers**
Strategy: Determine status and distribution

Identify migration pathways

Strategy: Develop conservation, research, and monitoring tools

Investigate deterrence devices for retrofitting problem structures

Investigate removal/reduction of guide wire use on towers

Monitor fatality at existing sites to determine scope of problem

Standardize bird and bat fatality monitoring protocols

Strategy: Research ecosystem conditions

Compile information on the impacts of the stressor to wildlife and habitats

Strategy: Research stressors

Investigate different light sources on towers to reduce impacts on birds and bats

Stress Category

Stressor

Transportation and infrastructure

Trails for foot, bike, or equine use

Strategy: Compile data, programs and information

Compile information on the impacts of the stressor to wildlife and habitats

Strategy: Determine status and distribution

Identify important and sensitive wildlife populations and habitat

Stress Category

Stressor

Transportation and infrastructure

Unauthorized roads & trails

Strategy: Determine status and distribution

Identify unauthorized roads and trails and prioritize problem areas

Identify unauthorized roads and trails and prioritize problem areas

Strategy: Research ecosystem conditions

Identify important and sensitive wildlife populations and habitat

ABIOTIC RESOURCE USE CATEGORY

Stress Category

Stressor

Abiotic resource use

Mining

Strategy: Determine status and distribution

Determine location of active and inactive mines

Strategy: Develop conservation, research, and monitoring tools

Determine best management practices for revegetation and naturalization

Investigate new extraction techniques that are more wildlife friendly

Strategy: Research stressors

Investigate the short and long term impacts of mining contaminants on wildlife and habitats

Stress Category

Stressor

Abiotic resource use

Water diversion/water catchments

Strategy: Determine status and distribution

Identify wildlife movement corridors that are important for landscape connectivity

Strategy: Develop conservation, research, and monitoring tools

Identify additional areas where wildlife would benefit from Active Management Area designation

Strategy: Research ecosystem conditions

Determine what density of vegetation is viable within flood control projects

Investigate benefits of Active Management Areas to wildlife

Investigate catchment designs to discourage invasives while encouraging native wildlife

CONSUMPTIVE USE OF BIOLOGICAL RESOURCES CATEGORY

Stress Category

Consumptive use of biological resources

Stressor

Forest and woodland management - consumptive use

Strategy: Determine status and distribution

Determine habitat needs for all species

Identify important and sensitive wildlife populations and habitat

Strategy: Research ecosystem conditions

Investigate the impacts of large-scale Wildlife-Urban Interface forest management

Strategy: Research stressors

Investigate the compatibility of wildlife values with wildfire-risk reduction strategies

Investigate the effects of fire treatments on wildlife

Stress Category

Consumptive use of biological resources

Stressor

Grazing by ungulates

Strategy: Research stressors

Develop a better understanding of grazing impacts on ecosystem structure and function, and wildlife

Investigate how different grazing regimes impact wildlife and their habitats

Stress Category

Consumptive use of biological resources

Stressor

Harvesting/collecting animals

Strategy: Research ecosystem conditions

Identify important and sensitive wildlife populations and habitat

Research most effective means and placement of enforcement efforts

Strategy: Research stressors

Determine the extent and intensity of poaching and collecting

Determine who the interested entities are

NON-CONSUMPTIVE RESOURCE USE CATEGORY

Stress Category

Non-consumptive resource use

Stressor

Dispersed camping

Strategy: Determine status and distribution

Determine the extent and impact of dispersed camping to wildlife and habitats

Stress Category

Stressor

Non-consumptive resource use Motorized recreation off-trail

Strategy: Determine status and distribution

Identify unauthorized roads and trails and prioritize problem areas

Identify unauthorized roads and trails and prioritize problem areas

Strategy: Research ecosystem conditions

Identify important and sensitive wildlife populations and habitat

Stress Category

Stressor

Non-consumptive resource use

Non-motorized recreation off-trail

Strategy: Compile data, programs and information

Compile information on the impacts of the stressor to wildlife and habitats

Strategy: Determine status and distribution

Identify important and sensitive wildlife populations and habitat

Stress Category

Stressor

Non-consumptive resource use

Scientific research and collection

Strategy: Develop conservation, research, and monitoring tools

Investigate alternative nondestructive sampling and research techniques

Strategy: Research stressors

Compile information on the impacts of the stressor to wildlife and habitats

Investigate the role of scientific researchers in disease transmission

Stress Category

Stressor

Non-consumptive resource use

Watercraft operation

Strategy: Develop conservation, research, and monitoring tools

Identify and detect new species that may represent a threat

Strategy: Research ecosystem conditions

Identify species and habitats that are sensitive to watercraft recreation

Strategy: Research species biology

Identify important and sensitive wildlife populations and habitat

Strategy: Research stressors

Compile information on the impacts of the stressor to wildlife and habitats

Evaluate and recommend use of latest technologies in fuel spill attenuation (fueling stations, motor design)

Investigate the effects of watercraft hydrocarbons and other pollutants on freshwater communities

POLLUTION CATEGORY

Stress Category

Stressor

Pollution

Contaminants from waste water and runoff

Strategy: Develop conservation, research, and monitoring tools

Investigate biocontrol agents (plants as accumulators, bacteria and other digesters)

Investigate more effective ways of filtering out contaminants

Strategy: Research stressors

Compile information on the impacts of the stressor to wildlife and habitats
Investigate the impacts of roads on contaminant loading

Stress Category

Pollution

Stressor

Heavy metals/mine tailings

Strategy: Research ecosystem conditions

Determine background levels and how the biogeochemical cycle responds in different portions of the state

Develop understanding where metals have accumulated within ecosystems and how they are cycled

Stress Category

Pollution

Stressor

Highway/roadway de-icing

Strategy: Compile data, programs and information

Compile information on growth management efforts outside of the state

Strategy: Develop conservation, research, and monitoring tools

Explore possibility of bioaccumulator plants for roadside buffers or and or bio-engineered bacteria to clean up retainage basins

Strategy: Research ecosystem conditions

Develop habitat, vegetation, habitat use, growth and wildlife migration models

Identify important and sensitive wildlife populations and habitat

Strategy: Research stressors

Compile information on the impacts of the stressor to wildlife and habitats

Compile information on the impacts of the stressor to wildlife and habitats

Stress Category

Pollution

Stressor

Illegal dumping/littering

Strategy: Determine status and distribution

Determine the locations of illegal dumps

Strategy: Develop conservation, research, and monitoring tools

Develop a task force to enforce laws and regulations, as well as monitor the problem, and develop

innovative solutions to combat illegal dumping/littering

Strategy: Research stressors

Compile information on the impacts of the stressor to wildlife and habitats

Research the impacts on limiting access to prevent illegal dumping/littering on wildlife recreation

Stress Category

Pollution

Stressor

Lead shot/fishing line

Strategy: Research stressors

Compile information on the impacts of the stressor to wildlife and habitats

Determine toxicity levels for wildlife

Stress Category

Pollution

Stressor

Light pollution

Strategy: Research species biology

Identify important and sensitive wildlife populations and habitat

Strategy: Research stressors

Compile information on the impacts of the stressor to wildlife and habitats

Stress Category

Stressor

Pollution

Noise pollution

Strategy: Develop conservation, research, and monitoring tools

Investigate new techniques/strategies to reduce noise

Strategy: Research stressors

Compile information on the impacts of the stressor to wildlife and habitats

Stress Category

Stressor

Pollution

Nutrients/algal blooms

Strategy: Determine status and distribution

Determine best treatments

Identify affected sites

Identify affected species

Strategy: Research ecosystem conditions

Conduct research on nutrient cycling related to changes in ecosystem composition

Describe natural variability in nutrient cycles through aquatic systems

Identify taxa-specific problem algae (toxic effects), effects on wildlife and range of their occurrence

Strategy: Research stressors

Compile information on the impacts of the stressor to wildlife and habitats

Determine baseline and threshold nutrient loads

Determine threshold conditions for algal blooms and develop monitoring protocols for nutrients and species

Identify sources of nutrients, manmade vs. natural

Stress Category

Stressor

Pollution

Pesticides/herbicides

Strategy: Research stressors

Identify level of harm associated with different chemicals

Stress Category

Stressor

Pollution

Sediment/ash flows

Strategy: Determine status and distribution

Identify, quantify, and prioritize activities, sites and structures that contribute to high levels of sedimentation

Strategy: Develop conservation, research, and monitoring tools

Determine sediment and ash flow after major fires to monitor their impacts to wildlife and habitat

INVASIVE SPECIES CATEGORY

Stress Category

Stressor

Invasive species

Bait-bucket dumping/illegal stocking

Strategy: Research species biology

Identify problematic bait species with regard to invasiveness, competitiveness, predation, and genetic threat

Strategy: Research stressors

Determine the extent and severity of the problem

Stress Category

Stressor

Invasive species

Disease/pathogens/parasites

Strategy: Determine status and distribution

Determine the distribution and impacts of pathogens/parasites

Strategy: Research stressors

Compile information on the impacts of the stressor to wildlife and habitats

Develop control methods for disease/pathogens/parasites

Identify vulnerable processes or activities and develop solutions

Investigate methods of chytrid fungus prevention and monitoring

Monitor wildlife populations for outbreaks of diseases

Prioritize diseases/pathogens/parasites based on the potential impact to all wildlife, each taxon group, and priority species

Sample for plague and canine distemper

Stress Category

Stressor

Invasive species

Feral animals

Strategy: Determine status and distribution

Determine the distribution and population sizes for feral species

Strategy: Research stressors

Compile information on the impacts of the stressor to wildlife and habitats

Stress Category

Stressor

Invasive species

Hybridization

Strategy: Research ecosystem conditions

Determine conservation/management areas within a watershed context to protect native aquatic species from hybridization risk

Strategy: Research species biology

Identify species that pose greatest risk of hybridization if introduced or moved around the state

Stress Category

Stressor

Invasive species

Nuisance animals

Strategy: Determine status and distribution

Determine the distribution and extent of invasive and potentially irruptive insect species

Determine the distribution and population sizes for feral species

Strategy: Develop conservation, research, and monitoring tools

Investigate methods of reducing numbers of corvids around human facilities

Investigate new methods of aquatic nuisance wildlife control

Strategy: Research stressors

Compile basic ecological information on how nuisance species are transported, how they become invasive, and effects throughout ecosystems

Stress Category

Stressor

Invasive species

Nuisance plants

Strategy: Determine status and distribution

Map the distribution of nuisance plants statewide

Strategy: Develop conservation, research, and monitoring tools

Develop and implement new eradication/control techniques

Strategy: Research species biology

Compile basic ecological information on how nuisance species are transported, how they become invasive, and effects throughout ecosystems

Strategy: Research stressors

Compile information on the impacts of the stressor to wildlife and habitats

CLIMATE CHANGE CATEGORY

Stress Category

Stressor

Climate Change

Drought

Strategy: Determine status and distribution

Develop habitat, vegetation, habitat use, growth and wildlife migration models

Strategy: Develop conservation, research, and monitoring tools

Develop mechanisms to conserve instream flows relative to water demands during periods of drought

Develop monitoring techniques for current drought

Strategy: Research ecosystem conditions

Develop models of habitat response to climate change and/or drought

Strategy: Research species biology

Identify species and populations particularly sensitive to drought impacts

Strategy: Research stressors

Compile information on the impacts of the stressor to wildlife and habitats

Compile information on the persistence of drought induced ecosystem changes

Develop water conservation programs that consider wildlife values

Stress Category

Stressor

Climate Change

Shift to warmer climate

Strategy: Compile data, programs and information

Develop models of habitat response to climate change and/or drought

Strategy: Research species biology

Identify wildlife populations vulnerable to extirpation in response to loss of habitat from climate change

Strategy: Research stressors

Compile information on the impacts of the stressor to wildlife and habitats

CHANGES IN ECOLOGICAL PROCESSES CATEGORY

Stress Category

Stressor

Changes in Ecological Processes **Altered river flow regimes**

Strategy: Determine status and distribution

Identify baseline wildlife population levels downstream from dams

Strategy: Research ecosystem conditions

Cost/benefit analysis of dam removal or modification of flow regimes to establish natural flow regimes (flood control, hydroelectric, recreation, water use, ecological)

Determine an effective buffering distance for riparian habitat protection

Identify historic natural variation of flows in aquatic systems of interest

Strategy: Research stressors

Compile information on the impacts of the stressor to wildlife and habitats

Investigate the effects of current water law on flow regimes

Stress Category

Stressor

Changes in Ecological Processes **Domestication of wildlife/game farming**

Strategy: Research species biology

Compile information on potential source populations

Stress Category

Stressor

Changes in Ecological Processes **Habitat degradation/shrub invasions**

Strategy: Determine status and distribution

Develop a baseline map of shrubland extent

Strategy: Develop conservation, research, and monitoring tools

Develop and implement new eradication/control techniques

Strategy: Research ecosystem conditions

Determine functional mechanisms for upland woody plant invasions of riparian zones

Strategy: Research stressors

Develop conceptual models to identify strategic interventions leading to desirable flow regimes.

Stress Category

Stressor

Changes in Ecological Processes **Habitat fragmentation/barriers**

Strategy: Determine status and distribution

Determine the locations of barriers to wildlife movement including dams, fences, roads, etc.

Identify wildlife movement corridors that are important for landscape connectivity

Strategy: Research ecosystem conditions

Develop habitat, vegetation, habitat use, growth and wildlife migration models

Stress Category

Stressor

Changes in Ecological Processes **Insect Infestation**

Strategy: Determine status and distribution

Determine the distribution and extent of invasive and potentially irruptive insect species

Strategy: Develop conservation, research, and monitoring tools

Research and development of effective control mechanisms

Strategy: Research stressors

Compile information on the impacts of the stressor to wildlife and habitats

Investigate the effects of African bees, invasive ants, and other nonnative insects on native pollinators/wildlife

Stress Category

Stressor

Changes in Ecological Processes

Loss of keystone species

Strategy: Research ecosystem conditions

Investigate the impacts of losing or reintroducing key predator/prey/keystone species

Strategy: Research species biology

Identify keystone and other species that are important to ecosystem functions, determine their functional role and their vulnerability status

Strategy: Research stressors

Determine how the presence of disease impact recovery of key predator/prey/keystone species

Stress Category

Stressor

Changes in Ecological Processes

Management for game animals and sport fish

Strategy: Determine status and distribution

Identify wildlife movement corridors that are important for landscape connectivity

Strategy: Develop conservation, research, and monitoring tools

Improve game and nongame population monitoring

Strategy: Research ecosystem conditions

Identify appropriate locations for barriers to isolate native fish populations from incompatible sport fish game populations or sport fish; identify important corridors for landscape connectivity

Strategy: Research stressors

Continue Department efforts to evaluate effects of water developments

Develop a better understanding of grazing impacts on ecosystem structure and function, and wildlife

Identify spectrum of impacts of game animals and sport fish on native wildlife and wildlife habitat

Stress Category

Stressor

Changes in Ecological Processes

Soil erosion

Strategy: Research ecosystem conditions

Identify, quantify, and rank activities, sites and structures that contribute to high levels of soil erosion

Stress Category

Stressor

Changes in Ecological Processes

Streambank alteration/channelization

Strategy: Determine status and distribution

Identify wildlife movement corridors that are important for landscape connectivity

Strategy: Develop conservation, research, and monitoring tools

Identify additional areas where wildlife would benefit from Active Management Area designation

Strategy: Research ecosystem conditions

Determine what density of vegetation is viable within flood control projects

Investigate benefits of Active Management Areas to wildlife

Investigate catchment designs to discourage invasives while encouraging native wildlife

Stress Category

Stressor

Changes in Ecological Processes

Unnatural fire regimes

Strategy: Determine status and distribution

Prioritize sites across the state for treatment to reduce fuel loads/fire vulnerability

Strategy: Develop conservation, research, and monitoring tools

Investigate the feasibility of biological control of salt cedar communities

Investigate ways to address invasion of nonnative grasses, especially cheatgrass, lovegrass, and buffleggrass

Strategy: Research ecosystem conditions

Conduct studies to investigate effects of wildfire on wildlife in different ecosystems

Development of credible, consensus-driven desired future landscape conditions

Identify effects of different fire treatments on communities of wildlife in different ecosystems

INTERNATIONAL BORDER ISSUES CATEGORY

Stress Category

Stressor

International border issues

Altered fire regime as a result of border activities

Strategy: Compile data, programs and information

Compile fire frequency data

Strategy: Determine status and distribution

Update vegetation layers

Strategy: Develop conservation, research, and monitoring tools

Investigate ways to address invasion of nonnative grasses, especially cheatgrass, lovegrass, and buffleggrass

Stress Category

Stressor

International border issues

Disease along the border

Strategy: Research stressors

Determine the extent of disease threat to wildlife in Arizona due to contact with high-density population centers in Mexico

Monitor wildlife populations for outbreaks of diseases

Stress Category

Stressor

International border issues

Dispersed camping along the border

Strategy: Compile data, programs and information

Compile data from Border Control (when permissible) on the frequency and duration of enforcement activity within sensitive areas

Strategy: Determine status and distribution

Determine the extent and impact of dispersed camping to wildlife and habitats

Strategy: Research ecosystem conditions

Identify important and sensitive wildlife populations and habitat

Stress Category

Stressor

International border issues

Enforcement activities along the border

Strategy: Compile data, programs and information

Compile data from Border Control (when permissible) on the frequency and duration of enforcement activity within sensitive areas

Quantify OHV activity in sensitive areas

Strategy: Determine status and distribution

Determine the locations of Border Patrol vehicle/pedestrian barriers and enforcement activity as related to wildlife

Strategy: Research ecosystem conditions

Identify important and sensitive wildlife populations and habitat

Strategy: Research stressors

Compile information on the impacts of the stressor to wildlife and habitats

Stress Category

International border issues

Stressor

Enforcement fences along the border

Strategy: Determine status and distribution

Map current and proposed border fencing projects

Strategy: Develop conservation, research, and monitoring tools

Develop fence designs that will allow wildlife movements

Strategy: Research species biology

Identify important and sensitive wildlife populations and habitat

Strategy: Research stressors

Compile information on the impacts of the stressor to wildlife and habitats

Stress Category

International border issues

Stressor

Illegal dumping/littering along the border

Strategy: Compile data, programs and information

Identify the location of illegal dumps and littered sites along the border

Where permissible, map the location of known target points, congregation points, and avoidance areas

Strategy: Research stressors

Compile information on the impacts of the stressor to wildlife and habitats

Stress Category

International border issues

Stressor

Light pollution along the border

Strategy: Develop conservation, research, and monitoring tools

Investigate alternative ways to reduce illegal immigration and drug smuggling

Investigate different light sources on towers to reduce impacts on birds and bats

Strategy: Research stressors

Compile information on the impacts of the stressor to wildlife and habitats

Stress Category

**International border issues
immigrants and smugglers**

Stressor

Unauthorized roads & trails created by illegal

Strategy: Compile data, programs and information

Compile information on undocumented alien use and apprehensions in and adjacent to sensitive areas

Strategy: Determine status and distribution

Determine the locations of Border Patrol vehicle/pedestrian barriers and enforcement activity as related to wildlife

Identify unauthorized roads and trails and prioritize problem areas

Identify unauthorized roads and trails and prioritize problem areas

Where permissible, map the location of known target points, congregation points, and avoidance areas

Strategy: Research ecosystem conditions

Develop habitat, vegetation, habitat use, growth and wildlife migration models

Stress Category

Stressor

**International border issues
enforcement along the border**

Unauthorized roads & trails created for law

Strategy: Compile data, programs and information

Compile information on undocumented alien use and apprehensions in and adjacent to sensitive areas

Strategy: Determine status and distribution

Determine the locations of Border Patrol vehicle/pedestrian barriers and enforcement activity as related to wildlife

Identify unauthorized roads and trails and prioritize problem areas

Identify unauthorized roads and trails and prioritize problem areas

Where permissible, map the location of known target points, congregation points, and avoidance areas

Strategy: Research ecosystem conditions

Develop habitat, vegetation, habitat use, growth and wildlife migration models

Stress Category

Stressor

**International border issues
and drug smugglers**

Water use/contamination from illegal immigrants

Strategy: Determine status and distribution

Determine the location of water sources impacted by border traffic

Strategy: Develop conservation, research, and monitoring tools

Develop strategies to minimize vandalism (installation of pressure-release water spigots so that water tanks will not be vandalized to get at water)