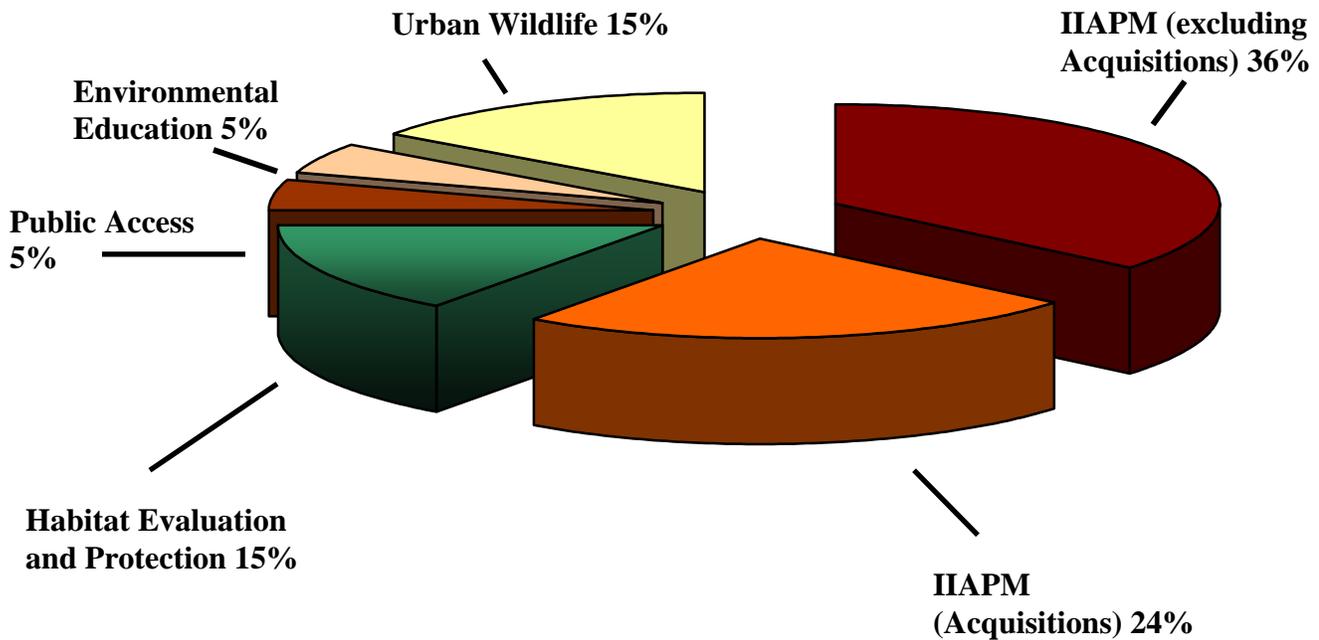

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HERITAGE PROGRAM FY2006 REPORT TO THE ARIZONA LEGISLATURE

Report Period: July 1, 2005 - June 30, 2006

Heritage Program Component Funding

As established in A.R.S §17-298



NOTE: Identification, Inventory, Acquisition, Protection, and Management of Sensitive Habitat (IIAPM)

**Fiscal Year 2006 Heritage Fund Revenues, Expenditures and
 Full-Time Employees by Subprogram**

Subprogram	FY06 Revenue¹	FY06 Revenue Percent	FY06 Expenditures²	Full-Time Employees
Acquisition	\$ 2,400,000	24%	\$ 3,029,277	0.00
IIAPM	3,600,000	36%	4,269,501	31.50
Habitat Evaluation	1,500,000	15%	1,999,696	5.00 ³
Urban Wildlife	1,500,000	15%	1,813,869	18.50
Environmental Education	500,000	5%	506,630	5.00
Public Access	500,000	5%	775,488	3.50
Interest Admin ⁴	336,833	N/A	722,796	14.00
Total	\$10,336,833		\$13,117,257	77.50

In FY2006, the amount of funds spent from the Heritage Fund for employee personal services was \$2,827,079. In addition, \$950,639 was spent on employee related expenses.

¹ Revenue/expenditure allocated pursuant to percentages set forth in statute.

² Total expenditures include prior year unexpended revenue as authorized by the Arizona Game and Fish Commission.

³ Habitat Evaluation (HEP) staff are full-time Federal employees supported with HEP, which is used as match to secure federal funding.

⁴ Administration is funded with interest earned

Subprogram Summaries of Projects, Activities and Expenditures

Identification, Inventory, Acquisition, Protection, and Management (IIAPM) Subprogram

OVERVIEW:

Four jobs make up this the subprogram:

1. Land and Water Rights Administration and Acquisition Project (IIAPM-LW)
2. Wildlife Management Project (IIAPM-WM)
3. Fish and Wildlife Research Project (IIAPM-FWR)
4. Stewardship Project (IIAPM-S)

Project Information: Administrative work was conducted at the Arizona Game and Fish Department (Department), Habitat Branch, 2221 West Greenway Road, Phoenix, Arizona 85023-4399; the Department's Regional Offices in Pinetop, Flagstaff, Kingman, Yuma, Tucson, and Mesa; and other locations as necessary. Fieldwork was conducted statewide and, as necessary, in other states and Mexico.

JOBS (Summary of Activities):

Lands and Water Rights Administration and Acquisition

Objective: To protect sensitive habitat, including sensitive habitat utilized by endangered, threatened, and candidate species through real property management, acquisition, land leases and exchanges, creation of rights-of-ways, establishment of conservation easements and development of special land use agreements.

Summary of Activities:

The Department continues to evaluate and improve processes as needed to determine and monitor quality and value of wildlife habitat. The processes are used in the evaluation of potential acquisitions, accounting for appropriate laws and regulations. As of June 30, 2006, the database of properties consisted of a total of 662 current and archive land records, increasing our land portfolio by 34 records and/or documents. Of that total, 368 were active records, which included the following: 282,719 acres of land, 6,010 acres of which are leased by the Commission to other entities usually as right-of-way agreements. In addition, the Department maintains 373 water right claims and manages 7 fish hatcheries, 43 lakes or reservoirs, 81 wells, 58 springs, 59 retention dams or tinajas and 33 stock ponds exceeding 3,500 surface acres of water.

In addition, feasibility studies were conducted and coordinated on existing or new properties that were identified for protection through acquisition or land use agreements. These offers advanced through different levels of the Land Protection Evaluation Process. A total of 18 property offers were examined over this reporting period. The Department made a preliminary review of four property offers that were not pursued further in the acquisition process as other offers received exhibited a more urgent need for wildlife conservation on a statewide level. Five property offers were withdrawn or could not proceed for a variety of reasons, nine property offers were

considered for acquisition by the Department beyond the preliminary review stage and one offer is in preliminary review.

Applications for the following land acquisitions were submitted to Arizona State Land Department (ASLD) during the reporting period, and will be completed once ASLD contracts are fully executed: Renewal and combination of grazing leases for ASLD lands at the Grasslands Wildlife Area, Right-of-way for Black-footed ferret reintroductions, the Upper Verde River Wildlife Area, Sopori Ranch, Stanford-Pridham Canyon, John Long Canyon, and Charouleau Gap.

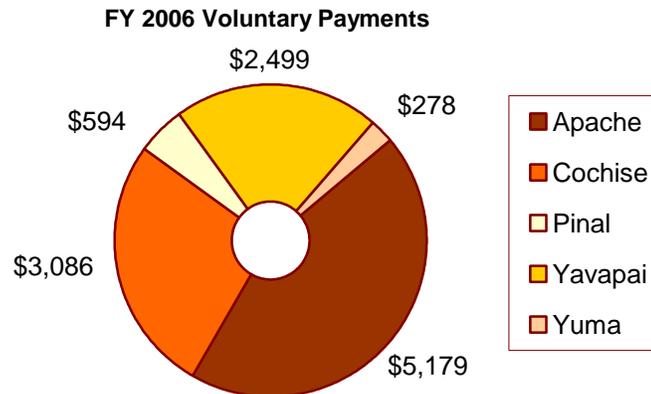
The Department fulfilled data requests from the Attorney General's Office in association with the Little Colorado River and Gila River adjudication proceedings. In addition, specific water right activities have occurred on the following properties: Grasslands Wildlife Area (coordinating the development of a Hydrological Assessment of the water rights, tanks, and water delivery systems).  Lands Program continues to coordinate ongoing issues associated with Commission-owned water rights.

A new Annual Operating Plan for subleasing livestock grazing (i.e., from November 1, 2005 to March 31, 2006) was developed and implemented during the fiscal year with the livestock grazing subleasees according to provisions in the Department's Livestock Grazing Plan for the Grasslands Wildlife Area. Forage utilization monitoring was conducted during the grazing period in each of the grazed pastures to insure proper use of forage was occurring in line with objectives in the management plan.

Presentations and tours were conducted regarding acquired Heritage properties for members of groups listed in the following table to provide information on the management goals and status of implementing planned management activities on Heritage fund related properties.

AGFD Commission	Rocky Mountain Elk Foundation
AGFD employees	The Nature Conservancy
State legislators	Trust for Public Land
Arizona Department of Water Resources	Heritage Alliance Board
Arizona Department of Environmental Quality	Local private landowners

No property taxes were paid nor contributions made during FY2006, however \$12,036 was paid to five counties as voluntary payments in lieu of taxes.



Lands Operation and Maintenance

Objective: To develop necessary processes to efficiently manage, operate and maintain Heritage Fund properties at sufficient performance levels to ensure compliance with all applicable regulations pertaining to land acquisition, management and disposal, to protect investments, and to protect and conserve natural resources and provide public recreation opportunities.

Summary of Activities:

Department personnel implemented numerous operation and maintenance activities for wildlife areas across the state. Significant activities and accomplishments included the creation of a Little Colorado spinedace refugia with a new water filtration system, artificial stream system and modification of Pond 1 at the Grasslands Wildlife Area. A viewing platform and kiosk with signage improved wildlife viewing and knowledge of the habitat and sensitive species at Becker Lake Wildlife Area. Installations and improvements to trail systems and public access roads at the Sipe, Wenima, Becker Lake, and Grasslands Wildlife Areas also increased wildlife-viewing opportunities for visitors.

Other operation and maintenance work included installation and maintenance of boundary fencing at the Sipe, Becker Lake and Coal Mine Springs Wildlife Areas. The cultivation of irrigated pastures with grass and forbs species, as well as riparian plantings such as cottonwood trees, enhanced wildlife habitat and forage at the Sipe, Wenima, Grasslands, Becker Lake and Chevelon Wildlife Areas. Elk and beaver exclosures were built, monitored and maintained at the Sipe and Becker Lake Wildlife Areas, respectively, to facilitate the riparian plantings of willows and cottonwoods. General maintenance, wildlife area restoration and facility improvements occurred at all wildlife areas.

The Grasslands Wildlife Area (WLA) continued the implementation of the Department's livestock grazing plan for state lands associated with the Grassland WLA. Livestock grazing occurred on approximately 5,000 acres of the state lands controlled by the Department from November 1, 2005 to March 31, 2006.

Heritage Data Management System

Objective: To maintain a sensitive habitat and species management information system that facilitates storage, retrieval, updating and analysis of data gathered through inventory and other

management activities for the purpose of coordinating conservation activities and assessing conservation progress.

Summary of Activities:

Element occurrence information on sensitive wildlife species and habitats was gathered from a variety of sources and entered into the Heritage Data Management System (HDMS). Information included: cooperating agency field information and reports, Heritage Grant reports, scientific collecting reports, scientific journal articles, academia, private consultants, museum and herbaria collections, and personal communications with knowledgeable individuals. Information also included new locations and updates on existing locations. In FY2006, 545 new records were added and 1023 records were updated. HDMS staff maintained and updated procedures for identifying and extracting sensitive-element data from inventory, monitoring, and management projects conducted by agencies, institutions, and others.

The BIOTICS system software was updated and all patches were completed in FY2006. An effort was made to meet NatureServe minimum data standards in key data fields. HDMS conducted a diversity review for fish during FY 2006. Diversity review meetings assess the subnational ranks that are used to identify conservation targets in planning activities, including the Comprehensive Wildlife Conservation Strategy (CWCS) and U.S. Forest Service planning activities. These updated ranks are provided to NatureServe during an annual exchange so that Global Ranks can then be updated. Diversity review meetings for other taxonomic groups are ongoing.

Abstracts assisted in management planning, writing environmental documents, and making management decisions. An increased number of the abstracts were made available on the HDMS web site. In FY2006, 15 new abstracts were written and 23 were updated and/or completely revised. These abstracts are also being used to support Arizona's CWCS.

Limited subsets of data were provided and updated, and multiple reference materials on special status species were prepared for the U.S. Fish and Wildlife Service (USFWS), U.S. Bureau of Land Management (BLM), and the U.S. Forest Service (USFS). These subsets were used in resource management planning, grazing allotment planning, and various other land management-planning activities. Regional HDMS databases and desktop mapping files were updated quarterly to facilitate timely assessment of sensitive elements that might be affected by an ever-increasing number and variety of projects statewide. Refresher and orientation training on the use, limitations, and security of HDMS database subsets were also provided.

The following interagency activities were conducted:

-  Provided information and distribution maps for endangered species to the Arizona State Land Department to use in fire management
-  Updated element occurrence information in Pima County for the Sonoran Desert Conservation Plan
-  Provided a data subset to the Arizona Department of Transportation to aid in the identification of environmental issues for maintenance activities
-  Provided technical assistance and data interpretation to the U.S. Forest Service for finalizing their Sensitive Species List



Served on technical teams for NatureServe for data standards and methodology as well as the U.S. Section Council for NatureServe,

Program staff apprised current and potential cooperators of opportunities for cooperative data management, outputs, and analyses. HDMS staff trained AGFD and cooperator personnel in conventions and techniques for recording, providing, and using element occurrence and status information. Agreements with cooperators were developed and maintained including a Memorandum of Understanding (MOU) with Region 3 of the U.S. Forest Service, for the sharing of sensitive species information; a MOU with Nature Serve for data sharing, financial support, and technical support; and a Task Order established with the U.S. Bureau of Land Management for the exchange of information on special status species.

HDMS continued development of a web site for general information including species lists by county and watershed for special status species in Arizona. At the end of FY2006, there were 645 species abstracts on the HDMS web site and included statewide distribution maps, and photos or line drawings to accompany the species abstracts. HDMS staff completed the new online environmental review tool and it is now available from the Department's web page. The free internet-based Arizona Online Environmental Review Tool generates a multi-page report showing any special status species that could be impacted in the project area, a description of critical habitat in the area, general recommendations on potential actions, and a list of other state, federal or tribal agencies with which follow-up may be needed.

Administration and Coordination

Objective: Provide administrative oversight for project personnel and coordinate with cooperators.

Summary of Activities:

Activities were coordinated with international, national, state, county, tribal, and private entities, as well as within the Division. Specific coordination functions included chairing the following groups: Western and International Association of Fish and Wildlife Agency's Threatened and Endangered Species Committee; Executive Board of the North American Bat Partnership; Jaguar Conservation Team; and Partners in Amphibian and Reptile Conservation support.

Relations within the conservation community were promoted by participating in meetings of the:

Arizona Audubon Society Chapters	The Nature Conservancy
Arizona Chapters of the Wildlife Society	The Tucson Herpetological Society
Grand Canyon River Guides	City and Regional Parks
Intermountain West and Sonoran Joint Ventures	Local Community Groups
Southwestern Carnivore Committee	Other Private Organizations

The Department continued working with the Government of Mexico and the State of Sonora in various binational projects that included Sonoyta mud turtle, Sonoran Pronghorn, Gould's turkey, migratory birds, and jaguar. Project staff implemented and participated in the 8th Wetlands Workshop in Mexico, held on La Paz and Puerto San Carlos, Baja California Sur. The

Department was invited by the Government of Mexico to attend a special ceremony held in City of La Paz, Baja California Sur celebrating World Wetlands Day. Project staff also participated in the 2006 meeting of the U.S./Canada/Mexico Trilateral Committee for Wildlife and Ecosystem Management and Conservation (Trilateral) in San Diego, California. The Department participated in the second Wildlife Management Workshop in the Borderlands held in the City of Hermosillo, Sonora, Mexico, whose purpose is to  capacity for wildlife managers in northern Mexico.

A number of continuing education opportunities were offered to enhance internal and external cooperators skills and knowledge related to the IIAPM-WM Project. Programs offered over  training or other education opportunities in FY06 including: fish mapping workshops; Chiricahua leopard frog workshops; desert tortoise handling workshops; and important bird areas (IBA) survey training workshops.

The following Commission Orders affecting sensitive species-related issues were reviewed and revisions proposed where appropriate. The Department recommended changes to Commission Orders 25 (raptors), 41 (amphibians), 42 (crustaceans and mollusks) and 43 (reptiles); and other Commission Orders, as appropriate. These orders and the recommendations have been made available to the public for review and comment. Comments will be evaluated and used to develop the final Commission Order recommendations, which will be presented to the Commission in October 2006 for final approval.

Wildlife Management Project

Objective: Manage Arizona's sensitive wildlife and sensitive habitats by conducting a full range of planning, conservation, and other management activities.

Summary of Activities:

Arizona's varied habitats support a great diversity of wildlife. However, direct loss, fragmentation and continued threats to the health and diversity of these habitats through development associated with population growth, introduction and expansion of invasive species, increased demands from the public, wildland fires, and habitat damage caused by illegal immigration, homeland security efforts and long-term drought create challenges for the Department's wildlife management efforts. To make sound management decisions, resource managers and administrators must understand and appreciate the biological ecosystems being impacted. The Department's commitment to conserve, preserve, enhance and restore Arizona's wildlife populations and their habitats included the following projects.



Kanab ambersnail

Since 1995, the Department has actively participated in multi-agency monitoring surveys for the endangered Kanab ambersnail population in Grand Canyon National Park. As a leader in the recovery efforts for this rare mollusk, the Department successfully established a second wild population in Grand Canyon—now eight years since it was first reintroduced. Department staff continue to participate in Kanab Ambersnail Work Group meetings, and assist in the collection of specimens for on-going research on genetic and taxonomic analysis for regional populations of the Kanab ambersnail and related snails in Arizona and Utah.

 *Apache Trout*

Apache trout recovery efforts during the first half of 2006 included: chemical renovations of the West Fork Little Colorado River (3 treatments) and Conklin Creek (1 treatment completed and 2 others are scheduled before the end of October 2006); installed five new barriers; repaired or maintained four existing barriers; monitored six repatriation sites; salvaged Apache trout from one site; and stocked Apache trout into two sites. Part of the recovery goal for this threatened native trout is to establish and/or maintain 30 streams with self-sustaining populations. As of July 2006, we had 23 streams with Apache trout populations that count toward recovery, with an additional three streams expected to be stocked before the end of October. The West Fork Little Colorado River and Conklin Creek are anticipated to be stocked in 2007, and additional renovations and repatriations are planned for the South Fork Little Colorado River and Stinky Creek (to reach the 30 stream goal).

 *Gila topminnow and desert pupfish*

The past year has been a busy one for recovery efforts on the endangered Gila topminnow and desert pupfish. The Department and its cooperators have stocked topminnow at six sites within the species historic range: three sites on the South Rim of Aravaipa Canyon; Walnut Springs; Mud Springs; and a tributary to Larry Canyon. Desert pupfish were also stocked at the three sites on the South Rim of Aravaipa Canyon and the tributary to Larry Canyon. In addition, Department staff have monitored all wild and reintroduced sites, evaluated five sites for possible repatriation, and continued evaluations on the effects of the Willow Fire and Cave Creek Complex Fire on topminnow and pupfish populations on the Tonto National Forest.

 *Roundtail chub, flannelmouth sucker, bluehead sucker*

The Department assisted other cooperators in finalizing the “Three Species” Rangewide Conservation Agreement for the three “big river” candidate native fishes—roundtail chub, flannelmouth sucker, and bluehead sucker. A final draft of Arizona’s Statewide Conservation Agreement and Strategy (SCAS) was developed for roundtail chub, headwater chub, flannelmouth sucker, bluehead sucker, Zuni mountain sucker, and Little Colorado sucker. When implemented, this partnership effort will help preclude the listing of these species under the Endangered Species Act.

 *Sonoran tiger salamander*

Four monitoring surveys were conducted for the endangered Sonoran tiger salamander in the San Rafael Valley in the first half of 2006. To further recovery objectives, exotics were removed when encountered during these surveys, thus lessening predation on salamanders and competition for limited resources within their habitats. Department staff also participated in two site visits in the valley for the new “Small Scale Exotic Species Removal Project” recently funded through the U.S. Fish and Wildlife Service. This project tests both the effectiveness of removing exotics completely from selected sites, and whether this type of effort prevents or reduces the re-invasion of exotics while maintaining tiger salamander populations.

 *Ranid frogs*

Ranid frog conservation (including Tarahumara frog and six species of leopard frogs) is a top priority within the Amphibians and Reptiles Program. Arizona's native species, have experienced serious population declines in the last two decades largely as a result of disease, habitat loss and introduced competitors and predators. These declines culminated in the complete loss of Tarahumara frogs from Arizona, and listing of Chiricahua leopard frogs as threatened under the Endangered Species Act. In fiscal 2006, the Department engaged in statewide surveys of 97

historical and potential sites of occurrence of native ranid frogs, and recorded information on presence and absence, as well as the relative abundance, reproductive activity and habitat characteristics. Sites were also surveyed to evaluate reintroduction potential. Biologists collected data on the distribution of a potentially deadly fungal disease (chytridiomycosis). Due to the presence of this pathogen in Arizona, the Department continues to test and develop sterilization protocols for all field gear used during ranid frog fieldwork.

Chiricahua leopard frog egg masses were collected for use in captive propagation programs at the Pinetop regional office, Bubbling Ponds Fish Hatchery and the Phoenix Zoo. Staff in the Pinetop office released young, captive-raised frogs at sites in the White Mountains. The Department also continues to work closely with USFS to protect important Chiricahua leopard frog habitat along the Mogollon Rim.

In June 2004, the Department began an effort to reestablish Tarahumara frogs in Arizona, in the Santa Rita Mountains. This past fiscal year, the Department continued in those efforts, collaborating with the Tarahumara Frog Conservation Team with subsequent supplemental releases. Department staff developed a standardized monitoring protocol, permanent monitoring reaches, and conducted 3 monitoring trips. By May 2006, adults, juveniles, older tadpoles and recent reproduction had been documented, suggesting that this effort has great potential for success.

Birds

Following eight years of statewide data collection and three years of data analysis and manuscript preparation, the University of New Mexico Press published the Arizona Breeding Bird Atlas in early August 2005. This 635-page reference book was made possible by over a decade of assistance from 700+ volunteers and biologists, plus multiple agency/entity funding and support. It contains more comprehensive and current distribution and natural history information for the 300+ breeding bird species in the state than any Arizona bird reference book published in the past. The full-color book contains more than 300 photos and 280 maps, plus introductory chapters on Arizona's topography, climate, and habitat diversity. This publication has received excellent reviews from both biologists and birders. It has won awards, and was even selected as one of the top ten Southwest Books of the Year in 2005. More than 50 percent of the 4,000 books printed by the University of New Mexico Press were sold during the first six months.

High-status Species Activities:

California Condor

FY2006 marked the 9th year of California condor reintroduction activities in Arizona. During this reporting period two wild-born California condor chicks fledged in Arizona. Seven captive-reared condors (hatch year 2005) were transported from the World Center for Birds of Prey in Boise, Idaho to the Arizona release site in December 2005. The birds will remain in the flight pen until their release beginning in February 2006. The non-lead ammunition exchange program was relatively successful. Participation was high (65%) and condor blood lead levels were lower this year. Although other factors could have contributed to the lower lead exposure, it's likely there was less lead available to the condors during the 2005 Kaibab hunting season. As of June 2006, there were 61 free-flying condors in Arizona's population.

Black-footed ferret (BFF)

Project staff reported that 50 captive bred ferrets were reintroduced to the wild in the Aubrey Valley. Fifteen ferrets were held over in the outdoor pens from 2004, for breeding purposes. Five of these 15 ferrets were returned to the Phoenix Zoo breeding program, one male was declared "missing" and the remaining 9 females were bred and released in the spring. Twenty young-of-the-year and two female adults were acclimated in the preconditioning pens and subsequently released. Fourteen kits (7 males, 7 females) were placed in the preconditioning pens in October 2005, held over the winter, used for breeding and released in spring of 2006. Based on average kits per female, approximately 23 kits should be born into the wild during 2007. Surveys included 195 black-footed ferret sightings and 35 individuals trapped and processed. Four females were lactating, indicating successful reproduction. A total of 29 wildborn ferrets were captured, six of which (5 males, 1 female) were recaptures from 2004, and one male was a recapture from 2003. Twenty-two new wild-born ferrets (14 males, 8 females) were captured and tagged.

Information Management Systems

Objective: Maintain manual and computerized sensitive wildlife and sensitive habitat information.

Summary of Activities:

Computerized databases and files were maintained for many nongame species and projects including the reintroduction of native frogs through the breeding and rearing of native frog egg collections, long-term surveys and monitoring of bats in Arizona, wolf aerial locations, wolf population status, and miscellaneous wildlife sightings; and all sensitive species observed during the ranid frogs project surveys, particularly amphibians and reptiles.

Digital images and 35-mm photographs were developed and archived of many different species, their habitats, and significant project activities for use in technical presentations, publications, and education/outreach programs.

Outreach

Objective: Increase program awareness and support by informing and educating the public, cooperators, and others about project-related issues, including wildlife conservation and management, wildlife-based recreation, and related topics.

Summary of Activities:

Articles and technical reports were produced on multiple species and topics for publication in scientific and other journals. Presentations to the public and to professional audiences were made at the following: the Sixth Conference on Research and Management of Southwest Deserts; American Fisheries Society; American Society for Ichthyology and Herpetology ; Wildlife Society; Grand Canyon River Guides; USFWS Amphibians Disease Symposium; Desert Fishes Council; the Society for the Study of Amphibians and Reptiles; Western Association of Fish and Wildlife Agencies' T&E Committee; Black-footed Ferret Recovery Implementation Team; Jaguar Conservation Team; Mesa Southwest Museum; and several schools and parks.

Staff prepared and published Nongame Endangered Wildlife Program Technical Reports on a variety of species and published *Wildlife Field Notes* articles. Three articles were published in peer-reviewed publications; several articles are "in press," or submitted for publication.

Wildlife and Fisheries Research

Objective: To provide integrated information on wildlife responses to forest restoration whereby information on reptiles and amphibians can be incorporated into a broader suite of wildlife responses to restoration treatments. To expand the information available to lead to the recovery of Sonoran pronghorn in both the United States and Mexico. To administer all elements of Heritage-based activities in a professional manner.

Summary of Activities:

The Department, in cooperation with the Bureau of Land Management and Northern Arizona University (NAU), conducted research on wildlife responses to forest restoration on Mt. Trumbull in northern Arizona. During FY2006, fieldwork continued as scheduled and included the rebuilding of 30 small pitfall arrays on Mt. Trumbull to assess reptile responses to restoration treatments. Captured lizards were aged, sexed, and marked prior to release.

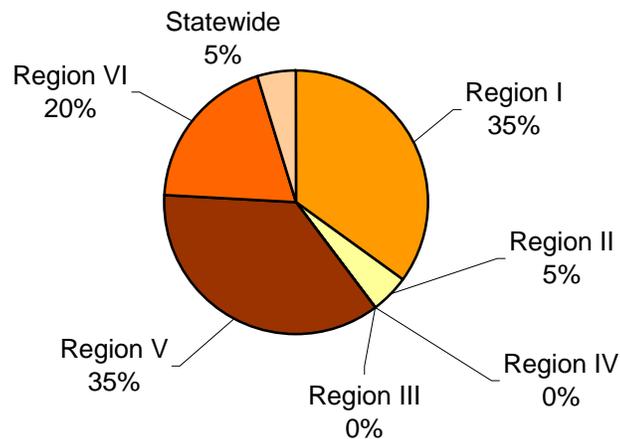
A collection agreement with the United States Forest Service (USFS) was completed in order to implement the fuels reduction restoration prescription co-designed with Northern Arizona University-Ecological Restoration Institute (NAU-ERI). A second year of pretreatment data was collected on tassel-eared squirrels and passerine birds in the treatment area.

A range-wide pronghorn survey was conducted in Mexico prior to capture in January 2006. Over 20 hours of survey time were flown, 486 pronghorn were observed, and the population was estimated to be 634 (499-1726). GPS radio collars were placed on five pronghorn to assist Mexican biologists with pronghorn management in Mexico. Heritage-based activities were administered including projects on humpback chub; Apache trout; peregrine falcons; wildlife corridor identification; Mexican and narrow-headed gartersnakes; mountain plovers; burrowing owls; and bats.

Lands Stewardship

Objective: Implement compatible projects and agreements on public and private lands to enhance, protect and restore sensitive habitats for species at risk.

AGFD Heritage Fund Stewardship Dollars Spent FY 06



Summary of Activities:

- 🐦 Broken L Ranch: Funds were provided to conduct grassland restoration on the ranch to benefit grassland dependent species in Region I. This project is located near the town of St. Johns.
- 🐦 Wild at Heart: Funds were used to construct artificial burrowing owl burrows on various lands in the state. Burrowing owls displaced by urban expansion were relocated to site.
- 🐦 3 Sisters Ranch: Funds were provided to conduct grassland restoration on the ranch to benefit grassland dependent species in Region V. This project is located near the town of Tombstone.
- 🐦 Hart Prairie: Funds were used to construct fence to protect  Willow community from ungulate grazing in Region II. This project is located near the town of Flagstaff.
- 🐦 Haeyes Ranch: Funds were used to install a watering structure for antelope in Region I. This project is located near the town of Show Low.
- 🐦 Brown Farm: Funds were used to manage foraging plots for  ratory waterfowl in Region VI. This project is located near Roosevelt Lake.
- 🐦 HY Tank Clean Out: Funds were used to clear sediment from a dirt tank to improve habitat for Chiricahua Leopard Frogs near the town of Young.
- 🐦 Babocomari Ranch: Funds were used to install a ranch wide watering deliver system for antelope near the town of Sonoita.
- 🐦 Campaign Creek Exclosure: Funds were used to construct a fence to exclude livestock and protect riparian habitat near the town of Globe.

Habitat Evaluation and Protection Subprogram

OVERVIEW:

Two jobs make up this the subprogram:

1. Habitat Evaluation and Protection
2. Heritage Data Management System

Project information: Administrative work was conducted at the Arizona Game and Fish Department, Habitat Branch, 2221 West Greenway Road, Phoenix, Arizona 85023-4399; the Department's Regional Offices in Pinetop, Flagstaff, Kingman, Yuma, Tucson, and Mesa; and other locations statewide; and at the national level, as needed.

JOBS (Summary of Activities):

Habitat Evaluation and Protection

Objectives: To develop necessary processes to efficiently evaluate proposed land and water projects that have the potential to impact the Commission's Heritage Fund properties, and to provide oversight regarding habitat protection and enhancement projects through the development and review of environmental compliance processes. To incorporate special status

species information in land and water development projects and land and water management planning efforts in Arizona.

Summary of Activities:

Data from wildlife surveys, habitat evaluations, and existing sources was acquired for use in biological reviews. As an ongoing activity, biological resource data was assimilated from existing references and other sources, such as the Geographic Information System and Heritage Data Management System. Staff worked with federal, state and local agencies and organizations on wildlife and wildlife habitat issues. In addition, staff was involved with habitat projects, land and resource planning issues on National Monuments, Wilderness Areas, and the Governor's Forest Health Advisory Committee.

Implementation of the Herbaceous Forage Monitoring Program continued in all Game Management Units in the Department's Pinetop Region that contained National Forest lands. The monitoring protocol involves early and late season monitoring of herbaceous forage utilization by wild ungulates in key areas excluded from livestock grazing. Monitoring data is then incorporated into the Region's annual hunt recommendation process. The Department supervises the Herbaceous Forage Monitoring Program, ensuring implementation consistency across the region, providing guidance and assistance during monitoring, summarizing and compiling annual data, and maintaining the regional monitoring database.

Work continued with the Forest Service and other federal, state and local agencies on Forest Health and Forest Restoration planning during the project year. There continues to be a critical need to develop a long-term forest restoration program that reduces the threat of catastrophic wildfire within the urban interface and forested wildlands in Arizona. Although biologists have gained considerable knowledge, the Department believes it is important to acknowledge that gaps exist in the current scientific knowledge as to the effects of forest restoration on Arizona's fish and wildlife resources. Efforts focused on developing wildlife-based monitoring and research programs to better understand the affects of forest restoration to wildlife, and incorporating an adaptive management approach into the planning and implementation process.

Staff developed and planned habitat projects and documents with inter and intra-agency cooperative groups. Specific actions included the following:

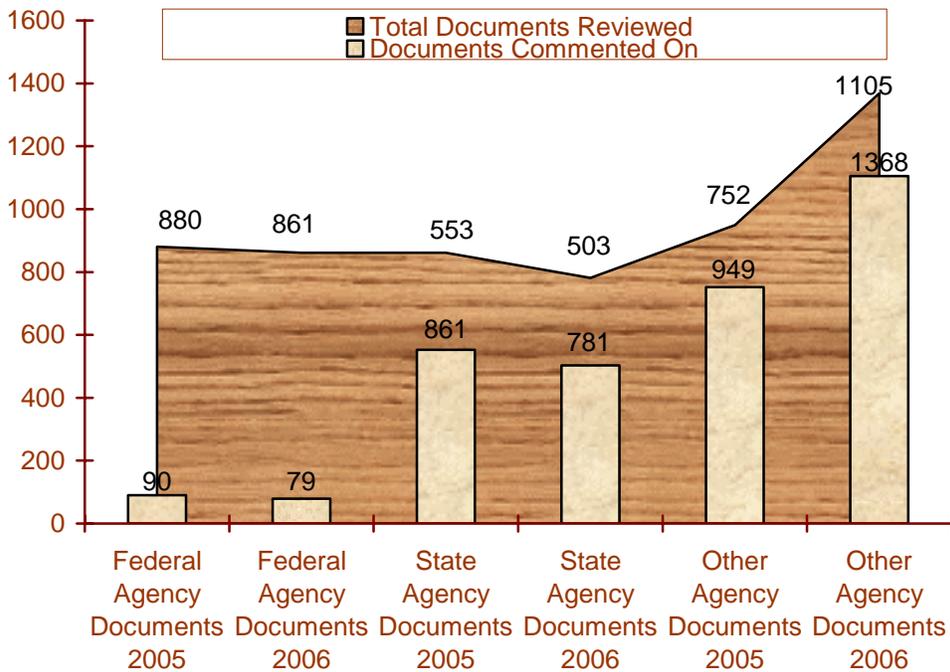
- Continued working with Arizona Department of Transportation and Federal Highways Administration to identify important movement corridors for fish and wildlife populations statewide. The Missing Linkages and Connectivity report will be finalized next project year and used to evaluate future highway expansion projects.
- Participated on a cooperative workgroup between the Department, the Prescott National Forest Camp Verde Ranger District and the Arizona Antelope Foundation continued to work on wildlife and wildlife habitat issues and to assess the overall pronghorn distribution, population trends and habitat management actions, specifically focusing on pronghorn in Game Management Unit (GMU) 21.
- Involved with the Rio Salado Environmental Restoration Project developing planning documents to restore and/or create habitats once found along the Salt River

- Participated on the Tres Rios River Management Plan Steering Committee. This effort is directed at planning for issues associated with discharge of municipal effluent from the City of Phoenix 91st Avenue Wastewater Treatment Plant into the Salt River
- Received and completed 61 Environmental Assessment Checklists from other Department work units during FY2006
- Reviewed and participated in the development of several federal land management policies, land and resource management plans and special land designations, such as national wildlife refuges, new national monuments and conservation areas. Federal agencies included U.S. Fish and Wildlife Service (USFWS), Bureau of Land Management (BLM), Department of Defense (DOD), U.S.D.A. Forest Service (USFS), and National Park Service (NPS)
- Provided biological information, as well as review and comments on Habitat Conservation Plans, including the Sonoran Desert Habitat Conservation Plan, the Multi-Species Conservation Program, and the Roosevelt Lake HCP.
- Participated in the Lower Colorado River Multi-Species Conservation Program. The Program completed a plan that "accommodates current water diversions and power production and optimizes future water and power development opportunities" and "works toward conservation of habitat and toward recovery of the species, and reduces the likelihood of additional 'threatened/endangered' species listings."
- Continued planning related to decommissioning of the Childs and Irving Power Plants on Fossil Creek.
- Continued to work with the Arizona Water Protection Fund Commission and staff and coordinated the Department's review of Arizona Water Protection Fund grant applications. The Water Protection Fund is a state-funded grant program to restore Arizona's rivers and streams and associated fish and wildlife.

A considerable amount of time was spent working with Regional Habitat Programs, other state's wildlife agencies, and the Association of Fish and Wildlife Agency (AFWA) in the review of significant USFS proposals. Work continued on the proposal for protecting the remaining USFS roadless areas as directed by President Clinton during FY2000. Of the 1,116,000 acres of USFS inventoried roadless areas in Arizona, this proposal will impact about 400,000 acres of unroaded USFS lands where there are currently no special restrictions/limitations regarding road construction and reconstruction activities. The Habitat Project is currently working with the Governor's Office to develop a petition to the Secretary of Agriculture regarding Arizona's desire for future management of these areas.

The Habitat Project received 3,010 documents for review and comment from state and federal agencies, cities, counties, and private sources. Increasing demands for Habitat Project services have required a focus on process improvements and prioritizing projects so that time is spent on proposed actions that are anticipated to have the most impact on Arizona's fish and wildlife resources. Of the 3,010 document received, 1,687 were reviewed and required Department review and comments (see diagram).

HEP Document Reviews FYs 2004-2005



Geographical Information System (GIS)

Objective: To provide a Geographic Information System (GIS) for Department use as an effective natural resource data management tool in support of the Department's mission and functions.

Summary of Activities:

Development of digital data and providing Geographical Information System (GIS) services constituted the largest workload of the GIS program. Products include: maps of areas meeting specified criteria, databases, statistics, spatial analyses, meeting presentation graphics, publication or report graphics. As described above, use of GIS has become an essential tool of Department professionals in the accomplishment of their goals in support of the Department mission, and an integral part of many programs. Benefits include the ability to correlate and discern relationships between data, more informed management decisions, and the ability to display spatial data relationships in a meaningful way. GIS permits management decisions based on analyses and information derived from spatial data, not possible without the capabilities of GIS tools.

Urban Wildlife Subprogram

OVERVIEW:

Four jobs make up this the subprogram:

1. Urban Wildlife Conservation

2. Urban Wildlife and Shooting Sports Recreation
3. Wildlife Enjoyment (Watchable Wildlife)

Project information: Administrative work was conducted at the Arizona Game and Fish Department, Game Branch, 2221 West Greenway Road, Phoenix, Arizona 85023-4399; the Department's Regional Offices in Pinetop, Flagstaff, Kingman, Yuma, Tucson, and Mesa; and other locations statewide, as necessary.

JOBS Summary of Activities):

Urban Wildlife Conservation

Objectives:

Develop and collect biological and social information needed to support management and conservation of urban wildlife and its habitat. Manage conflicts between humans and wildlife in urban settings, and for public safety. Foster wildlife rehabilitation efforts in the community. Provide financial assistance through grants, agreements and partnerships to support the conservation of urban wildlife and habitats. Provide information, education and marketing to the public to enhance public awareness and understanding of urban wildlife issues and opportunities. Facilitate protection, restoration, or enhancement of native wildlife habitats in urban areas. Conduct wildlife law enforcement to protect urban fisheries, wildlife populations, and habitats. Provide administrative structure, planning, training, oversight, and coordination for Project personnel and cooperators.

Summary of Activities:

The Department launched a "Mountain Lion Awareness Campaign" in the Tucson and Flagstaff communities to educate the public about living in mountain lion country. Department personnel were trained on the use of the Mountain Lion Protocol and in the use of the statewide Human-Wildlife Interaction Database. Using GIS software, spatial representations will allow proactive efforts in neighborhoods of concern and will be a useful tool for visual display at public outreach meetings.

A database was upgraded to record calls regarding human-wildlife interactions and to track the Department's response. The database allows instant generation of reports by species, region, and/or date and individual calls can be emailed as soon as the data are entered. The database has been used for monthly reports to the governor, annual performance reports, and for targeting conflict hot spots and areas to focus outreach efforts.

A formalized process to deal with human-wildlife conflicts was created for conflicts centered in large developments. Steps were created to educate homeowners and the community involved to share the responsibility of an animal's behavior. The process encourages community partnerships and volunteerism. The process includes incorporating wildlife disclosure language into the codes, covenants, and regulations in residential subdivision developments. Language advised the homeowners association about 'living with urban wildlife' and some self-help techniques for avoiding conflicts.

Specific actions included the following:

- Developed “Living with Urban Wildlife” program. Naturalists and docents were given approximately eight hours of training about urban wildlife issues. 
- Created “Living with Urban Wildlife in Northern Arizona” presentation for general use at Home Owners Association meetings and for any other use by departmental personnel.
- Developed a new “Living with Javelina” brochure, to be printed in late 2006.
- Launched new ‘Living with Wildlife’ web pages (azgfd.gov/urbanwildlife) in July 2005, with individual species information for common urban animals such as coyotes, mountain lions, black bears, bobcats, javelina, raptors, and woodpeckers. Pages also have information on conflict resolution, FAQ, and wildlife rehabilitation information.
- Developed and presented urban wildlife conflict resolution training for community wildlife control officers, sheriffs, and community security personnel.
- In support of Department efforts to decrease wildlife conflict situations,  Arizona Game and Fish Commission supported House Bill 2129, which included limitations on the feeding of wildlife. The legislation passed.
- A new position jointly funded by the Department and Pima County Parks and Recreation was created to manage Pima County’s open space areas for wildlife and to address other cross-agency wildlife and habitat issues.

Urban Law Enforcement and Protection

Objective: Protect urban wildlife populations, habitats and public safety by assuring compliance with state and federal law.

Summary of Activities:

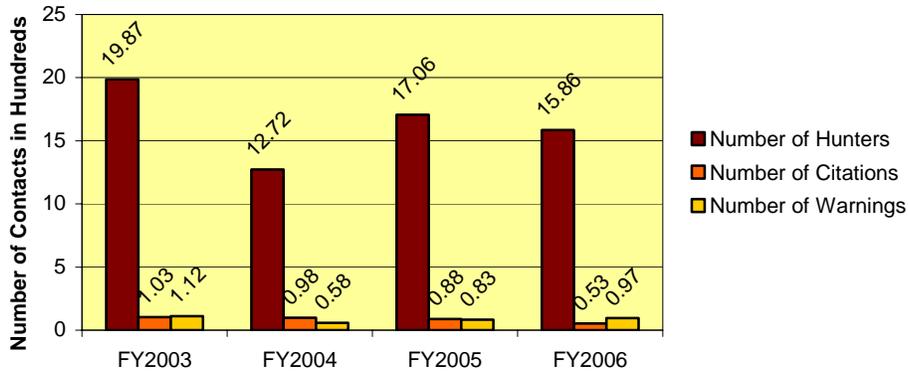
Arizona's rapid development and increasing urban sprawl create a need to maintain balance between using the land for development needs and keeping as much open land as possible to minimize the loss of habitat and open lands traditionally used for hunting and fishing. Urban Law Enforcement officers provide the public with hunting and fishing information and protect Arizona's diverse resources from poaching and overuse. They investigate reports of violations, collect and preserve evidence, write reports, and testify in court. Officers are also expected to promote and coordinate hunter education programs, collect and report information on the conditions of fish and wildlife and their habitat, and represent the Department at local schools and meetings of special interest groups, e.g., hunting and fishing clubs, Lions Club, Rotary, Audubon, etc.

Specific actions included the following:

July-2005 - June-2006 Metro Unit Hunter Contacts and Violations

Region	OHV Users	# Cited	# Warned
2	57	3	5
5	8	1	0
6	1521	49	92
Totals:	1586	53	97
Percentage:	90.5%	3.3%	6.1%

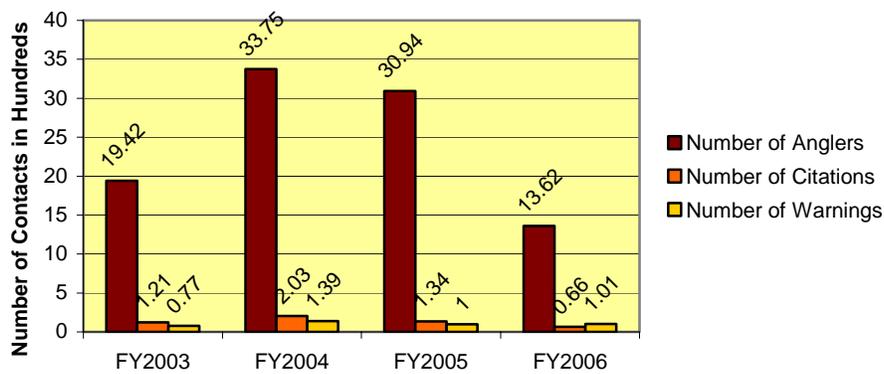
Violation percentage: 9.5% (Violations: 150/ Contacts: 1586)



July-2005 - June-2006 Urban Lake Angler Contacts and Violations

Region	Anglers	# Cited	# Warned
5	217	8	17
6	1145	58	84
Total:	1362	66	101
Standard:	87.7%	7.4%	4.8%

Violation percentage: 12.3% (Violations: 167/ Contacts: 1362)



Urban Wildlife and Shooting Sports

Objectives:

Enhance wildlife associated recreational activities (e.g., hunting, fishing, shooting sports, etc.).
Develop and collect social and biological information needed to support wildlife recreation.

Provide financial assistance through grants, agreements and partnerships to support urban wildlife recreation. Provide information, education and marketing to the public to enhance public awareness and understanding of wildlife recreational opportunities, and increase participation. Develop, maintain and enforce regulations in support of wildlife recreation. Provide administrative structure, planning, training, oversight, and coordination for Project personnel and cooperators.

Summary of Activities:

The Department cooperated with agencies, local governments, private property owners and organizations to develop and enhance wildlife-related recreational opportunities in urban areas. Staff promoted recreational opportunities for wildlife watching and urban fishing. This included providing advice on design, habitat, management issues and opportunities for the Riparian Preserve at water treatment plants in Gilbert, the Rio Salado restoration project, The Point at the Squaw Peak community and the McDowell Sonoran Preserve.

Other recreational opportunities the Department assisted with include:

-  Assisted the Pinetop/Lakeside Chamber of Commerce in organizing their inaugural wildlife festival to be held at Woodland Lake Park in Fall 2006.
-  Contributed to the development and distribution of new wildlife viewing guide titled “White Mountains Wildlife Trails”.
-  Cooperated with Coconino County to implement the County Parks and Open Space Program with watchable wildlife development as the primary recreational use.
-  Developed a vision and prototype brochure of a ‘Watchable Wildlife Network for the Flagstaff Region’, in collaboration with Coconino County Parks and Recreation.
-  Reviewed and commented on the Yuma County Parks Open Space & Trails Master Plan.
-  Coordinated with Gila Bend Mayor & Town Manager on a grant for Gila Ben Shooting Range improvements.
-  Assisted with activities conducted during the planning process of the Northern Arizona Shooting Range.
-  Produced and installed 25 custom designed Urban Fishing kiosks with bulletin boards at 20 urban water locations.

enty (20) lakes in 11 municipalities participated in the Arizona Urban Fishing Program. There were over 450 fish stockings coordinated with contractors and municipalities during the year. A total of 230,400 fish weighing 232,500 pounds were purchased and delivered to Urban Program waters from September through June. Proactive strategies and approaches are being used to include more waters in the Program in the future. Meetings and discussions were held with representatives of three new lake projects that could become part of the Urban Program in the next two years.

Wildlife Enjoyment (Watchable Wildlife)

Objective: Provide information, education and marketing to the public to enhance public awareness and understanding of watchable wildlife. Provide and expand public opportunities for watchable wildlife. Provide and enhance wildlife viewing opportunities. Develop and provide financial assistance through grants, agreements and partnership opportunities to support watchable wildlife activities. Provide administrative structure, planning, training, oversight, and coordination for watchable wildlife project.

Summary of Activities:

The Department participates extensively in wildlife-related festivals, expositions and workshops. Watchable Wildlife (WW) presentations and materials were provided to attendees at the following Education Fairs and Community Celebrations:

Payson Wildlife Fair	Verde Valley Birding Festival
Concho Community Fair	Tres Rios Nature Festival
2006 Yuma County Fair	Wings Over Willcox
Yuma Birding and Nature Festival	Southwest Wings
Ironwood Festival	Arizona Game and Fish Wildlife Fair Region III

Watchable Wildlife personnel coordinated a number of workshops that helped numerous people enjoy the outdoors. Two Watchable Wildlife workshops for beginners were held at Sipe Wildlife Area. They were designed to help participants find, view and enjoy wildlife, and included ethical viewing tips. In addition, two bighorn sheep workshops involved educational classroom information and a field trip to view bighorns in their natural habitat.

The following interagency activities were conducted:

- ✎ Developed Watchable Wildlife interpretive signs for highway rest areas and pullouts to inform and encourage people to watch and enjoy wildlife. The Department is working with the Arizona Department of Transportation (ADOT) to identify places along highways to place the signs.
- ✎ Collaborated with the Arizona Office of Tourism (AOT) to market the benefits of wildlife viewing.
- ✎ Participated in the Arizona Watchable Wildlife Association and Arizona Council for Enhancing Recreation and Tourism.
- ✎ Partnered with Springerville Chamber of Commerce to develop an urban trail, including interpretive wildlife signage and wildlife viewing platform, along Becker Lake Wildlife Area. This project won the award for “Community Development, Parks and Recreation” at the 2006 Governor’s Rural Development Conference.
- ✎ Maintained and strengthened relationships with a wide array of outdoor recreation groups via its execution of various habitat/water development projects include the Mule Deer Foundation, Arizona Desert Bighorn Sheep Society, Arizona Deer Association, Yuma Valley Rod & Gun Club, and fishing groups.
- ✎ Provided input on a new City of Yuma/Arizona visitor center to be constructed at the Interstate Highway 8 point-of-entry into Arizona. The Department will be provided the opportunity for a full-time staff presence to provide Watchable Wildlife information to visitors. Interpretive

signage would be an integral element at the center, adjacent to the Yuma East Wetlands Watchable Wildlife site.

Urban Education and Information

Objectives: Implement annual marketing plans for all agency programs. Achieve customer satisfaction and agency recognition targets established by program for products and services. Increase participation of culturally diverse people in agency programs. Achieve increase in the public's skills, enjoyment and safety in the pursuit of programmatic and recreational activities.

Summary of Activities:

Urban Information and Education personnel coordinate a number of programs that help thousands of people each year enjoy the outdoors. Together, these educational programs and outreach efforts promote the protection, management and wise and enjoyable use of our fish, wildlife and other natural resources.

-  ListServ was used to provide interested participants with relevant wildlife information.
-  Provided resources and stories for television shows, *Arizona Wildlife Views*, and other print media.
-  Frequently highlighted the Adobe Mountain Wildlife Center. The Center's Coordinator worked closely with Department staff and external media to accommodate the agency's need to disseminate information to the public.
-  Disseminated information through written articles, public presentations, informational displays, videos, television, radio, and print media outlets.

Informational materials were published and disseminated, instructing the public on procedures for dealing with wildlife in its habitat, handling orphaned/injured wildlife, and the rehabilitation of wildlife. Materials from previous years were reprinted as needed, and information was added to the AGFD website.

Department staff participated in wildlife fairs throughout the state and other events including the Bowhunters Happening, Verde River Birding Festival, Wings Over Wilcox, Boyce Thompson "Burrard Days", Tres Rios Birding and Nature Festival, Yuma Birding and Nature Festival, and Southwest Wings. The Department provided support for the Arizona Watchable Wildlife Tourism Association, and 4 birding and nature festivals.

Environmental Education Subprogram

OVERVIEW:

One job makes up this the subprogram:

1. Environmental Education

Project information: Administrative work was conducted at the Arizona Game and Fish Department, Environmental Education Branch, 2221 West Greenway Road, Phoenix, Arizona

85023-4399; the Department's Regional Offices in Pinetop, Flagstaff, Kingman, Yuma, Tucson, and Mesa; and other statewide locations, as necessary. Fieldwork was conducted statewide and, as necessary, in other states.

JOBS (Summary of Activities):

Environmental Education and Information

Objectives: Provide diverse educational programs to increase public awareness, appreciation, and understanding of the Mission and Heritage activities of the Commission and Department.

Summary of Activities:

Quality and value of the Department's environmental education and information programs was evaluated and monitored. A variety of classroom materials were developed and implemented including new lessons to the acy program "Focus: WILD Arizona". Focus WILD uses the web as the major method of delivery to educators and students. A new Focus WILD section was added to the *Arizona Wildlife Views* magazine issues beginning in March 2006. Promotion and implementation included Focus WILD workshops throughout the state to reach new and in-service educators: Stimulating, Motivating, Innovative Learning for Educators (SMILE) conference (ochise County), Yuma County, ASU West, ASU Polytechnic, University of Arizona.

The project sought to increase community involvement by providing opportunities for individuals and groups to contribute to the recovery, preservation, and study of Arizona's ecology. Education and information resources were promoted to citizens concerning the value of natural desert habitats, native biodiversity, and their importance to humankind. Activities that supported these goals are listed below:

-  Disseminated information to program enrollees through electronic lists.
-  The Department web site was frequently updated and improved during the reporting period, including a complete revamp of the Heritage Fund section of the web site. On average, more than 10,000 people visited the web site each day.
-  7,000 copies of *Arizona Wildlife Views* magazine were distributed to Wildlife Building visitors during the 2005 Arizona State Fair.
-  Issues of *WILD in Arizona*, *WILD Water Wonders*, and *Here Today – Gone Tomorrow?* student tabloids were distributed at the Arizona State Fair, six water festivals (held statewide in partnership with Project WET), five birding and nature festivals (Yuma, Tres Rios, Wings Over Willcox, Verde Valley, and Southwest Wings), regional wildlife fairs, and other public events.
-  Educational resource materials were provided to participants attending the Arizona Science Teacher's Association, Arizona Council for Social Studies, Arizona Science Center educator evening, Valley Forward Earth Fest Educator's Reception, and Shooting Sports Expo.
-  Presentations were given at numerous events: Arizona Science Teacher's Association, Arizona Council for Social Studies, Arizona Technology Educator's Association, Tres Rios, EnviroKidsFest, Water Festival (Phoenix).

- ✎ Lessons, study guides, and resources were developed and added to the agency web site including Wildlife and Highway Management, Mountain Lions in Arizona, and Living State Symbols of Arizona.  mply Heritage Environmental Education grants developed in previous years were converted into web-based delivery format: Schoolyard Habitat Design, Exploring Arizona's Natural Resources, and Desert Birding Guide.
- ✎ 20,000 Critters of Arizona books were purchased to provide one to every 4th-grade student in Arizona, correlating to the Living State Symbols of Arizona educational program.
- ✎  *Wildlife News*, a weekly news release that is e-mailed and faxed to more than 450 media outlets including: radio, television, newspapers, and national publications, significantly expanding our media coverage.

Staff published "A Field Guide: Amphibians and Reptiles of Arizona" in conjunction with Arizona State University, Partners in Amphibian and Reptile Conservation and Mesa Community College. About 3,000 books were printed. Staff facilitated production of several Heritage-funded informational products including a new Bats of Arizona poster and a reprinting of the Heritage Program brochure. The bat poster is available for free to anyone who wants one. Two thousand Heritage brochures were printed and distributed to legislators.

The Department produced the magazine, *Arizona Wildlife Views*. In FY 2006, about 143,000 copies of the magazine reached an estimated 357,500 readers, including all State Legislators. Distribution was accomplished through paid subscription services and free distribution at the state fair, educational workshops and public school libraries. Heritage-related articles printed during FY 2006, covered a broad spectrum of subjects including:

- ✎ "Learning to Live with Lions" article discussed the department's informational mountain lion campaign, how it was launched, program components, and the campaign's success. The mountain lion research-tracking project was also highlighted.
- ✎ News briefs regarding California condors can be found in several magazine issues.
- ✎ Launch of a new department: "*Focus: Wild Arizona.*" Each issue lessons/learning activities are published for youth and teachers. The lessons come directly from the Focus: Wild Arizona program, which is a free education program for teachers, parents, students and anyone interested in learning about wildlife and habitat.
- ✎ Heritage grant awards and workshops

Program personnel continued to be involved in developing and planning program facilities and sites with inter and intra-agency cooperative groups. The Department participated in a new Leadership Advisory Council consisting of a focus group of educators from around the state who were trained in the use of the Focus Wild programs. Assistance was provided to the Arizona Lottery for a public relations campaign to promote the Heritage Fund.

The Department produced a 13-week television series, which aired on the statewide PBS network and cable systems. The *Arizona Wildlife Views* television show production staff received several awards in FY2006 including:

Telly Awards

- “Wild Pets”
- “Onery the Eagle”

Outdoor Writers Association Awards

- *Conservation / Environment Category* - First Place - "Fossil Creek,"
- *Conservation / Environment Category* - Second Place - "Onery the Eagle,"
- *Conservation Environment Category* - Third Place - "Tres Rios Beaver,"
- *Shooting Sports* - First Place - “Pull!”
- *President's Choice Award* - Best Video of the Year - "Pull!"

Emmy Awards (National Academy of Television Arts and Sciences)

- “Fossil Creek” In the Environment Feature / Segment category
- “Alien Cleanup” in the Environment / Segment category.

Two educational video programs were created and released by the Department in FY2006: *Living with Urban Wildlife* and *How to Catch Crayfish*. The urban wildlife video tells homeowners how to reduce conflicts with wildlife, while the crayfish video relates the story of the impact the exotic crustaceans have had on the environment, including native species of fish and amphibians, and how the public can help by catching and eating these delicacies.

Wildlife Rehabilitation Efforts

Department personnel assisted with several rehabilitation issues, such as assisting in the transfer of wildlife from wildlife service licensees to local rehabilitators. Many breeding animals were called in as nuisances by community members and the calls were routed through Regional offices to wildlife rehabilitators. Orphaned or injured wildlife are often routed through Department offices to licensed wildlife rehabilitators. Personnel coordinated nesting burrowing owl and relocation issues when owls were removed from sites of impending habitat loss and released to suitable – sometimes artificially developed – urban habitat sites. Staff also processed wildlife licenses, provided local education classes, and outreach on current issues and supported rehabilitation efforts.

Nine hundred and sixty-one animals were processed through the Adobe Wildlife Center in FY 2006. SFWS required reports listed each animal handled, date and location of acquisition, and final disposition were submitted. A list serve was created to disseminate information to wildlife rehabilitators. Record retention was committed to an electronic format, for ease of record keeping and dissemination of critical information. A volunteer manual was completed and provided to every Adobe Wildlife Center volunteer that successfully completed orientation and initial training. The center hosted a statewide biennial wildlife rehabilitation symposium for rehabilitators, offering a variety of classes correlating to continuing education credits necessary for license renewal. Necropsy classes were provided to both rehabilitators and collegiate classes on an as-requested basis.

Access Subprogram

OVERVIEW:

One job makes up this the subprogram:

1. Heritage Public Access

Project information: Administrative work was conducted at the Arizona Game and Fish Department, Development Branch, 2221 West Greenway Road, Phoenix, Arizona 85023-4399; the Department's Regional Offices in Pinetop, Flagstaff, Kingman, Yuma, Tucson, and Mesa; and other statewide locations, as necessary. Fieldwork was conducted statewide.

JOBS (Summary of Activities):

Landowner Relations Program

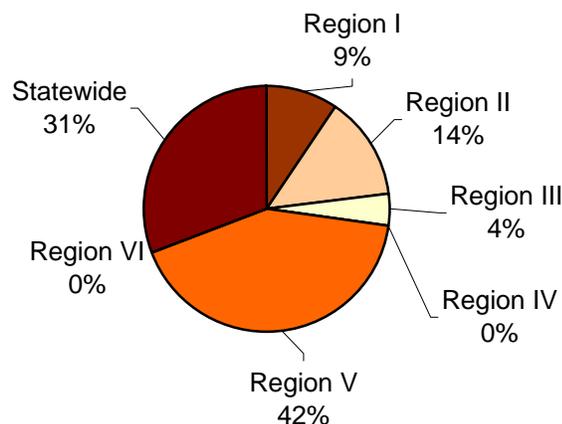
Objectives:

To administer the Heritage funded Public Access Program by which the Department can collaboratively enhance opportunities for the public to enjoy wildlife by identifying lands and waters that are closed to the public or that do not have sufficient access and work with all interested parties to meet recreation and other access needs. To administer statewide the Heritage funded Public Access Program by which the Department can work collaboratively with private landowners and land management agencies to enhance opportunities for the public to enjoy wildlife through maintaining, enhancing and restoring public access on lands in Arizona.

Summary of Activities:

The Heritage Access project (Heritage Access Grant-In-Aid, Landowner Respect Program, and the Adopt-A-Ranch program) was administered through the Department's Landowner Relations Program. The project focused on establishing working relationships between landowner/lessees, recreational user groups, land management agencies, and the Department.

Total Heritage Fund Access Dollars Spent per Region FY 06



Featured Access Project Activities:

- 🐦 Babbitt Ranches: Continuation of a long-term access agreement in Flagstaff.
- 🐦 Alder Ranch: Completion of a short-term access agreement started last fiscal year in Tucson in exchange for installation of water delivery system.
- 🐦 Overson Ranch: Short term access agreement in exchange for funds to conduct road maintenance near the town of Kingman.
- 🐦 Amalong Ranch: Short term access agreement in exchange for grassland restoration work in Region V. This project is located near the town of Willcox.
- 🐦 Brosnan Ranch: Short term access agreement in exchange for grassland restoration work in Region V, near the town of Tombstone.
- 🐦 Westwood Ranch: Short term access agreement in exchange for funds to conduct road maintenance in Region III, near the town of Seligman.
- 🐦 Anderson Crossing: Funds were utilized to complete a low water crossing into Raymond Ranch wildlife area in Region II, near the town of Flagstaff.
- 🐦 King Anvil Ranch: Short term access agreement in exchange for grassland restoration and fencing and water development projects work in Region V. This project is located near the town of Tucson.
- 🐦 McDonald Ranch: Short term access agreement in exchange for road, fencing and water development projects work near the town of Douglas.
- 🐦 Charouleau Gap: Purchase perpetual Right-Of-Way from Arizona State Land Department for public access. This project is located near the town of Catalina.
- 🐦 Standford-Pridham: Purchase 10 year Right-Of-Way from Arizona State Land Department for public access. This project is located near the town of Elfrida.
- 🐦 Peck Canyon: Purchase perpetual Right-Of-Way from private landowner in Region V for public access, near the town of Tubac.
- 🐦 Homack Ranch: Purchase perpetual Right-Of-Way from private landowner in Region V for public access. This project is located near the town of Bonita.
- 🐦 Sopori Ranch: Purchase 10 year Right-Of-Way from Arizona State Land Department for public access, near the town of Tubac.
- 🐦 Emigrant Canyon: Purchase 10 year Right-Of-Way from Arizona State Land Department for public access. This project is located near the Fort Bowie National Monument.
- 🐦 John Long Canyon: Purchase 10 year Right-Of-Way from Arizona State Land Department for public access. This project is located near the town of Elfrida.
- 🐦 Aja ranch: Short term access agreement in exchange for grassland restoration work in Region I. This project is located near the town of Winslow.
- 🐦 Hart & Clear Creek ranch: Short-term access agreement in exchange for grassland restoration works in Region I. This project is located near the town of Winslow.
- 🐦 Carlisle Ranch: Short term access agreement in exchange for grassland restoration work in Region I. This project is located near the town of Snowflake.

- 🐦 Hanson Ranch: Short term access agreement in exchange for public access, near the town of Showlow.
- 🐦 Double U Ranch: Short term access agreement to acquire an easement along a road in exchange for public access in Region V, near the town of Tombstone.
- 🐦 State Parks Trail Fund Projects: A number of access related projects were conducted in cooperation with the Coconino National Forest, Kaibab National Forest, Arizona State Land Department and Department Wildlife areas utilizing Heritage and Arizona State Parks funds.
- 🐦 Adopt-A-Ranch/ Respect: Fund the activities of the Adopt-A-Ranch and Respect Programs.

Administrative and Support Services

OVERVIEW:

One job makes up this the subprogram:

1. Heritage Program Administration

Project Information: Administrative work and support services were conducted at the Arizona Game and Fish Department, Development Branch, 2221 West Greenway Road, Phoenix, Arizona 85023-4399; the Department's Regional Offices in Pinetop, Flagstaff, Kingman, Yuma, Tucson, and Mesa; and other statewide locations, as necessary.

JOBS (Summary of Activities):

Heritage Program Administration

Objective: To ensure annually the program, planning, granting, budget and audit accountability for the Heritage fund to the level at which the job is being conducted, including coordination and annual reporting to the Legislature.

Administrative related activities are used to support the department's management activities relative to Heritage funded jobs.

Heritage Grants Awarded in FY2006

Twenty-two Heritage Fund grants were awarded in FY2007. The awarded grants were announced at the May 2006 Arizona Game and Fish Commission Meeting. Total awarded funding was **\$645,222.00**, which became available in July 2006. The project period for these grants is three years. The projects are identified by Heritage funding-focus and location in Arizona, including pertinent County and Legislative District(s). Project information regarding the applicants, project contacts, awarded funding and applicant's project descriptions is as follows:

Environmental Education Heritage Grants

Applicant: City of Flagstaff
Project Contact: Mr. David Wilcox, City of Flagstaff, 211 W. Aspen Avenue, Flagstaff, AZ 86001
Project: E07006, "Francis Short Pond Phase II- Implementing Standards Based Environmental Education Activities"
County: Coconino **Legislative District/s:** 2
Dollars Awarded: \$10,000

This proposal will produce standards-based lesson plans and activities that teachers at all grade levels can apply at Frances Short Pond and integrate into the curriculum. To facilitate teacher effectiveness, the proposal includes teacher training and workshops. In addition this proposal develops and supplies field kits for hands-on learning. Willow Bend Environmental Education Center will provide supplemental classroom programs, field trips and a Family Science event at the pond that will attract families in the community. The proposal focuses on three schools adjacent to the pond (see Exhibit A); however, resources developed from this grant will be available from Willow Bend to educators throughout the region.

Applicant: Northern Arizona University
Project Contact: Ms. Wilma Ennenga, Northern Arizona University, Box 4130, Flagstaff, AZ 86011-4130
Project: E07009, "Wildlife in Native Schools WINS"
County: Coconino **Legislative District/s:** 1, 2
Dollars Awarded: \$9,973.00

The WINS project will focus on developing an outreach program to involve Native American communities and schools in wildlife observation and education in conjunction with an existing environmental education program run by TEEOP and NAU. Some of the products and deliverables of this project include: a teacher workshop, classroom presentations, community outreach events, development and distribution of teacher resource kits. Focus areas for these events will include: predator-prey relationships, interconnectedness of the food chain, Arizona ecosystems, biodiversity, effects of air and water quality on wildlife, and student observation of and data collection on the migration of Arizona's bird of prey. The WINS program, by adding a wildlife education and observation component, will complement TEEOP's existing environmental education program. The WINS project will also introduce wildlife career opportunities to Arizona's Native Populations.

Applicant: University of Arizona
Project Contact: Dr. Kevin Brown, Flagstaff Unified District, 3285 East Sparrow, Flagstaff, AZ 86004
Project: E07011, "Project Life (Life in the Flagstaff Environment) Curriculum Enhancement"
County: Coconino **Legislative District/s:** 2
Dollars Awarded: \$5,622.00

Enhance and revise the current outdoor environmental education curriculum of Camp Colton's Project LIFE to new Arizona State academic standards for science by developing grade specific learning units, field kits and hand-on activities that support and integrate wildlife education.

IIAPM Heritage Grants

Applicant: University of Arizona
Project Contact: Ms. Lee Anne Peters, University of Arizona, P.O. Box 210158, Tucson, AZ 85721
Project: I07002, "Monitoring Sonoran Desert Tortoises"
County: Pima **Legislative District/s:** 27
Dollars Awarded: \$31,900.00

This project will produce an educational documentary that capitalizes on the upcoming restoration of Fossil Creek, Arizona where a large hydropower dam will be decommissioned in March 2005. The documentary speaks to the complex environmental issues that inform large restoration projects. This program will take viewers into the field with biologists Monitoring tortoises in the Sonoran Desert is more time intensive and more expensive than surveying in the Mojave Desert principally because Sonoran tortoises inhabit more rugged landscapes making them more difficult to locate reliably. We propose to compare two alternative strategies for monitoring desert tortoises in Arizona, transect-based distance sampling for estimating population density and plot-based presence-absence surveys for estimating occupancy. We will provide AGFD and other management agencies with a quantitative evaluation of the costs and benefits of each strategy and develop the most efficient monitoring strategy for reliably detecting trends in populations of Sonoran desert tortoises over time., geologists, restoration manager, and other scientists. The video will be distributed for educational purposes and will be augmented with a draft teacher's guide.

Applicant: Northern Arizona University
Project Contact: Ms. Wilma Ennenga, Northern Arizona University, Box 4130, Flagstaff, AZ 86011-4130
Project: I07008, "Roosting habitat of bats"
County: Coconino **Legislative District/s:** 01,02,03
Dollars Awarded: \$21,711.00

Roosts are an essential habitat element for all bat species. To protect roosts, current and reliable data on their locations, bat species and season of use are needed. I have conducted 1 year of roost surveys in northern Arizona, and request funds for a second year to complete a comprehensive roost inventory, describe roosts, and evaluate them to determine species, season of use, and potential threats. I will target all species of bats, with particular emphasis on Allen's lappet-browed (*Idionycteris phyllotis*) and spotted bats (*Euderma maculatum*). I will also collect samples to conduct a study on genetics of Allen's lappet-browed bats captured at montane and desert sites. We will develop management recommendations for protecting high priority roosts determined to be at risk. Priority species will include Allen's lappet-browed and spotted bats. Products will include updated roost information to HDMS database, MS thesis, 1 peer-reviewed publication and 2 oral presentations.

Applicant: University of Arizona
Project Contact: Ms. Lee Anne Peters, University of Arizona, P.O. Box 210158, Tucson, AZ 85721
Project: I07009, "Surface Water Depletion and Riparian Birds"

County: Pima **Legislative District/s:** 4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,23,25,26,27,28,29,30

Dollars Awarded: \$63,618.00

We intend to quantify the value of low-elevation riparian woodlands in Arizona to the health and persistence of Arizona's riparian bird community by measuring the extent to which perennial pools of standing water influence the abundance, diversity, and reproductive health of breeding bird populations. We plan to use biological data in conjunction with hydrological data to develop a model that will predict the ultimate effects of groundwater withdrawal and surface water depletion on this threatened bird community. This research project is designed to support efforts by AGFD and other agencies to provide information that can be used to protect riparian woodlands and their associated avifauna, maintain in-stream flow in desert riparian systems, and address an issue that will become more important as human populations continue to grow in Arizona.

Applicant: US Fish and Wildlife

Project Contact: Mr. Steven Spangle, US Fish and Wildlife Service, 2321 W. Royal Palm Rd. Ste 103, Phoenix, AZ 85021

Project: I07011, "Pre-historical, historical, and recent distribution of freshwater mussels (Unionidae: Anodonta) in the Colorado River and Rio Yaqui basins"

County: Maricopa **Legislative District/s:** 05

Dollars Awarded: \$27,355.00

Based on a thorough review of available literature, museum holdings, personal contacts, and limited field surveys, the proposed project will compile information to investigate the pre-historic (about 300 A.D to European contact), historic (about 1500 A.D. to mid-1900s) and recent (mid-1900s to present) distributions of freshwater mussels (Unionidae: Anodonta; including California floater (Anodonta californiensis), a Sensitive Element) in the Colorado River and Rio Yaqui basins. Archaeological literature will be used to assess the pre-historic and some historic distribution of the mussels. Geographic Information System technology will be used to create distribution maps that will be integrated with the text.

Applicant: University of Arizona

Project Contact: Dr. Richard Haney, Jr., University of Arizona, 888 Euclid Ave.; P. O. Box 210158, Tucson, AZ 85721

Project: I07012, "The ecology, status, and distribution of Arizona Gray Squirrels"

County: Pima **Legislative District/s:** 25,30

Dollars Awarded: \$70,645.00

Arizona gray squirrels are nearly endemic to Arizona with only small range extensions into New Mexico and Sonora. The species was first described by the famed naturalist Elliott Coues in 1867 while he was stationed at Ft. Whipple. Despite the nearly 140 years that have intervened, not a single peer-reviewed publication exists on the ecology of this species despite its apparent decline in some areas and numerous recent management challenges to our sky island forests. AGFD has added this species to the Sensitive Elements list in an attempt to rectify this paucity of information. Herein, I propose to use surveys for conspicuous nest, live capture and release, and radiotelemetric monitoring to assess the status, distribution, habitat use, and population ecology of this uncommon species. The results of this research will permit informed management and conservation decisions on the forests of east central and southeast Arizona as well as remove a large gap in our knowledge of terrestrial endemic wildlife.

Applicant: University of Arizona
Project Contact: Dr. Richard Haney, Jr., University of Arizona, 888 Euclid Ave.; P. O. Box 210158, Tucson, AZ 85721
Project: I07013, "Status and distribution of Mexican Fox Squirrels: The impact of fire"
County: Pima **Legislative District/s:** 25
Dollars Awarded: \$57,095.00

Mexican fox squirrels are endemic to a single mountain range in Arizona and have been considered to be one of the rarest mammals in the State. Despite the nearly 100 years that have intervened, only 5 peer-reviewed publications exist on the ecology of this species despite its apparent decline in some areas and numerous recent management challenges to our sky island forests. Mexican fox squirrels appear tied to fire-adapted ecosystems but little is known about their habitat preferences and distribution in the heavily fire-impacted Chiricahua Mountains. AGFD has added this species to the Heritage Grant's Sensitive Elements list in an attempt to rectify this paucity of information. Herein, I propose to use surveys for conspicuous nests, live capture and release, and radiotelemetric monitoring to assess the status, distribution, and ecology of this uncommon species in relation to several significant fires of the last 50 years. The results of this research will permit informed management and conservation decisions on the forests of one of the State of Arizona's most remote areas as well as provide important data on one of the rarest mammals in the State.

Applicant: Arizona State University
Project Contact: Ms. Vicki Krell, Arizona State University, Box 873503, Tempe, AZ 85287-3503
Project: I07015, "Biological Control of Orconectes Virilis"
County: Maricopa **Legislative District/s:** 5,6
Dollars Awarded: \$21,359.00

We propose to test the susceptibility of the invasive crayfish, *Orconectes virilis*, to a variety of bacterial and viral pathogens in the laboratory. These pathogens will include strains of *Bacillus Thuringiensis* and Viruses common in mariculture of shrimp. We hypothesize that one or more of these pathogens may provide a potential biological control agent for these crayfish that will not be harmful to nontarget organisms in the habitat, and can be restricted to the treated streams. Such a pathogen can then be further developed for application in Arizona habitats with the goal of reducing or eliminating *O. virilis*.

Public Access Heritage Grants

Applicant: Pima County Natural Resources
Project Contact: Mr. Rafael Payan, Pima County, 1204 W. Silverlake Rd., Tucson, AZ 85713

Project: P07001, "Trail Signage for Wildlife Recreation"
County: Pima **Legislative District/s:** 25,26,27,28,29,30
Dollars Awarded: \$20,000.00

Project Scope: Installation of informational and regulatory signage at trailheads and along roads and trails within Tucson Mountain Park (TMP) and other open space properties in order to keep recreational users on defined access routes and away from sensitive wildlife habitats, and to educate the public about appropriate recreational use in the vicinity of local wildlife. Signage will also define special hunting areas within TMP and newly acquired open space properties.

Applicant: Pima County Natural Resources
Project Contact: Mr. Rafael Payan, Pima County, 1204 W. Silverlake Rd., Tucson, AZ 85713

Project: P07002, "Tucson Mountain Park Trail Guide"
County: Pima **Legislative District/s:** 27
Dollars Awarded: \$5,000.00

Project Scope: Create, print, and distribute a color brochure with accompanying map to increase public access to, enjoyment of, and knowledge about Tucson Mountain Park, the largest natural resource park in Pima County situated adjacent to Saguaro National Park. No trail guide currently exists and this much-needed resource is often requested by the public. It will inform the public about trail access, appropriate use of park resources, identification of and safe interaction with wildlife, and the natural, historic, and cultural value of the park and its preservation. This brochure and map will describe access opportunities for persons with disabilities and be bilingual to increase its effectiveness for residents and visitors.

Applicant: Bureau of Land Management
Project Contact: Ms. Rebecca Heick, Bureau of Land Management, 2555 Gila Ridge Road, Yuma, AZ 85365

Project: P07004, "Improving Access at Betty's Kitchen"
County: Yuma **Legislative District/s:** 24
Dollars Awarded: \$78,500.00

Bureau of Land Management proposes to build an aluminum, fixed pier at Betty's Kitchen Wildlife and Interpretative Area to improve public access to wildlife viewing and fishing. Betty's Kitchen is a developed recreational area that has a 0.5 mile loop trail, interpretive signs, ramadas, vault toilets, a bridge, a small outdoor amphitheater, and picnic tables. It is recognized as a National Recreation Trail and a Watchable Wildlife Area. The new pier, which will be fully ADA Compliant is meant to replace the non-ADA compliant floating dock.

Schoolyard Heritage Grants

Applicant: Florence Unified School District
Project Contact: Mr. Richard Sagar, Florence Unified School District, 1084 West San Tan Hills, Queen Creek, AZ 85243
Project: S07001, "Skyline Elementary Pond Habitat"
County: Pinal **Legislative District/s:** 23
Dollars Awarded: \$4,825.00

This is a student-constructed schoolyard pond habitat. Children will be involved in all phases of design, construction, study and maintenance. The habitat will be used as an outdoor classroom for teaching wildlife-related topics including native/ non-native plant and animal relationships, predator/prey dynamics, pollution/contamination and amoeba and protozoa counts, to name just a few.

Applicant: Amphitheater Public Schools
Project Contact: Mr. Patrick Nelson, Amphitheater Public School District, 701 West Wetmore, Tucson, AZ 85705
Project: S07002, "Coyote Trail Wildlife Habitat."
County: Pima **Legislative District/s:** 28
Dollars Awarded: \$10,000.00

A schoolyard habitat that focuses on the development of wildlife and native plants, and is driven from the goals of state standards and objectives. This will be a collaborative and publicized effort with enriched hands-on learning, building of community partnership, and active participation. This project is the only public endeavor that represents a key value of our community: the preservation of natural habitat in our mid town urban area.

Applicant: Mountain School Charter School
Project Contact: Ms. Renee Fauset, Mountain School, 311 W. Cattle Drive Trail, Flagstaff, AZ 86001
Project: S07003, "Mountain School Habitat Community Garden"
County: Coconino **Legislative District/s:** 02
Dollars Awarded: \$7,100.00

To create a schoolyard habitat to attract wildlife and serve as a nature laboratory for students and community members of Flagstaff.

Applicant: Altar Valley School District
Project Contact: Ms. Theresa Leal-Holmes, Altar Valley School District, HCR 1 Box 130, Tucson, AZ 85736
Project: S07004, "Tortoise Habitat and Native Plant Garden"
County: Pima **Legislative District/s:** 25
Dollars Awarded: \$8,650.00

Students, school staff, and community members will construct, maintain, and utilize the tortoise habitat to enhance all areas of the school curriculum. This project will educate students about their environment, how humans impact their environment, and how wildlife can coexist with humans.

Applicant: Lake Havasu Unified School District #1
Project Contact: Ms. Shaun Goodwin, Lake Havasu School District, 1425 Patrician Dr., Lake Havasu, AZ 86404
Project: S07005, "Nautilus Secret Wildlife Garden"
County: Mohave **Legislative District/s:** 03
Dollars Awarded: \$9,795.00
Develop a sustainable urban wildlife habitat area on campus that incorporates the elements of food, shelter, water, and space and offers an alternate teaching opportunity for a variety of curriculums, such as biological science, language arts, reading, music, and art.

Urban Heritage Grants

Applicant: University of Arizona
Project Contact: Ms. Lee Anne Peters, University of Arizona, P.O. Box 210158, Tucson, AZ 85721
Project: U07013, "Bobcat Distribution and Gene Flow in Tucson: Integrating Public Outreach and Conservation Genetics"
County: Pima **Legislative District/s:** 23,25,26,27,28,29,30
Dollars Awarded: \$87,513.00
This project is the first phase of a multi-phase study of bobcats in the urban interface of Tucson, AZ. In this phase we will: 1) assess distribution of bobcats across greater Tucson by soliciting verified photographs of bobcats from the public, 2) educate the public about bobcats via public presentations, an educational brochure, and involvement of some members of the public in the research process, and 3) evaluate gene flow and population genetic structure of bobcats across the Tucson Basin surrounding urban interface.

Applicant: Northern Arizona University
Project Contact: Ms. Wilma Ennenga, Northern Arizona University, Box 4130, Flagstaff, AZ 86011-4130
Project: U07014, "Designing Corridors for Arizona's Missing Linkages"
County: Coconino **Legislative District/s:** 1,2,3,4,5,25,26,30
Dollars Awarded: \$62,699.00
We will produce corridor designs for each of 8 potential wildlife linkages that occur in or within 5 miles of incorporated cities. Each corridor design will facilitate the movement of 6-12 focal species between protected habitat blocks at each end of the corridor; in many cases this will require more than one corridor. The design will identify lands in the linkage planning area that need to be conserved and will recommend underpasses & overpasses across highways, canals, and railroads. These plans will support the Comprehensive Wildlife Conservation Strategy and the ongoing efforts of Arizona Wildlife Linkage Workgroup (AGFD, ADOT, USFS, BLM, Federal Highways, others).

Applicant: Arizona State University
Project Contact: Ms. Deborah Shaver, Arizona State University, P O Box 873503, Tempe, AZ 85287
Project: U07020, "Urban influence on Gila monster ecology"
County: Maricopa **Legislative District/s:** 13,14,15,16,17,20

Dollars Awarded: \$25,462.00

While low-density urbanization preserves some natural habitat, the ability of such land to sustain populations of native terrestrial vertebrates has been minimally studied. Natural habitat within low-density urban environments is quite different than undeveloped areas. Mortality risks to animals are greater (e.g. humans, pets, roads), but water availability is much greater and more predictable. Our objective is to conduct direct comparisons of several fitness measures (e.g., body condition, injury/mortality rate, reproductive output, activity levels and habitat use) between two populations of Gila monsters in undeveloped habitats and two geographically matched urban populations that have irrigated 'natural' habitat. The urban partners we have chosen to work with include Troon North in Scottsdale and Stone Canyon Golf Club in Oro Valley, which manage golf resorts in low density, master-planned communities as well as the City of Scottsdale, which manages the McDowell Sonoran Preserve, a 11,000 acre undeveloped preserve. We will conduct the proposed research at paired sites near Tucson and Phoenix using methodology we have applied to a natural population of Gila monsters for several years. Results will provide unique insight into the negative and positive ecological consequences of low-density urbanization on a small terrestrial vertebrate. Products resulting from this research include an end of study report to AZGFD, community education forums, contributions to both conservation and community development plans, multiple publications in peer-reviewed journals, and presentation at professional meetings.

Acronyms used in the Arizona Game and Fish Heritage Fund Report

A.R.S.	Arizona Revised Statutes
AAEE	Arizona Association of Environmental Education
ADOT	Arizona Department of Transportation
AFS	American Fisheries Society
AFWA	Association of Fish and Wildlife Agencies
AGFD	Arizona Game and Fish Department
AOT	Arizona Office of Tourism
ASLD	Arizona State Land Department
ASTA	Arizona Science Teachers Association
ASU	Arizona State University
BFF	Black-footed Ferret
BLM	Bureau of Land Management
CWCS	Comprehensive Wildlife Conservation Strategy
DOD	Department of Defense
EE	Environmental Education
GIS	Geographic Information Systems
GMU	Game Management Unit
GPS	Global Positioning System
HCP	Habitat Conservation Plan
HDMS	Heritage Data Management System
HEP	Habitat Evaluation and Protection
IAFWA	International Association of Fish and Wildlife Agencies
IBA	Important Bird Areas
IIAPM	Identification, Inventory, Acquisition, Protection and Management
IIAPM-FWR	IIAPM - Fish and Wildlife Research
IIAPM - WM	IIAMP – Wildlife Management
IIAPM-LW	IIAPM - Lands and Water Administration and Acquisition
IIAPM – S	IIAPM - Stewardship
PBS	Public Broadcast System