

Arizona Game and Fish Department Wildlife 2006 Biannual Progress Report

Game Subprogram

Mission: Protect and manage game wildlife populations and their habitats to maintain the natural diversity of Arizona, and to provide game wildlife oriented recreation opportunities for present and future generations.

Goals:

Maintain, enhance and restore (when appropriate and economically feasible) populations of game wildlife to provide for recreation opportunities, including wildlife viewing.

Minimize adverse impacts to wildlife and wildlife resources, and strive to resolve human/wildlife conflicts.

Increase public awareness of Arizona's game wildlife, its management, and hunting and viewing opportunities.

Mule Deer Objectives

Includes firearms and archery season data; recreational opportunity and hunter days calculated based on the percent of total deer harvest.

1. Maintain a statewide population of 123,000 to 154,000 post-hunt adult mule deer.
 - 2001 - Population estimate was 111,500 mule deer.
 - 2002 - Population estimate was 120,000 mule deer.
2. Maintain annual harvest at 12,500 to 15,000 mule deer.
 - 7,627 mule deer were harvested in 2001.
 - 6,212 mule deer were harvested in 2002.
3. Provide recreational opportunity for 70,000 to 83,000 hunters per year.
 - Recreational opportunity was provided to 42,616 hunters in 2001.
 - Recreational opportunity was provided to 44,046 hunters in 2002.
4. Provide 310,000 to 340,000 hunter days per year.
 - 219,183 hunter days were provided in 2001.
 - 217,637 hunter days were provided in 2002.
5. Maintain existing occupied habitat, with emphasis on retention of medium and high quality habitat.
 - Coordination with land management agencies with regards to maintaining and enhancing mule deer habitat has taken place and will continue on a project specific basis.

- Habitat was altered by wildfires. The Rodeo-Chediski fire influenced almost 200,000 acres of habitat off tribal lands that was reduced in suitability in the short term. Over the long term, this habitat is expected to improve. Browse production, especially Gambel oak and buckbrush is predicted to greatly increase over the next several years. The added nutritional values from these browse species should benefit fawn recruitment rates. Some previous fires, such as the Bridger Knoll Complex fires on the North Kaibab, have not resulted in improved habitat conditions for deer because the dominant browse species, cliffrose and sagebrush, do not respond well to fire.

Strategies

1. Use standardized surveys and population and hunt modeling to assist in permit recommendations. Base harvest objectives on population targets and habitat objectives.
 - Standardized survey methodology and population modeling is being used to assist in permit recommendations.
 - Region V (Tucson) instituted a fixed line-transect methodology for aerial mule deer surveys in Unit 37B. This new survey method will provide a consistent survey of this low-density deer herd and improve decision-making.
 - Improvements in survey efficiency were made in all regions during 2001 as a result of recommendations of the survey efficiency committee. Region V alone reduced the amount of ferry hours for helicopter survey by 80%. During 2002, ferry time amounted to only 9.3% of the total amount of helicopter time used in the region, compared to 38% in 2001.
2. Issue permits considering hunter access and demand rates for various weapon types.
 - Hunter access is carefully considered when making permit recommendations.
 - Muzzleloader permits are allocated to encourage use of this shorter-range weapon type, especially near increasing urban development.
 - 2002/03 - In some Units, such as 12A, 13A, and 27, archery harvest is approaching similar levels of buck removal as that of general season harvest.
3. In Game Management Units 12A, 12B, 13A, 13B, 36B, 45A, 45B and 45C, offer buck-hunting opportunities that emphasize harvest of older age class animals, reduced hunter densities and higher hunter success. Specific mule deer management guidelines for above noted units were included in an "Alternative Mule Deer Management Plan."
 - Alternative mule deer management plans were developed and implemented in the above listed units. Check stations, hunter questionnaires, and wildlife surveys, and field checks continue to monitor the success of alternative management on these areas. These areas consistently produce older age class bucks.
4. Improve the condition of the declining or low-density herds through habitat improvement, research, conservative hunt management, and predator management.
 - The Department is a participant in the Western States Mule Deer Workgroup under the auspices of the Western Association of Fish and Wildlife Agencies. This group greatly improved communication among the western states' mule deer biologists. Products include participation in a mule deer information website, predation white

- paper, popular newspaper format document that outlines the issues affecting mule deer throughout the West, and a book highlighting the state of our knowledge on current issues affecting mule deer throughout the West.
- The Department is examining the effects of forest restoration treatments on mule deer nutrition and fawning habitat quality on Mount Trumbull.
 - The Department supports the National Forest Services analysis to allow more naturally occurring fires to burn in designated areas.
 - Habitat improvement projects were submitted by Habitat Partnership Committees and funded by big game donations and Special Tag Funds.
 - The Rodeo-Chediski Wildfire burned most of the better quality mule deer habitat in Unit 3C in June 2002. Short-term impacts include loss of cover, food and possibly water sources. These impacts will be temporary and the long-term benefits from stimulated forb and browse resources will be positive.
 - 2002/03 - During this past year, 357 hunter-harvested and 6 targeted-surveillance mule deer were tested for the presence of Chronic Wasting Disease. All tested negative. Continued monitoring is planned for 2003-2004. Mule deer were also tested for the presence of Hemorrhagic Disease. Although mule deer have tested positive for exposure to this disease near Yuma and Prescott, no exposures have been detected in mule deer from the Kaibab.
5. Coordinate with the Arizona Department of Transportation to determine the extent of vehicle-deer collisions and to identify possible mechanisms by which to reduce the incidence or severity of such collisions.
- The Department coordinates with the Department of Transportation to minimize wildlife collisions. The process identifies likely collision zones, which then are marked using temporary or permanent highway markings to alert drivers, or fences at crossings that influence wildlife movements. This coordination is done largely on a project specific basis.
 - During 2001/02, wildlife crossings were installed on some sections of Arizona highways, and fencing standards for wildlife were developed.
 - Exclusionary fencing was installed to direct bighorn sheep, mule deer, and feral burros to the underpass locations. The construction of one project was completed July 12, 2002.
 - The Research Branch is collaborating with the Arizona Department of Transportation to evaluate the effectiveness of big game proof right-of-way fencing and underpasses on the proposed expansion of State Route 260 east of Payson.
6. Coordinate with land management agencies, property owners, and lessees to mitigate land uses that are detrimental to mule deer.
- The Department is in ongoing coordination with land management agencies, property owners-lessees, and other entities to mitigate the effects of housing development, loss of herbaceous cover and forage, and habitat alteration from extractive industries.
 - Wildlife managers review allotment management plans and various environmental assessments with the needs of mule deer in mind.

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7. Manage and enhance habitats through partnerships with public agencies, property owners and lessees, and wildlife conservation organizations.
 - Mule deer water developments were installed throughout the state and maintenance/repair was performed as needed.
 - 2002 - Habitat improvement projects were submitted by Habitat Partnership Committees and funded by big game donations and Special Tag Funds. Sixty-two total projects were approved for approximately \$700,000 in funding; 9 projects specifically for mule deer were approved for \$92,000.
 - 2003 - Habitat improvement projects were submitted by Habitat Partnership Committee and funded by big game donation and Special Tag Funds. Eighty-one projects benefiting mule deer were submitted and scored by a Department evaluation committee. The Department met in June 2003 with funding partners to determine which projects will be funded by Special Mule Deer License Tag funds.

White-tailed Deer Objectives

Includes firearms and archery season data; recreational opportunity and hunter days calculated based on the % of total deer harvest.

1. Maintain a statewide population of 85,000 to 95,000 post-hunt adult white-tailed deer.
 - 2001 post hunt population estimate was 82,700 white-tailed deer.
 - 2002 post hunt population estimate was 88,000 white-tailed deer.
2. Maintain annual harvest at 5,000 to 6,000 white-tailed deer.
 - 3,635 white-tailed deer were harvested in 2001.
 - 3,924 white-tailed deer were harvested in 2002.
3. Provide recreational opportunity for 21,000 to 24,000 hunters per year.
 - Recreational opportunities were provided to 20,333 hunters in 2001 (permits authorized).
 - Recreational opportunities were provided to 23,390 hunters in 2002 (permits authorized).
4. Provide 80,000 to 100,000 hunter days per year.
 - 104,574 hunter days were provided in 2001.
 - 104,202 hunter days were provided in 2002.
5. Maintain existing occupied habitat, with emphasis on retention of medium and high quality habitat.
 - Coordination with land management agencies with regards to maintaining and enhancing white-tailed deer habitat have taken place and will continue.

Strategies

1. Use standardized surveys and population and hunt modeling to assist in permit recommendations.

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- Standardized survey methodology and population modeling is being used to assist in permit recommendations.
 - Improvements in survey efficiency were made in all regions as a result of recommendations of the survey efficiency committee.
2. Manage white-tailed deer independently of mule deer, to the extent practicable.
 - Where the population numbers justify, separate hunting seasons were offered for mule deer and white-tailed deer.
 - 2002/03 - During this past year, 82 hunter-harvested and 2 targeted-surveillance white-tailed deer were tested for the presence of Chronic Wasting Disease. All tested negative. Continued monitoring is planned for this year. White-tailed deer were also tested for the presence of Hemorrhagic Disease. White-tailed deer have tested positive for exposure to this disease near Tucson.
 3. Issue permits in consideration of hunter success, season structures and demand rates for various weapon types.
 - Hunter success is considered when making permit recommendations. Archery permits are unlimited. Muzzleloader permits are much less in late season hunting structures due to low deer populations.
 4. Coordinate with land management agencies, property owners, and lessees to mitigate land uses that are detrimental to white-tailed deer.
 - Review of allotment management plans and environmental assessments for various projects are made with the needs of white-tailed deer in mind. These activities are continually ongoing.
 - Habitat improvement projects were submitted by Habitat Partnership Committees (HPC) and funded by big game donations and Special Tag Funds. Sixty-two total projects were approved for about \$700,000 in funding; 3 projects specifically for white-tailed deer were approved for \$18,000 in calendar year 2002.
 - Habitat improvement projects were submitted by HPC. Thirty-one projects, benefiting white-tailed deer, were submitted and scored by a Department evaluation committee. The Department met in June 2003, with funding partners to determine which projects would be funded by Special White-tailed Deer License Tag funds.
 - Manage and enhance habitats through partnerships with public agencies, property owners and lessees, and wildlife conservation organizations.
 - Coordination is ongoing for habitat improvement projects such as water developments in white-tailed deer habitat.
 - The Department consults with land management agencies on reseeding mixtures after wild and management, ignited fires.

Pronghorn Objectives

1. Maintain a statewide population of 8,250 to 10,000 post-hunt adult pronghorn.
 - 2001 population estimate was greater than 9,000 pronghorn.
 - 2002 population estimate was greater than 7,500 pronghorn.

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2. Maintain annual harvest at 600 to 800 pronghorn.
 - 513 pronghorn were harvested in 2001.
 - 586 pronghorn were harvested in 2002.
3. Provide recreational opportunity for 1,200 to 1,600 hunters per year.
 - Recreational opportunities for 1,094 hunters (permits issued) were provided in 2001.
 - Recreational opportunities for 1,060 hunters (permits issued) were provided in 2002.
4. Provide 4,500 to 6,000 hunter days per year.
 - 4,288 hunter days were provided in 2001.
 - 3,821 hunter days were provided in 2002.
5. Maintain existing occupied habitat, with emphasis on retention of medium and high quality habitat.
 - Coordination with land management agencies with regards to maintaining and enhancing pronghorn habitat has taken place and will continue.
6. Restore the historical range of all subspecies in Arizona by repopulating through transplants.
 - The Department transplanted 183 pronghorn into historic range in January 2000. Follow up monitoring of these released animals continues.

Strategies

1. Manage and enhance habitat through partnerships with public agencies, property owners, lessees and conservation organizations.
 - Projects were completed in cooperation with personnel from national forests, Bureau of Land Management, State Land Department, Arizona Antelope Foundation, various cities and counties, private landowners, and sportsmen to improve pronghorn habitat conditions. Projects included fence modifications, removing invading trees, development of livestock grazing systems, research on pronghorn movements and minimizing habitat loss through pronghorn management planning. Many of these projects were submitted through local Habitat Partnership Committees (HPC). Through the HPC process, 62 total projects were approved for about \$700,000 in funding; 11 projects specifically for pronghorn were approved for \$74,000 in calendar year 2002.
 - 2003 - HPC submitted 44 projects proposals to benefit pronghorn. The Department met in June with funding partners to determine which projects will be funded by Special Antelope License Tag funds.
 - The Department purchased key pronghorn habitat in Unit 1, totaling 2,850 acres.
 - Worked with livestock sub-lessees on the State Land portion of the White Mountains Grasslands Wildlife Area to develop livestock management grazing systems, which can benefit pronghorn.
 - 2002/03 - Special Antelope License Tag funds made possible the maintenance and repair of two dams on stock tanks on State Trust Land in the north pasture for the grazing allotment administered by the Department near the Grasslands Wildlife

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- Area. Repair of the dams, one of which was breached, will provide reliable water sources for pronghorn in the area.
- The Department coordinated with other agencies and groups on specific herd units, specifically in regards to the Anderson Mesa in Units 5A and 5B and the pronghorn herd in Unit 21 during 2002/03.
2. Improve conditions of declining or low-density herds through research, conservative hunt management, supplemental transplants, and predator management.
 - Research projects in Units 6B, 9, and 10 are continuing to learn more about specific pronghorn movements and their responses to habitat changes and fences.
 - Monitoring of pronghorn transplanted in previous years continues.
 - Predator management through aerial gunning continued in 3 game management units in 2001-2002. This included coyote removal from portions of Units 2A, 5A, and 5B. A total of 86 coyotes were taken.
 - Coyote management through aerial gunning continued in 4 game management units in 2003. This included coyote removal from portions of Units 3A, 5A, 5B and 10. Removal to date includes 12 in Unit 3A, 32 in Units 5A and 5B, and over 60 in Unit 10.
 - Recently purchased key pronghorn habitat in Unit 1, totaling 2,850 acres.
 - Transplanted 75 pronghorn from Prescott Valley onto lands with low densities of pronghorn.
 - Aerial coyote control were used in Units 2A and 4A to bolster low fawn crops.
 - Aerial coyote control is planned for Unit 3A for 2003, 2004, and 2005.
 - Established mountain lion multiple bag limit in Unit 21 W.
 - In Unit 21, Region VI personnel are duplicating the effort of Research Branch in other areas to learn more about this population's seasonal movements and the availability of fawning cover among variously managed rangelands in this unit.
 - Hunter-harvested pronghorn in Units 1, 2B, 5B, and 8 have been tested for a variety of diseases, including EHD-Bluetongue Virus, IBR, BVD, BRSV, Chlamydia, leptospirosis, and PI 3. Liver samples were also tested for selenium, copper, and zinc levels (mineral levels that influence reproduction). Of the 101 pronghorn sampled to date, pronghorn have tested positive to exposure from only PI 3 and EHD-Bluetongue virus. No correlation has been demonstrated between disease exposure and reproductive rates in herds to date.
 3. Establish self-sustaining pronghorn populations at all transplant sites.
 - Previous transplant efforts will be evaluated for further supplementation. New sites for future releases will be evaluated.
 - Transplanted herd of pronghorn in Unit 1 is currently doing well. However, the results are too preliminary in Unit 27. Another augmentation to this herd is recommended if animals become available.
 4. Identify important habitats for populations and determine where protection and improvement are possible, in cooperation with land management agencies, landowners and lessees.

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- Drafted pronghorn management plans to assist with management of this species in areas heavily impacted by development by habitat degradation or habitat loss. The Central Yavapai County Pronghorn Management Plan was completed in the fall of 2001. An Operational Plan for the 5B Anderson Mesa pronghorn herd was finalized.
 - 2002/03 - A statewide operation plan for all pronghorn populations is in draft phase.
 - Worked with Forest Service biologists and Arizona Antelope Foundation members to plan work parties to improve habitat conditions. Projects involve modifying fences and removing invading trees from meadows.
 - Submitted project proposal through local Habitat Partnership Committees to improve pronghorn habitat conditions. Through the Habitat Partnership Committee process, 62 total projects were approved for about \$700,000 in funding; 11 projects specifically for pronghorn were approved for \$74,000.
 - 2002/03 - A State Wildlife Grant was approved to help fund implementation of the Anderson Mesa operational plan.
 - Analyzed feasibility of purchasing, operating and maintaining equipment to remove encroaching evergreen trees on traditional grasslands.
 - 2002/03 - Region VI (Mesa) initiated a cooperative pronghorn working-group with the Prescott National Forest and local Unit 21 permittees to identify opportunities and obstacles with respect to improved pronghorn habitat conditions in this unit. This is complementary to the research effort conducted by the region to establish current conditions.
5. Use population and hunt modeling to assist in permit recommendations.
- Many hunted pronghorn herds are modeled with computer population simulations.
 - The model output is an integral tool of the hunt recommendation process in certain circumstances.
6. Provide hunter recreation that stresses the quality of the hunting experience.
- Hunt success for rifle hunters averages 90%.
 - Encouraged hunters to attend the pronghorn hunter clinic in Phoenix and Tucson.
 - 2002/03 - Increased general season pronghorn hunts to 6 days (from 4 days) in most areas.

Elk Objectives

1. Maintain a statewide population of 25,000 to 30,000 post-hunt adult elk. Address local issues in Regional Operational Plans that may impact localized populations, despite current statewide population levels.
 - 2001 population estimate was 24,000 post-hunt adult elk.
 - 2002 population estimate was 23,000 post-hunt adult elk
2. Elk population objectives are developed in coordination with the land managing agencies, primarily the U.S. Forest Service and Arizona State Land Department and from habitat objectives and concerns developed through the local Habitat Partnership Committee that encompasses the geographic area for that elk herd unit. The annual updates of this

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information are incorporated into the Regional Elk Operational Plans that are the guidance documents for annual elk management recommendations.

3. Maintain annual harvest at 7,500 to 12,000 elk.
 - 10,628 elk were harvested in 2001.
 - 8,254 elk were harvested in 2002.
4. Provide recreational opportunity for 16,000 to 25,000 hunters per year.
 - 2001 - Provided recreational opportunity for 29,657 hunters (permits issued).
 - 2002 - Provided recreational opportunity for 24,195 hunters (permits issued).
5. Provide 70,000 to 110,000 hunter days per year.
 - 130,216 hunter days were provided in 2001.
 - 111,799 hunter days were provided in 2002.
6. Maintain existing occupied habitat, with emphasis on retention of medium and high quality habitat.
 - Coordination with land management agencies with regards to maintaining and enhancing elk habitat has taken place and will continue.

Strategies

1. Design hunt recommendations that address population management objectives and substantiated depredation complaints.
 - Hunt recommendations are finalized after the population management objectives have gone through the public process. The objective of the antlerless elk hunt recommendation is to achieve the desired population objective.
 - An Elk Harvest Management Strategy Team was developed in early 2001 to address expanding elk herds onto non-traditional areas. A product of this team was the Limited Opportunity Hunts for the 2001 and 2002 seasons. These hunts are designed to greatly reduce elk related impacts to agricultural improvements on private lands.
 - Hunts in Units 2B, 3A, 3B North, 3C, 4A North, 4B North, 5A, 5B North, 17A, 18A, 18B, 19B, 20A, 20B, 28 and 31 are tailored to address private land depredation.
 - Subunit hunts were developed to address site-specific habitat issues.
 - An Elk Rules Team was formed to develop more flexible hunt structures to address specific elk conflicts. New hunt options should be offered for the fall 2003 season.
 - 2002/03 - The Department initiated 6 population management hunts for elk in Units 1, 4B, 6A, and 3 hunts in 19B. These hunts have ranged widely in hunt success, but have proven to be of use in achieving management objectives.
2. Use standardized surveys and population and hunt modeling to assist in permit recommendations. Base management on population targets, herd units and habitat objectives.
 - Many factors are considered when making elk hunt recommendations. Elk herd unit information gathered includes survey results, habitat monitoring, hunt results, and population modeling evaluation.

3. Develop cooperative action plans, including monitoring, with property owners, lessees, and land management agencies to minimize elk-livestock interactions.
 - Region I (Pinetop) developed an elk use-forage production protocol, which was evaluated by the Forest Service. Monitoring sites are selected cooperatively with the Forest Service. Wildlife forage use-levels in Units 4A and 4B and portions of Unit 3C are compared to formal forage allocations designated for wildlife.
 - The Forage Resource Study Group actively participated in elk forage monitoring in Region II (Flagstaff).
4. Coordinate with Tribal authorities for elk management.
 - Coordination meetings are held with White Mountain Tribal authorities during the hunt recommendation process and to discuss various wildlife management activities. Elk management information is shared between all parties. Antlerless elk hunt dates were coordinated to increase harvest.
5. Issue permits in consideration of demand rates for various weapon types.
 - Permits are carefully allocated in accordance with the demand rates for the various weapon types.
6. Local Habitat Partnership Committees (HPC) will identify ways to manage and enhance elk habitat through partnerships with public agencies, property owners and lessees, and wildlife conservation organizations, and help maintain communication among individuals interested in elk management.
 - Habitat Partnership Committees remain a high priority with the Department.
 - Twelve Habitat Partnership Committees are active in Arizona. Ten of these committees are within elk ranges.
 - Membership is diverse with agency, sportspersons and rancher participation.
 - Approximately \$500,000 of elk habitat improvement projects, submitted by the local HPC, was funded during 2001/02.
 - 2003, HPC submitted 66 projects proposals to benefit elk. The Department met in June with funding partners to determine which projects will be funded by Special Elk License Tag funds. Thirty-five projects were funded with Elk Special Tag funds, totaling \$304,276. An additional \$10,250 was committed from banquet proceeds by the Arizona Elk Society for 4 projects and \$36,322 from Rocky Mountain Elk Foundation for 5 projects
7. Use Regional Elk Operational Plans, which will be reviewed annually by the Commission, to direct elk management goals and objectives.
 - Elk operational plans were developed to reflect current elk population objectives and other management objectives, and are reviewed annually by the public and the Commission.

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8. Develop standardized survey protocol that produces survey-generated population estimates.
 - The Department evaluated Forward Looking Infrared (FLIR) technology and Idaho's Big Game Sight-ability Model. The FLIR results were disappointing. The sight-ability model for visual aerial survey is more reliable, but is more labor and cost intensive.
 - A Survey Committee is evaluating improvements, and draft species management guidelines are being developed.
9. Coordinate with the Arizona Department of Transportation to determine the extent of vehicle-elk collisions and to identify possible mechanisms by which to reduce the incidence or severity of such collisions.
 - The Region I Habitat Program coordinated with the Arizona Department of Transportation (ADOT) and Department of Public Safety to develop Project Elk Alert.
 - Research Branch worked with ADOT to evaluate exclusionary fencing and wildlife underpass effectiveness for the planned expansion of Arizona State Highway 260. An in-depth Research Branch elk movement study is currently in progress at the highway expansion project.
 - In cooperation with ADOT, Region II tested Swareflex reflectors along a segment of Interstate 17. Results were encouraging but ADOT did not have the resources to maintain the system.
10. Update elk distribution maps within the Department's Geographic Information System databases.
 - Distribution maps were used to develop elk management zones as part of the elk rules development.
 - Distribution is evaluated annually in revision of Elk Operational Plans.

Turkey Objectives

1. Provide hunter recreation opportunity based on turkey population status and habitat quality.
 - The Department established a Turkey Work Group, composed of personnel from 5 regions and the Research Branch, to develop procedures to accomplish this objective. The Turkey Work Group developed a habitat scorecard and population worksheets in 1996 that are effective in developing annual hunt recommendations. Permits are determined using a combination of habitat quality, hunter density, and harvest history.
2. Maintain annual harvest at 1,600 to 2,000 turkeys.
 - 2240 turkeys were harvested during 2001.
 - 1,338 turkeys were harvested during 2002 (Spring & Fall seasons).
3. Provide recreational opportunity for 10,000 to 14,000 hunters per year.

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- Provided recreational opportunity for 13,133 hunters in 2001. (Reflects the number of tags issues.)
 - Provided recreational opportunity for 13,914 hunters in 2002 (Spring & Fall seasons). (Reflects the number of tags issues)
4. Provide 36,000 to 45,000 hunter days per year.
 - 40,858 hunter days were provided in 2001.
 - 41,448 hunter days were provided in 2002 (Spring & Fall seasons).
 5. Maintain existing occupied habitat, with an emphasis on contiguous medium and high quality habitat.
 - Coordination with land management agencies continues with regards toward maintaining turkey habitat.
 6. Maintain the range of all subspecies in Arizona by repopulating historical range through transplants; emphasize reintroduction of Gould's turkey.
 - 2001 - Gould's turkey transplant occurred in the Galiuro Mountains, survival and reproduction were documented. Ongoing planning efforts are being undertaken to establish additional populations.
 - 2002 - Gould's turkey transplant occurred in the Chiricahua Mountains, survival and distribution were documented. Ongoing planning efforts are being undertaken to establish additional populations.
 - The Chiricahua Mountains are scheduled to receive another 50 turkeys during the upcoming winter in partnership with the National Wild Turkey Federation and a private landowner.
 - Evaluation began for potential Merriam's turkey transplants.
 - 2002/03 – The Department is evaluating movement of additional Gould's from Huachuca Mountain into another southeastern Arizona area. The transplant is expected to occur during the spring of 2004.

Strategies

1. Use the turkey habitat scorecard to identify and priority rank where efforts are needed to improve habitat quality in cooperation with land management agencies, property owners, and lessees.
 - Several projects were completed in cooperation with the U.S. Forest Service and the National Wild Turkey Federation (NWTF). Projects included fencing of waterholes and springs to improve the habitat for turkey, and to protect the water from damage by grazing ungulates. NWTF obtained funding through an Arizona Water Protection Fund Grant to improve 5 wet meadows on the Apache-Sitgreaves National Forest.
 - The Apache-Sitgreaves National Forest Biologists, Arizona Public Service, and the NWTF are coordinating to identify and construct fencing projects to benefit turkey habitat in powerline right-of-ways and riparian bottoms.

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2. Establish self-sustaining populations at all transplant sites.
 - Merriam's turkeys have been transplanted for many years. All primary habitats are occupied. Ongoing evaluations in secondary habitats continue. Drought conditions influenced decisions not to move forward 2002/03.
 - Gould's turkey transplants continue to progress.
3. Provide hunter recreation that stresses the quality of the hunting experience.
 - A hunter density criterion on the Turkey Management Worksheet is used to prevent overcrowding of spring gobbler hunts.
4. Use population status evaluations to determine hunt structure and permit numbers.
 - The numbers of permits vary from year to year. The amounts of permits are determined using guidelines developed by the Turkey Work Group. These guidelines take into account survey data, population status, hunt success, hunter density and habitat quality. These guidelines appear to be working well. There has been a reduction in permits in some units and increases in others in response to the data available.

Javelina Objectives

1. Maintain a statewide population of 35,000-45,000 javelina.
 - 2002 population estimate was 33,000 for post-hunt adult javelina. Methodologies for a relative density estimate are being evaluated.
 - Javelina species management guidelines are being revised, and population modeling will be addressed by June 2005.
2. Maintain annual harvest at 6,500 to 8,500 javelina
 - 5,220 javelina were harvested in 2001.
 - 6,910 javelina were harvested in 2002.
 - Data for 2003 is not available at this time.
3. Provide recreational opportunity for 27,500 to 32,500 hunters per year.
 - Provided recreational opportunity for 25,029 hunters in 2001.
 - Provided recreational opportunity for 28,450 hunters in 2002 (permits authorized).
 - Data for 2003 is not available at this time.
4. Provide 90,000 to 110,000 hunter days per year.
 - 88,039 hunter days were provided in 2001.
 - 87,222 hunter days were provided in 2002.
 - Data for 2003 is not available at this time.
5. Maintain existing occupied habitat, with emphasis on retention of medium and high quality habitat.
 - Coordination with land management agencies with regards to maintaining and enhancing javelina habitat has taken place and will continue.

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- The Phoenix metropolitan area is rapidly increasing in size, which in turn is slowly decreasing or eliminating hunt areas and access within Metro Units 39M and 42M. This is also occurring around Tucson, but at a slower rate. The Department is losing traditional high quality javelina habitat and areas available to hunt.

Strategies

1. Evaluate nuisance javelina procedures and offer recommendations for retention or change.
 - The Department continues to receive demands from the public to remove individual or herds of javelina near housing developments usually adjacent to dry washes or county parks. Reliability of nuisance javelina capture and removal for future release into remote areas is being evaluated in cooperation with the wildlife rehabilitation community.
 - The Department is evaluating recommended changes to Commission rules, which might allow Wildlife Service Licensees to assist with nuisance javelina management.
 - Population Management Hunts, authorized through Commission Order 26, may be used to address areas with nuisance javelina where appropriate.
2. Issue permits in consideration of demand rates for various weapon types.
 - Permits are allocated based on application rates.
3. Develop a population survey methodology.
 - Alternative survey methodologies are planned as part of the javelina guidelines update to meet this directive. Javelina species management guidelines are being revised, and revised survey methodologies will be developed by June 2005.
4. Enhance habitat in areas that will provide additional opportunities for recreation.
 - The Department works closely with land management partners to enhance and protect areas with wildlife values.
 - Several projects were proposed to exclude livestock from sensitive desert springs to allow for recovery of the riparian vegetation and increase water table levels.

Bighorn Sheep Objectives

1. Increase the bighorn sheep population to 7,500.
 - Estimated statewide population is about 6000.
2. Maintain annual harvest at 100 to 120 bighorn sheep.
 - 96 bighorn sheep were harvested during 2001 season.
 - 92 bighorn sheep were harvested during 2002 season.
3. Provide recreational opportunity for 110 to 140 hunters per year.
 - 105 hunters were issued tags in 2001.
 - 104 hunters were issued tags in 2002.

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4. Provide 550 to 750 hunter days per year.
 - Hunters spent 748 days hunting bighorn sheep in 2001.
 - Hunters spent 674 days hunting bighorn sheep in 2002.

5. Maintain existing occupied habitat, with emphasis on retention of medium and high quality habitats.
 - Coordination with land management agencies with regards to maintaining and enhancing bighorn sheep habitat has taken place and will continue.

6. Maintain the existing range of all subspecies in Arizona, and repopulate historical range through transplants.
 - November 2001 - Twenty-five desert bighorn sheep were captured in Region IV (Yuma) and transplanted to the Harcuvar Mountains.
 - November 2002 - Twenty desert bighorn sheep were captured in Region IV and transplanted to the San Andres National Wildlife Refuge in New Mexico. Arizona will receive Rocky Mountain bighorn in trade.
 - Implementation of the Commission's Predation Management Policy using sport harvest and Wildlife Services was initiated to ensure that transplanted bighorn sheep have the best opportunity to become established in new transplant sites.
 - 2002 - Twenty-six Rocky Mountain bighorn sheep were captured in and near the Town of Morenci. These sheep were released in Bear Canyon to supplement an existing transplant population that was below desired numbers. Unfortunately most of the released sheep returned to the capture area, an aerial distance of 32 miles.
 - 2003 - Twenty-seven Rocky Mountain bighorn sheep captured near Taos (16) and Pecos (11), New Mexico and released in Bear Canyon to supplement an existing transplant population. Of the 10 radio-tagged sheep, 9 have remained in close proximity of the release site. Two ear-tagged sheep from last year's transplant, with about 10 other sheep, were observed within 500 yards of the released animals.

Strategies

1. Use population and hunt modeling to assist in permit recommendations. Base management on population targets, herd units, and habitat potential.
 - Standardized survey methodology, and a standardized permit calculation worksheet based on estimated numbers of rams in the populations, were used by all regions to assist in permit recommendations.

2. Establish self-sustaining populations at all new transplant sites.
 - Recent transplants were monitored with radio telemetry, and population and lamb surveys, to determine the need for additional management actions to ensure sustainability. Waters in the transplant sites were also monitored to maintain availability.

3. Evaluate transplant sites for Rocky Mountain bighorn sheep and implement further transplants as appropriate.

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- Potential release sites for Rocky Mountain bighorn sheep were evaluated. A supplemental release of 25 to 30 sheep along the Blue River with bighorn sheep from New Mexico is planned for August 2003.
 - Plans for bringing 60 Rocky Mountain bighorn sheep from New Mexico was approved and site selection for releases are ongoing.
4. Provide hunter recreation that stresses the quality of the hunting experience and harvest of older age class rams.
 - The number of hunting permits is allocated so that only 10% of a population's rams can be harvested and guarantees that hunter density will be low. In some cases, hunts are stratified to further reduce hunter density.
 5. Cooperate with land management agencies, property owners, and lessees to reduce adverse interactions between bighorn sheep, feral animals, and domestic livestock.
 - Close cooperation with the Bureau of Land Management is taking place to monitor numbers of feral burros in bighorn sheep habitat and to reduce their numbers to appropriate management levels.
 - Manage and enhance habitats, specifically including development of new and maintenance of existing water catchments, through partnerships with public agencies, property owners and lessees, and wildlife conservation organizations.
 - The Department is cooperating with the Bureau of Land Management, U.S. Forest Service, U.S. Fish and Wildlife Service, Department of Defense, and the Arizona Desert Bighorn Sheep Society to develop wildlife waters and make other habitat improvements.
 - The Department negotiated underpasses for bighorn sheep on new highway construction.

Buffalo Objectives

1. Maintain a statewide population of 200 to 300 buffalo.
 - 2001 pre-hunt population estimate was 230-240 buffalo.
2. Maintain annual harvest at 40 to 60 buffalo.
 - 29 buffalo were harvested in 2001.
 - 37 buffalo were harvested in 2002.
3. Provide recreational opportunity for 50 to 80 hunters per year.
 - Provided recreational opportunity for 72 hunters in 2001 (permits issued).
 - Provided recreational opportunity for 50 hunters in 2002 (permits issued).
4. Provide 125 to 325 hunter days per year.
 - Provided 356 hunter days in 2001.
 - Provided 195 hunter days in 2002.
 - Provide wildlife viewing opportunities for 800 visitors per year at the Department's Houserock Valley Wildlife and Raymond Ranch Wildlife Areas.

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- In 1999-2000, 812 individuals visited the two wildlife areas. In 2000/01 and 2001/02, visitor data was not collected. Ranch managers will collect data again during 2003.

Strategies

1. Maintain herds at levels consistent with good range management practices.
 - Range surveys have shown the herds are within habitat capacity.
2. Provide a variety of quality hunt opportunities and recreational viewing opportunities.
 - Houserock Valley Wildlife Area provides a difficult hunt opportunity using any legal weapon, and viewing opportunities for outdoor enthusiasts willing to work hard and travel over rugged country. Raymond Ranch Wildlife Area provides a nearly certain opportunity to harvest a bison with a firearm and a nearly certain opportunity to view bison.
 - Population Management Hunts were authorized through Commission Order 26 that may be used to address buffalo management issues where appropriate.
 - Population management hunts have been used to remove 6 buffalo that were chronically off of the Raymond Ranch Wildlife Area.
3. Integrate management of other species into the goals of buffalo management.
 - Houserock and Raymond Ranch are managed to benefit a diversity of wildlife, including pronghorn.
4. Increase wildlife watching opportunities.
 - As part of an effort to provide wildlife viewing opportunities, school and group tours are provided at the Raymond Ranch and information on where to find bison is provided at the Houserock.
5. Manage and enhance habitats through partnerships with public agencies, property owners and lessees, and wildlife conservation organizations.
 - Region II (Flagstaff) personnel are discussing options for bison management with a lessee on the Kaibab Plateau.
 - Region II personnel formed a Department team to review bison management issues on both wildlife areas.

Mountain Lion Objectives

1. Maintain annual harvest at 250 to 300 mountain lions (including depredation and other take).
 - 2001 - 385 mountain lion were harvested.
 - 2002 - 318 mountain lion were harvested.
2. Provide recreational opportunities for 3,000 to 6,000 hunters per year.
 - Provided recreational opportunity for 8,106 hunters in 2001 (tags sold).
 - Provided recreational opportunity for 7,900 hunters in 2002 (tags sold).

3. Maintain existing occupied habitat and maintain the range of all subspecies in Arizona.
 - The distribution of reported sport and depredation kills and the results of track survey efforts support the accomplishment of this objective.

Strategies

1. Maintain a complete database from all harvest sources, through a mandatory checkout system, including age, sex, kill location, etc. to index population trend.
 - A complete database for harvested lions from 1981 to the present is maintained.
2. Conduct a hunter questionnaire biannually.
 - A mountain lion hunter questionnaire survey was conducted in 1996, 1999 and 2002. The next survey will be conducted in 2004. An evaluation of the data from the questionnaire suggests that this survey should be conducted every three year instead of every other year.
 - The Department requested that hunters who harvested lions voluntarily submitted the teeth from the lion during the 2003/04 season.
3. Evaluate the management implications of population and relative density estimates.
 - Population estimates derived from relative density estimates were used successfully to establish harvest objectives for specific mountain lion hunts.
 - Mountain lion density maps were reviewed and revised.
4. Implement hunt structures to increase and direct harvest emphasis toward areas with high lion populations, and where depredation complaints are substantiated, and evaluate the effectiveness of these efforts.
 - Three multiple bag limit mountain lions hunts were offered in 2001/02.
 - Three multiple bag limit mountain lions hunts were offered in 2002/03.
 - Six multiple bag limit mountain lion hunts were offered in 2003/04.
5. Determine population numbers and characteristics on a hunt-area basis.
 - Mountain lion population estimates exist for each unit. The database information maintained by unit, combined with track survey information, has allowed revision of population estimates in some units.
6. Increase public awareness of mountain lions and their habits, to reduce conflicts with humans.
 - Media releases both statewide and locally were/are used to accomplish this strategy.
7. Implement the Department's Predation Management Policy.
 - The Commission's Predation Management Policy is being used to structure mountain lion management where appropriate.

Black Bear Objectives

1. Maintain an annual sport harvest of no more than 125 female bears (including depredation take), with a total sport harvest of 250 or more bears (including males).
 - 2001 - Total female sport harvest was 79 bears (previous five-year average was 93).
 - 2002 - Total female sport harvest was 81 bears (previous five-year average was 93).
 - 2001 - Total black bear sport harvest was 178 (previous five-year average was 209).
 - 2002 - Total black bear sport harvest was 250 (previous five-year average was 222).
2. Provide recreational opportunity to 4,000 to 7,000 hunters per year.
 - Hunters purchased 4,276 black bear tags in 2001.
 - Hunters purchased 4,331 black bear tags in 2002.
3. Maintain existing occupied habitat, with emphasis on retention of medium and high quality habitats.
 - The Rodeo-Chediski fire significantly reduced black bear habitat in Unit 3C. Black bear distribution and habitat quality maps are currently being revised.

Strategies

1. Maintain a complete database from all harvest sources through a mandatory checkout system, including age, sex, kill location, etc., to develop population trend information. Conduct a hunter questionnaire biannually.
 - A complete database for black bears harvested from 1981 to present is maintained. A black bear hunter questionnaire survey was conducted in 1998 and 2001. As a result of an evaluation of the data, this questionnaire is now conducted every three years. The next survey is scheduled for 2004.
2. Identify important habitats for bear populations and ensure protection, and improvement where possible, through cooperation with land management agencies and landowners.
 - In the aftermath of the Lone fire in the Mazatzal Mountains in Unit 22, a research project was initiated to document and evaluate the impact of wildfire on high quality black bear habitat. Research Branch is pursuing publication of this research.
3. Implement hunt structures to direct harvest emphasis toward the male segment of the bear population.
 - The Department is maintaining its use of female harvest objectives, a strategy that seems effective in maintaining hunting opportunities while limiting harvest of female bears.
4. As bear hunt areas become defined, determine population numbers and characteristics on a hunt-area basis.
 - All bear hunts now have female harvest objectives with unlimited harvest of male bears until the female harvest objective is reached.

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5. Cooperate with land management agencies to reduce conflicts between bears and humans, and increase public awareness of bears and their habitat, to reduce nuisance problems.
 - The Department implemented a bear incident policy (Department Policy I1.13) to focus on handling nuisance bears in a manner to minimize repeat offenses.
 - Proactive Be Bear Aware to focus to inform public in cooperation with other agencies.
6. Implement hunt structures to direct harvest emphasis towards areas with high bear populations and where depredation and nuisance complaints are substantiated.
 - Permitted spring bear hunts and fall hunts with earlier opening dates were used in areas with a recent history of bear problems.
 - Population Management Hunts were authorized through Commission Order 26, which will be used to address depredation or nuisance bear problems where appropriate.

Tree Squirrel Objectives

1. Maintain annual harvest at 50,000 to 100,000 tree squirrels.
 - 2001 - 39,751 tree squirrels were harvested.
 - 2002 - 24,397 tree squirrels were harvested.
2. Maintain hunter success rate at 1.5 to 2.1 squirrels per day.
 - Average hunter success was 1.7 squirrels per day in 2001.
 - Average hunter success was 1.3 squirrels per day in 2002.
3. Provide 25,000 to 50,000 hunter days per year.
 - Total hunter days per year were 23,241 during 2001.
 - Total hunter days per year were 18,112 during 2002.
4. Maintain existing occupied habitat, with emphasis on retention of medium and high quality habitat.
 - A Research Branch squirrel study is in a second year extension due to drought conditions. The purpose of the study is a landscape approach to mapping habitat. When complete, this method should allow landscape scale habitat evaluation of squirrel habitat over time.
 - Previous Department research (Research Branch Technical Report – 27, 1998, Federal Aid in Wildlife Restoration Project W-78-R, Tassel-eared squirrel population dynamics in Arizona: index techniques and relationships to habitat condition, Dodd, N.L., Rosenstock, S.S., Miller, C. R., and Schweinsburg, R.E.) identified forest characteristics necessary to maintain high quality habitat for squirrels. A second, landscape scale study was completed and analysis of those data are in progress. The combination of these two projects will yield methods to identify and track habitat quantity and quality in Arizona.

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5. Maintain the range of all subspecies in Arizona.
 - Distribution of tree squirrels has not changed in the last 5 years. All previously occupied habitat appears occupied. 2002 data is preliminary.

Strategies

1. Develop standardized surveys to inventory populations and evaluate existing habitat.
 - Research Branch developed survey protocol that can be used to determine squirrel densities.
 - Landscape evaluation methods are under development with the squirrel research project and will be used to map wider areas of squirrel habitat.
 - Landscape evaluation methods are under development with the squirrel research project and Northern Arizona University. The NAU method uses satellite imagery and shows promise as a low cost way to evaluate squirrel habitat as well as other forest wildlife.
2. Develop tree squirrel habitat evaluation scorecards to assess habitat conditions.
 - Landscape evaluation methods are under development with the squirrel research project and will be used to map wider areas of squirrel habitat.
 - No progress was made on this task during 2002/03. Completed research provided the information needed to develop scorecards.

Cottontail Rabbit Objectives

1. Maintain annual harvest at 75,000 to 150,000 cottontails.
 - 2001 - 50,043 cottontail rabbits were harvested.
 - 2002 - 46,431 cottontail rabbits were harvested.
2. Maintain hunter success rate at 0.8 to 1.2 cottontails per day.
 - Average cottontails harvested per day were 0.8 in 2001.
 - Average cottontails harvested per day were 0.8 in 2002.
3. Provide 100,000 to 200,000 hunter days per year.
 - Total hunter days per year were 62,005 in 2001.
 - Total hunter days per year were 57,690 in 2002 (2002 data is preliminary)

Strategies

1. Develop standardized surveys to inventory populations and evaluate existing habitats.
 - This strategy was not addressed. The distribution of cottontail rabbits appears unchanged.
2. Enhance hunter opportunities in proximity to metropolitan areas.
 - Several metropolitan units were established and several limited weapons hunts were defined for use in these areas. The increase in housing densities in many areas close

to metropolitan areas will preclude the take of many small game species with firearms in the future.

- The Department strives to keep areas adjacent to metropolitan areas open to hunting. However, recent trends will likely lead to additional areas being closed to hunting. These closures are the result of expansion of city boundaries into previously hunted areas. The recent closures through Commission order in Units 39M and 42M are indicative of this trend.

Gambel's, Scaled, and Mearns' Quail

Gambel's and Scaled Quail Objectives

1. Maintain annual harvest at 524,000 to 1,314,000 Gambel's and scaled quail combined.
 - 2001 - Total harvest was 764,419 Gambel's and scaled quail combined.
 - 2002 - Total harvest was 352,087 Gambel's and scaled quail combined.
2. Maintain hunter success rate at 2.2 to 3.5 birds per year.
 - Average hunter success rate in 2001 was 3.0 birds per day.
 - Average hunter success rate in 2002 was 2.2 birds per day.
3. Provide 222,000 to 392,000 hunter days per year.
 - Provided 256,657 hunter days in 2001.
 - Provided 158,423 hunter days in 2002. (2002 data is preliminary)

Strategies

1. Develop standardized surveys to inventory populations and evaluate existing habitat.
 - An effort is underway to form a quail task team to reevaluate existing strategies and develop new protocols for survey and habitat guidelines. 2002/03 - This team is underway.
 - The Department held a quail management symposium in October 2002, to discuss current Arizona quail management, habitat, mortality and research needs for Gambel and scaled quail
2. Coordinate with land management agencies to ensure that livestock grazing of quail habitat is within allowable use guidelines that provide quail with adequate food and cover.
 - Limited coordination occurs between AGFD and land management agencies on specific projects, typically through the regional habitat specialists.
3. Collect data to estimate harvest and demand more accurately.
 - A hunter opinion questionnaire was sent to 6000 hunters holding an Arizona Migratory Bird Stamp in February 2002.
 - The 2001/02 small game questionnaire was mailed to 15,194 license holders (4887 were returned).

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- The 2002/03 small game-questionnaire was mailed to 12,316 license holders (2879 were returned to date).
 - Confidence intervals are now calculated from harvest estimates for all quail species.
 - Four call-count routes were conducted in Spring 2001 Region V.
 - 2002/03 - Check station surveys were conducted at Freeman Road and Willow Springs Road during opening weekend.
4. Develop species-specific objectives for Gambel's and scaled quail.
- A research project is underway to address this objective for scaled quail. Currently, an effort is underway to form a quail task team to reevaluate existing strategies and develop new protocols for survey and habitat guidelines.
 - The Department held a quail management symposium in October 2002, to discuss current Arizona quail management, habitat, mortality and research needs for Gambel and scaled quail
 - Development of guidelines is underway with the quail task team. Objectives will be available for review in December 2003.

Mearns' Quail (Montezuma quail) Objectives

1. Maintain annual harvest at 20,000 to 35,000 Mearns' quail.
 - 2001 - Total harvest was 38,556 Mearns' quail.
 - 2002 - Total harvest was 34,808 Mearns' quail.
2. Maintain hunter success rate at 1.3 to 2.0 Mearns' quail per day.
 - Average birds per day were 1.2 in 2001.
 - Average birds per day were 1.6 in 2002
3. Maintain existing occupied habitat, with emphasis on retention of medium and high quality habitats.
 - Mearns' quail populations appear stable, based on wing barrel surveys and harvest estimates.
 - Coordination among land management agencies and the habitat specialist in Region V is ongoing.
 - Mearns' quail medium and high quality maps were updated (July 2002) and will be incorporated into habitat considerations for Mearns' quail. (2002 data is preliminary)

Strategies

1. Coordinate with the Coronado National Forest to ensure that Mearns' quail population potential is achieved through enforcement of standards and guidelines.
 - Coordination continues with the Coronado National Forest. A meeting was held to resolve mapping of high-density Mearns' quail habitat on Forest Service lands. The process has begun to develop habitat standards, based on AGFD research that the Forest can implement consistently to Mearns' habitat. Discussions between the Coronado and AGFD continue to assure that species management guidelines being developed by AGFD are workable and useful to the Coronado National Forest.

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- The quail management task team is developing a Mearns' quail guidelines for use by the Coronado National Forest. This habitat management plan will be ready for review in December 2003.
2. Support research into the effects of large area overstory removal on Mearns' quail population levels and distribution.
 - The Research Branch prepared and published the final report (Effects of Human Activity and Habitat conditions on Mearns' Quail populations. (Technical guidance bulletin No. 4 – August 2000, Federal Aid in Wildlife Restoration Project W-78-R, Bristow, Kirby D., Ockenfels, R.A.). Results of that study indicate tree canopy removal greater than 25% would likely be detrimental to Mearns' quail. Areas with tree canopy cover greater than 75% would likely be improved by removal of some overstory.
 3. Collect data to more accurately estimate demand and harvest.
 - A hunter opinion poll was conducted in February 2002. Two samples of hunters were chosen for this survey, 846 known Mearns' quail hunters and 6000 hunters holding an Arizona Migratory Bird Stamp. The yearly small game questionnaire was mailed to 5,194 license holders (4887 were returned). Mearns' Quail guidelines are being drafted and are to be finalized in December, additional survey and data collection maybe needed for this species.
 - The Department held a quail management symposium in October 2002, to discuss current Arizona quail management, habitat, mortality and research needs for Mearns' quail.
 - Region V organized a Mearns' quail flush count on October 20, 2001 (pre-hunt) and February 17, 2002 (post-hunt). Nine routes were counted because research showed that data are imprecise when fewer are conducted.
 - Wing barrels were placed in known areas of Mearns' quail hunting each season.
 - The Department is participating in a multi-state effort with Drs. Fred Guthery (University of Oklahoma) and Markus Peterson (Texas A&M University) to evaluate both the Department's harvest data and hunter demand for quail.
 - Wings were collected and data analyzed to assess sex ratios and percent juveniles present in the harvest. Analysis is currently underway to evaluate whether additional barrels would yield more precise data.
 4. Investigate the effect of harvest on population levels.
 - Based on analysis of pre-8 bag limit and post-8 bag limit showing no change in harvest or a population decline, the Commission increased the bag limit to 15 for the 2000 season. Bag was subsequently reduced to 10 and remains at 10 birds per day. The effects of harvest and guidelines for hunt management will be addressed in the new Mearns' Quail guidelines.
 - The Research Branch project (Effects of Human Activity and Habitat conditions on Mearns' Quail populations. Technical guidance bulletin No. 4 – August 2000, Federal Aid in Wildlife Restoration Project W-78-R, Bristow, Kirby D., Ockenfels, R.A) attempted to quantify effects of harvest on Mearns' quail population and could not detect a hunting effect.

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- This study also modeled past harvests by individual hunters and predicted there would be little effect in reducing Mearns' quail bag limits on total season harvest. Additional research investigating Mearns' quail harvest is underway with Drs. Guthery and Peterson (see bullet one in Objective 3 above).
5. Develop surveys to inventory populations and evaluate existing habitat.
 - The research study (above) identified a time and labor-intensive survey methodology using dogs to flush quail. This method is most applicable for use on site-specific areas. These methods and the results of the surveys can be found in Bristow, K.D., and R. A. Ockenfels. 2000. Effects of human activity and habitat conditions on Mearns' quail populations. Arizona Game and Fish Department Research Branch Technical Report No. 4, Phoenix, 27pp.
 - Habitat evaluation will be addressed in the Mearns' quail habitat management document under development by the quail task team.

Blue Grouse Objectives

1. Maintain annual harvest at 300 to 600 blue grouse.
 - The Department currently determines blue grouse hunter participation through sales of migratory birds stamps. The Department is evaluation data quality compared with previous small game questionnaires relating to hunter numbers and harvest. Blue Grouse are difficult birds to hunt in Arizona and distribution is limited to spruce-fir habitats above 8,000 feet. Few individual have hunted them in the past and there is little indication that the pressure on this species has increased. At present, grouse are managed as other low-density, low-hunter-demand species.
2. Maintain hunter effort at 0.2 to 0.3 birds per day.
 - See discussion under question 1. 2002/03 Same as 2001.
3. Provide 1,900 to 2,500 hunter days per year.
 - See discussion under question 1. 2002/03 Same as 2001
4. Maintain existing occupied habitat, with emphasis on retention of medium and high quality habitats.
 - This is being accomplished with coordination with the U.S. Forest Service in the districts that have blue grouse and blue grouse habitat.

Dove Objectives

1. Maintain annual harvest at 80,000 to 165,000 white-winged and 820,000 to 1,500,000 mourning doves.
 - 2001 - Total harvest for white-winged doves was 97,026 and 1,419,539 for mourning doves.
 - 2002 - Total harvest for white-winged doves was 186,532 and 1,483,458 for mourning doves.

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2. Maintain daily hunter success rates at 1.2 to 1.6 per day for white-winged doves and 4.7 to 5.7 per day for mourning doves.
 - 2001 - Average hunter success rates for white-winged doves were 1.3 per day and were 6.2 per day for mourning dove.
 - 2002 - Average hunter success rates for white-winged doves were 1.6 per day and were 6.1 per day for mourning dove.
3. Provide 65,000 to 120,000 white-winged dove and 160,000 to 280,000 mourning dove hunter days per year.
 - 2001 - Average hunter days for white-winged doves 74,462; average hunter days for mourning doves was 229,943.
 - 2002 - Average hunter days for white-winged doves 233,888, average hunter days for mourning doves 1,100,010. (2002 data is preliminary)

Strategies

1. Maintain existing population surveys, including the annual Call Count Surveys.
 - Annual Call Count Surveys are conducted every summer and will continue.
2. Develop standardized surveys to inventory populations and evaluate existing habitat.
 - Population models are being developed in conjunction with Adaptive Harvest Strategies for the Pacific Flyway. The amount of nesting and feeding habitat for doves near metropolitan areas continues to disappear as houses are built. This urbanization also reduces the area available to hunters. Hunters are forced to drive farther and farther to find areas that are open to shooting and have dove populations.
3. Continue developing a program to involve public and private farmers in planting food plots and nesting habitats.
 - There have been some small successes in the Yuma area. This activity will continue.
4. Implement hunt structures that maintain and enhance dove populations.
 - The hunt season structure, established in 1989, stabilized the downward trend in harvest and call counts that occurred prior to implementation. There was increasing public pressure to return to all-day dove shooting similar to the way it was prior to 1989. In response to this increasing public pressure, the Commission set in place a Juniors-Only afternoon dove hunt in September 1999 season. This season structure will continue and be monitored closely for the next 3 to 5 years. Public pressure to restore full day shooting in the south zone in the early season seems to have reduced substantially.
 - The Department and the Pacific Flyway are currently developing an adaptive harvest management plan for mourning dove. This plan will be presented to the flyway in July 2003.

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Band-Tailed Pigeon Objectives

1. Maintain annual harvest at 400 to 1,000 band-tailed pigeons.
 - Although no reliable HIP data is available, indications from hunter contacts revealed that harvest had increased to an estimated 300 pigeons in previous years and remains similar through 2000. Poor habitat conditions in 2001, resulted in a drop in pigeon harvest as reported by hunters. Efforts to improve the reliability of HIP as it relates to band-tailed pigeons are underway.
 - Although no reliable HIP data is available, indications from hunter contacts reveal that harvest has increased to an estimated 300 pigeons from previous years and remained similar in 2002.
2. Maintain hunter success rate at 0.4 to 0.8 band-tails per day
 - 1996 success rate was 0.65 birds per day. HIP data from 1997 through 2001 is not as of yet reliable due to sampling errors. 2002 No change
3. Provide 850 to 1,700 hunter days per year
 - 1996 hunter days were 644; HIP data from 1997, through 2002 is not as of yet reliable due to sampling errors.
4. Maintain existing occupied band-tailed pigeon habitat, with emphasis on medium and high quality habitat.
 - Recent forest restoration efforts in Northern Arizona will likely benefit band-tailed pigeons.

Strategies

1. Develop standardized surveys to inventory population and evaluate existing habitat.
 - The Department coordinated with the U.S. Fish and Wildlife Service and the University of Arizona to initiate a research project to determine effectiveness of call counts and survey techniques on band-tails in southeastern Arizona. The project additionally received funding from the Web-less Migratory Bird Research grants program to continue work in 2002-2003. Results of this effort will be used to standardize survey protocols. This research effort is also looking at habitat characteristics of nesting band-tails and will assist the Department in evaluating existing habitat.

Waterfowl Objectives

1. Maintain annual harvest at 17,000 to 30,000 ducks and 2,000 to 3,300 geese.
 - 2001 - 33,950 ducks and 4183 geese were harvested.
 - 2002 - 31,405 ducks and 2,583 geese were harvested.
2. Maintain hunter success rate at 1.1 to 1.3 waterfowl per day.
 - Hunter success rate was 1.2 ducks per day in 2001.
 - Hunter success rate was 1.0 ducks per day in 2002.

3. Provide 17,500 to 27,000 hunter days per year.
 - 28,534 hunter days were provided in 2001.
 - 31,609 hunter days were provided in 2002. (2002 data is preliminary)

Strategies

1. Develop standardized surveys to inventory breeding populations and evaluate existing habitat.
 - The Department continues to conduct meetings within the Inter-Mountain West Joint Venture and the Sonoran Joint Venture to identify potential partners and project needs for wetland acquisition, enhancement, and restoration in northern and southern Arizona.
 - The Department initiated steps to work with 2 power companies west of Phoenix to evaluate potential moist soil and permanent wetland sites for waterfowl habitat enhancement.
 - Survey protocol was developed for breeding pair counts and gosling production of Canada geese in eastern Arizona. The spring of 2002 survey was conducted.
2. Estimate population sizes and/or trends, species and subspecies composition, sex and age composition, and geographic distribution through aerial and ground surveys, hunter check stations, banding, marking, and mailed questionnaires.
 - The Office of Migratory Bird Management, U.S. Fish and Wildlife Service annually perform extensive surveys to develop the Trends in Duck Breeding Populations report. The 2002 survey resulted in a 14% decline in total numbers from 2001, which is 6% below the long-term average. Pintail, scaup and canvasbacks remaining below the long-term average.
 - The Department continued its annual mail questionnaire to collect data on hunter numbers, distribution, and harvest within the 7 regions of the state.
 - The Department continues to conduct the mid-winter aerial waterfowl survey. The 1999 and 2000 surveys resulted in the two highest number of ducks counted since 1968. The 2001 survey again revealed an increase in total ducks with geese being slightly down from the 2000 survey. The January 2002 survey revealed a slight decrease in total ducks observed which is attributed to poor habitat conditions.
 - Department waterfowl banding operations did not occur in Arizona in 2001/02.
 - The Department continues to conduct the mid-winter aerial waterfowl survey. Results of the 2003 mid-winter survey revealed 22,489 ducks and 13,612 geese.
 - Department waterfowl banding operations did not occur in Arizona in 2002/03.
3. Participate in development of migratory game bird hunt frameworks through the Pacific Flyway Study Committee, Council, and subcommittees thereof; provide equitable hunting opportunity for residents of all areas of the state within those frameworks.
 - The Department continues to participate in the Pacific Flyway Study Committee as well as Flyway Council.

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- The current waterfowl season framework in Arizona provides maximum opportunity to hunters within framework guidelines, which includes two zones for youth hunts, as well as a five day Falconry Season.
4. Determine methods to minimize waterfowl disturbances caused by activities of other resource users.
 - The Department continues to identify conflicts and where appropriate establishes seasonal closures to protect nesting waterfowl. Examples include Luna and Becker Lake in Eastern Arizona where boating activity is limited to portions of the lake during nesting season, and administrative closures applied to portions of the Roosevelt Lake Wildlife Area to benefit wintering Canada geese.
 - The Urban Waterfowl Brochure is currently in the redrafting stage. The brochure informs the public about conflicts with attracting waterfowl to urban pond settings and the impacts of botulism.
 5. Develop and implement projects to enhance waterfowl viewing opportunities.
 - Viewing opportunities were increased in several areas of the state including Springerville Marsh, Quigley Wildlife Area, White Water Draw, Powers Butte Wildlife Area, Wenima Wildlife Area, and Sipe Wildlife Area
 - The Quigley Wildlife Area project was completed as a part of the 1999 NAWCA grant.
 - A cooperative agreement was entered into with NRCS, USFS, and the Department to develop a wetland complex at Hay Lake south of Flagstaff. Final design of the project was approved with preliminary fence removal and surveying completed in 2002.
 6. Develop and implement projects to enhance waterfowl populations by habitat manipulations and purchase.
 - The Department uses funds derived from state duck stamp sales for waterfowl habitat acquisition and enhancement. These funds are often used as match to Federal funds such as the North American Wetlands Conservation Act (NAWCA) grant dollars. In 1999 the Lower Colorado River Wetlands Project was approved for funding that included habitat enhancement projects on State, Federal, Tribal, and private lands in southwestern Arizona. The Department, Ducks Unlimited and 6 other partners successfully applied for a NAWCA small grant for a wetland waterfowl habitat improvement project at Whitewater Draw Wildlife Area. The conceptual plans for the project were completed. All parties signed the collection agreement and engineering designs were completed in 2002 with contracts for wetland development set to start April of 2003.
 - The Department and Ducks Unlimited finalized steps to enhance the ponds and waterfowl forage plots at Arlington Wildlife Area. Final design and engineering plans were approved.
 - The Department worked with NRCS to submit two wetland enhancement projects on Powers Butte Wildlife Area and Wilcox Playa Wildlife Area. The Powers Butte project was completed in 2003.

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- The Department provides funding from the state duck stamp revenues to develop cooperative stewardship agreements with landowners for the enhancement of waterfowl and other migratory bird habitat.
7. Coordinate with land management agencies to ensure that livestock grazing in waterfowl habitat is within allowable use guidelines that provide waterfowl with adequate food and cover.
 - Coordination continues with Federal agencies (such as the U.S. Forest Service) and the to participate in the review of grazing allotments and adherence to annual operating plans.

Snipe, Coot, and Common Moorhen Objectives

1. Develop and provide public information about coot, common moorhen, and snipe.
 - The Department educates coot snipe and moorhen hunters through the distribution of regulations and issuance of the migratory birds stamp.

Strategies

1. Maintain existing hunting opportunities.
 - Hunting opportunities for these species remained stable over the last 5 years and appears to fluctuate with waterfowl hunter numbers.
2. Participate in development of migratory game bird hunt frameworks through the Pacific Flyway Study Committee, Council, and subcommittees thereof; provide equitable hunting opportunity for residents of all areas of the State within those frameworks.
 - Refer to waterfowl section.
3. Develop and implement projects to enhance viewing opportunities.
 - Refer to waterfowl section.
4. Develop and implement projects to enhance population by habitat manipulation and habitat purchase.
 - Refer to waterfowl section.

Sandhill Crane Objectives

1. Maintain annual harvest at 100 to 200 sandhill cranes.
 - 2001- Harvest was estimated at 180 sandhill cranes.
 - 2002 - Harvest was estimated at 239 sandhill cranes.
2. Maintain hunter success rate at 0.3 to 0.5 cranes per day.
 - Hunter rate was 0.38 cranes per day in 2001.
 - Hunter rate was 0.49 cranes per day in 2002.
3. Provide 300 to 600 crane hunter days per year.

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- Provided 468 crane hunter days in 2001.
- Provided 489 crane hunter days in 2002.

Strategies

1. Conduct annual surveys to determine wintering numbers, recruitment rates, and subspecies composition.
 - Department and Federal personnel conduct annual surveys of sandhill cranes. Surveys occur primarily in the Sulfur Springs area of southeastern Arizona, Gila River in central Arizona and the Colorado River in southwestern Arizona.
2. Manage Wilcox Playa Wildlife Area for sandhill cranes.
 - The Wilcox Playa Wildlife Area continues to be managed for sandhill cranes, although the availability of water in the last few years has limited management. There has been a cooperative project with a private party to increase available water near the Playa. This project is near completion.
3. Use annual survey information to determine the potential for expansion of hunting opportunities.
 - During the 1999 season, the Department received input that current hunter densities were at a maximum. With the recent acquisition of White Water Draw, there exists opportunity to increase hunter access, however the primary focus of White Water Draw is to provide roosting habitat for cranes. Comments from hunters during the 2001 and 2002 seasons reveal that the access situation has improved.
4. Expand viewing opportunities to other areas.
 - The Department provided for increased viewing at the White Water Draw complex as well as continued growth and participation in Wings Over Wilcox, an annual crane-viewing event.

Non-native Game Birds: Valley Quail, Chukar, and Pheasant: Objectives

1. Develop and provide public information about non-native game birds.
 - Limited information was disseminated

Strategies

1. Maintain and enhance existing hunting opportunities.
 - 2001/02 - The Department provides 80 pheasant hunt opportunities and is popular with hunters. Call counts differ little among years; populations appear stable. Chukar opportunities seem to be expanding slightly.
 - 2002/03 - The Department provides 100 pheasant hunt opportunities and is popular with hunters. Call counts differ little among years; populations appear stable. Chukar opportunities seem to be expanding slightly.

Furbearing and Predatory Mammals Objectives

1. Provide opportunity for 50,000 hunter days per year, across all species of predators and furbearers.
 - Hunters spent 132,768 days hunting predators and furbearers in 2001.
 - Hunters spent 72,828 days hunting predators and furbearers in 2002.
2. Maintain trapping as a recreational opportunity on private property, as per ARS 17-301d.
 - 25 trappers trapped on private property in 2001.
 - 2002 data not yet available.
3. Develop and provide public information about furbearing and predatory mammals and their management.
 - Several brochures concerning furbearing and predatory animals were made available to the public; several magazine articles were prepared, and numerous public speaking opportunities were attended.
4. Bobcat: maintain annual harvest at 1,000 to 3,000 bobcats.
 - 1,608 bobcats were harvested in 2001 (includes sport and trapping harvest).
 - 1,572 bobcats were harvested in 2002 (includes sport and trapping harvest).
5. Coyote: encourage harvest levels of up to 50,000 coyotes.
 - 33,778 coyotes were harvested in 2001 (includes sport and trapping harvest).
 - 22,712 coyotes were harvested in 2002 (includes sport and trapping harvest).
6. Foxes: maintain annual harvest of 3,000 to 5,000 foxes (all species combined)
 - 5,706 foxes (all species) were harvested in 2001 (includes sport and trapping harvest).
 - 2,589 foxes (all species) were harvested in 2002 (includes sport and trapping harvest). (2002 data is preliminary) 2002 trapping data is not yet available.

Strategies

1. Encourage the public to respond to depredation situations, with in limits of ARS-17-239.
 - Regional personnel made numerous referrals to holders of wildlife services permits. An understanding was established with the structural pest control commission, which allows wildlife service permittees to operate in certain circumstances without a pest control license.
2. Continue to obtain estimates of hunter harvest of predators and furbearers.
 - A database for hunter harvest of select predator and furbearer species from 1981 to present continues to be maintained.
3. Maintain adequate suitable habitat for predators and furbearers.

- Examination of nuisance animal complaints, trapping and hunter harvest data indicates that adequate habitat for predators and furbearers continue to exist.
4. Through surveys and research develop information regarding range, distribution, population levels and harvest opportunities for predators and furbearers.
 - Hunter and trapper surveys of predator and furbearer harvest are ongoing while archery elk and javelina hunter surveys to determine observation rates of predator and furbearer species are being evaluated. A research project to evaluate other predator and furbearer survey methods is in progress.
 5. Reintroduce aquatic furbearers into suitable habitat.
 - One beaver reintroduction was completed and another is in progress.

Sport Fisheries Subprogram

Mission: Maintain, manage, and enhance (when appropriate and economically feasible) the quality, abundance, availability, and diversity of sport fishing opportunities; and disseminate information about Arizona's sport fish and sport fishing opportunities for present and future generations.

Goals:

1. Maintain, manage, and enhance the quality, abundance, availability, and diversity of sport fishing opportunities while contributing to the recovery of Arizona's native fishes.
2. Develop integrated, watershed-based fisheries management approaches for watersheds in Arizona and identify reaches or zones for management of sport fish and native fish.
3. Increase public awareness of Arizona's sport fishing resources and opportunities.

Objectives:

1. Annually, provide sport fishing opportunities to accommodate 2.6 million coldwater and 5.4 million warmwater angler days through the year 2006.

| Performance Measure | 2000 | 2001 | 2002 |
|----------------------------------|------|------|------|
| Coldwater Angler Days (millions) | 2.4 | 2.0 | 2.0 |
| Warmwater Angler Days (millions) | 5.4 | 4.0 | 4.0 |
| Angler Days (millions) | 7.8 | 6.0 | 6.0 |

- 2001 - Angler recreation days declined significantly since earlier estimates. Severe drought, forest closures during peak angling months, and changes in travel behaviors post September 2001 has significantly affected fishing participation. The most significant license sales reduction was noted during peak fishing periods affected by forest closures and fires during May through July 2002.

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- Final license sales for 2002 showed 18% decrease in general fishing license sales and nearly a 25% decrease in trout stamp sales from calendar year 2001. Declines were attributed to drought, forest closures and fires. Across the west, states saw 15%+ reductions in fishing license sales.
- Early license sales for 2003 continued in decline. As March 30, 2003, general fishing license sales were down 15% and trout stamp sales down 20%.
- Establishment of a wintertime trout-stocking program at Tempe Town Lake provided hope for a boost in 2002 sales (November–February). While the new fishing opportunity garnered praise from the public and the media alike, there is no evidence that it boosted sales.

2. Achieve 60 percent satisfaction rating among Arizona's angling public (i.e. 60% of Arizona's anglers indicating they were satisfied with their angling experience over the past year).

| Performance Measure | 2000 | 2001 | 2002 |
|--|------|------|------|
| % Anglers satisfied with angling experience | 67% | 68% | 68% |
| % of public rating enforcement of fishing laws good or excellent | 89% | 89% | 90% |
| % of public satisfied with Sport Fish Mgt. | 88% | 88% | 89% |

3. Develop watershed-based management approaches for at least two watersheds in Arizona by the year 2006.

- 2001/02 - Integrated Fisheries Management Plan for the Little Colorado River Watershed was completed.
- The University of Arizona and the Department are working on strategies to initiate similar process for the Verde River Watershed. The watershed-based management approaches for the Verde River are expected to be complete prior to the end of calendar year 2006.
- 2002/03 - The Department is in the proposal stage of establishing a position within the Sport Fish Program to coordinate the Verde Watershed Project using State Wildlife Grant monies.

4. Provide Arizona's diverse public with information about fish and fishing, to maintain and enhance awareness of their opportunities to use and enjoy Arizona's fisheries resources.

| Performance Measures | 2000 | 2001 | 2002 |
|---|------|------|------|
| % of anglers who remember receiving sport fishing information | 15% | 15% | 16% |
| % of anglers satisfied with information products and services | 80% | 86% | 81% |

- The Department continues to strive to reach the angling public through a broad range of marketing, outreach, and informational sources. Marketing and outreach include the use of radio and TV spots (Water Works Wonders National Campaigns), local

media outreach (radio, TV, and print medium), billboards (Water Works Wonders Bus Stop Bill boards), expositions (sportsmen's expos, local wildlife fairs, parades, the State Fair etc.), aquatic education (including fishing clinics, classroom visits, visits with community groups), specialized brochures, radio and TV interviews (sportspersons shows, morning news programs, evening news programs), and displays at Department facilities and elsewhere.

- Marketing and outreach efforts for angling are guided by an annual marketing plan that establishes market focus and strategies.
- Marketing angling opportunities - 2001 featured Arizona's Golden Natives in a statewide marketing campaign entitled "Water Works Wonders". Urban fishing opportunities were actively marketed during 2002/03 with a "Get out for Trout" campaign. These efforts were further augmented by full participation in hunter and angler expositions and Legislative outreach days. A big hit at expos is the Department's view tank (a stocking tank with a specially constructed "view" window).
- Weekly fishing report - This report is distributed to 110 media stations, 4,764 individuals on the Department list-serve, and is also available to the public through the Department's web page.
- River and lake advisories are updated weekly to inform the public of water elevations at popular reservoirs and flow levels at popular streams. The advisory is available to the public and through the Department's web page.
- Stocking Advisory - This report is updated twice a year. The report informs anglers of planned stocking activities at their favorite fishing locations. Summer schedules, winter schedules, and urban lakes schedules are available to the public and accessible through the Department's web page.
- 2002 - Commission Order 40 (Fishing Regulations) was amended to liberalize limits and methods of take to ensure that the angling public could utilize resources.
- Members of the hatchery program staff regularly participated with the FFA curriculum at local high schools, job fairs at the schools and with the Aquaculture program at Yavapai Community College.
- A biweekly Urban Fishing Bulletin and Urban Stocking Schedule are distributed electronically using the list-serve capabilities of the Department's new web page. Anglers can add their names to the list-serve group.
- The Sport Fisheries Program participates in the International Sportsman's Expo, the Payson Wildlife Fair, and local and county based wildlife fairs and expositions.
- 2003 - The Department collaborated with the Sky Harbor Airport Art Department in their "fish stories" display in Terminal 2 at Sky Harbor International Airport. The display incorporates information about fish and fishing in Arizona with fish artwork.
- The Department continues its use of the Recreational Boating and Fishing Foundation materials to market fishing. The National "Water Works Wonders" campaign is woven into the Department's marketing strategy for outreach (signs, posters, regulations booklets, billboards, and radio and television advertising).

Strategies

1. Investigate size limits, bag limits, and closed season regulations and implement or modify where necessary.
 - Evaluations are completed as part of management recommendations and regulation setting processes with the public and the Commission, culminating in the annual Commission Meeting in October.
 - ✓ 2001 - Recommendations were formulated to adjust trout seasons at Blue Ridge, Knoll, Nutriso Creek, and Chevelon Creek; bag limits for trout and catfish at Fortuna Pond; bag limits for bass at Tempe Town Lake, bag limits for bass and crappie at Lake Powell; establish catch and release fishing with artificial flies and lures only at J.D. Dam Lake, Elk, Middle and Perkins Tanks; close Raspberry Creek to fishing; recognize legally posted closures; and verify that carp are a legal baitfish for Lake Pleasant.
 - ✓ 2002 - Recommendations were formulated to modify bag limits and methods of take for Lee's Ferry; manage Surprise Lake as an Urban Fishing location; close the Apache Trout Barriers at the West Fork of the Black River to fishing; and to clarify closure dates listed in Commission Order.
 - ✓ 2003 - Recommendations are being formulated for adjusting bag limits for channel catfish at Lower Lake Mary, and City and Santa Fe Reservoirs; establish catch and release fishing for Coyote/Mamie, Home, and Wildcat Creeks; close Soldier, Snake and Bear Wallow creeks to fishing for the near term; and to open the Verde River to fishing with live sunfish and carp when taken from the waters where individuals are fishing.
 - Management efforts, carried out by regional fisheries management personnel and wildlife managers, result in management recommendations that emerge at annual October Commission meetings.
 - ✓ 2002 - Management and regulatory recommendations developed during 2001 were implemented by the Commission. The only change to the recommendations by Commission action was the requirement for use of single barbless hooks at J.D. Dam Lake, and Elk, Middle, and Perkins Tanks.
 - ✓ 2003 - Management and regulatory recommendations developed during 2002 were implemented by the Commission. The Commission worked to clarify the geographic references for division of separate management zones at Lee's Ferry.
 - ✓ 2004 - Management and regulatory recommendations are being presented to the Commission in October 2003.
 - Fisheries research efforts carried out by the Department's Research Branch result in management recommendations that emerge annually at the October Commission meetings.
 - ✓ Walleye research in the Salt River Lakes is concluding in 2003. Results do not recommend regulatory change at this time, however recommendations do include potential changes in size of fish stocked (fry vs. fingerling). Results of research are currently being shared with the angling community.
 - ✓ The results of ongoing research at Lee's Ferry resulted in management and regulatory changes in 2003.

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- Sport fish research efforts are on going concerning walleye growth and survival in the Salt River Reservoirs; trout population dynamics and monitoring at the Lee's Ferry fishery on the Colorado River; and Apache trout responses to habitat treatments in the White Mountains.
 - January - March of 2003 - A Rules Review Team established by the Department analyzed Article 3 of the Commission rules (fishing rules). Specific changes were recommended to increase the specificity of season setting and methods of take. In response to customer requests, the Team endorsed proposed changes that would provide for designated snagging seasons for threadfin shad (a common forage fish of large reservoirs) as bait.
2. Develop watershed-based fisheries management plans that identify where sport fish and native fish will be managed, and structure management programs to minimize conflict between these two resource groups.
- After a six-year effort, the Department finalized its watershed-based approaches to fisheries management of the Little Colorado River Watershed. This collaborative effort resulted in the publication of the "Integrated Fisheries Management Plan for the Little Colorado River Watershed" (2001, NGEWP Technical Report 146) and Fisheries and Watershed Management in Arizona: Looking into the Future (2001, NGEWP Technical Report 169). The Heritage and Sport Fish Restoration Project was completed.
 - Development of a watershed-based fisheries management plan for the Verde River. Opportunities to conduct this effort are being investigated in conjunction with the Cooperative Fish and Wildlife Research Unit at the University of Arizona. A watershed-based approach for the Verde River Watershed is planned for completion prior to the end of calendar 2006.
 - 2003 - The Department is working to establishment a position within the Sport Fish Program to coordinate the Verde Watershed Project using State Wildlife Grant monies.
3. Increase Department efforts to develop and distribute information and educational material explaining fishing opportunities and techniques for catching under-used species.
- During 2000 and 2001, brochures and videotapes were developed for the public that describe the challenges created by crayfish in Arizona, and opportunities to productively use them. These efforts continue with The Nature Conservancy and the White Mountain Apache Tribe.
 - "Camp Carp" - Regional personnel host this activity annually, inviting public participation in a weekend experience learning about ways to fish for and enjoy carp.
4. Evaluate and improve angler access through road development, trail development, fishing pier and boat ramp construction, and physically challenged access.
- Lake Havasu Fisheries Improvement Project - This multi-year habitat and access project is nearing completion (projected for spring of 2004). Shoreline access was facilitated through the construction of four accessible fishing sites/piers. Construction is ongoing on access at the Central Arizona Project Intake on the Bill

- Williams National Wildlife Refuge (La Paz County) and is projected to open to the public during fiscal year 2003/04.
- Bartlett Lake Fisheries Improvement Project – This multi-year habitat and access project saw the dedication of the accessible Rattlesnake Cove fishing pier in the spring of 2001.
 - Apache Lake Fisheries Improvement Project - During 2003, initial discussions with the US Forest Service began for a potential angler access improvement project at Apache Lake.
 - The Department investigated with various municipalities' opportunities for enhancing handicapped accessible fishing amenities for the Urban Fishing Program lakes.
 - 2002/03 - Collection agreements are being negotiated with the cities of Phoenix and Surprise for specific developments at Urban Fishing Program lakes.
 - Annually, the Department provides and administers the Boating Access Grant Program, which finances the improvement of boat ramps and facilities at boat ramps. The Department provided funding and implementation/construction is carried out by the responsible land management agency.
 - During 2002, grants issued included boating access improvements at Roosevelt Lake (2), and at Willow Springs Lake, Katherine's Landing at Lake Havasu, Saguaro Lake, and Canyon Lake. Grants total \$835,153. Thus far during 2003, the Department entered into an MOU with the U.S. Bureau of Land Management for the construction and maintenance of boating access facilities at Lake Havasu and on the Lower Colorado River. Grants totaling \$648,248 were issued to the US Forest Service (Bartlett Lake) and National Park Service (Temple Bar and South Cove at Lake Mead) for boating access improvements.
 - 2002/03 - The Coronado National Forest improved access at Rose Canyon Lake that included accessible sidewalks and the installation of a fishing pier.
 - 2002/03 - Technical guidance was provided to municipalities and other partners constructing urban water amenities in association with park facilities. Technical guidance included assuring that waters could support fishable populations and were accessible to the angling public. The Department worked closely with Sahuarita in the development of Sahuarita Lake, and the City of Surprise in the development of Surprise Lake. Sahuarita and Surprise lakes were welcomed into the Urban Fishing Program.
 - 2002/03 - The Department is in the discussion stages with the City of Douglas relating to exploration of opportunities in that community.
5. Examine existing fisheries habitat and develop and implement habitat improvement plans.
- Lake Havasu Fisheries Improvement Project – This project was completed in November of 2002. Over 875 acres of artificial habitat units were installed. Work on access developments, and monitoring and maintenance of the installed habitat will continue in partnership with the Bureau of Land Management and Anglers United (and others).

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- Bartlett Lake Fisheries Improvement Project - This effort, while hampered by low elevation at the lake, is continuing with the Tonto National Forest and Anglers United (and others).
 - The Department continues to work with scouts and angler groups to develop small-scale habitat modules for the Urban Fishing Program lakes. Many of these undertakings are Eagle Scout projects. Four projects were completed at urban lakes during 2001 and 2002. The projects led to completion of Eagle Scout requirements for four scouts.
 - Restoration of Cortez Urban Lake - The City of Phoenix underwrote the dredging and restoration of the lake and the Department contributed habitat materials (rock rubble material and gravel material) for installation into the lake.
 - Surprise Lake (Urban Lake Program) - The Department partnered with the City of Surprise to develop Surprise Lake, which included the provision of habitat materials for installation at the lake during its construction.
 - Restoration of J.D. Dam Lake (2000 - 2001) and Middle Tank - The Northern Arizona Flycasters, Coconino National Forest and the Department assisted with the restoration efforts including dredging and re-contouring lake bottoms and re-cresting dams.
 - Restoration of Rose Canyon Lake - Coronado National Forest, the U.S. Marine Corps and the Department assisted with the restoration of Rose Canyon Lake. With the assistance of the Marines, the lake was drained, dredged and re-contoured. The lake re-entered service with trout stockings in the late summer of 2002.
 - Silver Creek Wildlife Area (located at Silver Creek Hatchery) - Significant improvements were completed including in-stream habitat improvements and streamside plantings. The White Mountain Fly Fishing Club was instrumental partners and volunteers on these efforts.
 - Apache Lake Fisheries Improvement Project - Discussions began with the US Forest Service began in 2003 for a potential habitat improvement project at Apache Lake.
6. Work with regulating agencies to manage water level fluctuations to increase benefits to sport and native fisheries, such as by establishing minimum pools and minimum flows.
- Glen Canyon Dam - The Department is a cooperator and member of the Grand Canyon Adaptive Management Work Group. This group is charged with monitoring and adapting operations of Glen Canyon Dam to improve habitat conditions for native fishes and for the Lee's Ferry trout fishery, among other resources.
 - 2001/02. The Department worked closely with Salt River Project (SRP) during this serious drought year concerning reservoir elevations and river flows. Through the concerted efforts of SRP, and at great expense, Central Arizona Project waters were used to offset some delivery demand from Salt and Verde River reservoirs. While several of the reservoirs reached extreme lows due to the drought, conditions would have been significantly poorer without these efforts by SRP. Precipitation during the late winter of 2002 and early spring of 2003 added significant quantities of water to a number of reservoirs including Roosevelt Lake and Bartlett Lake. While the drought persists, this moisture will likely offset the draining of both lakes and the accompanying loss of recreational opportunity.

- The Department consulted with the Arizona Department of Water Resources (ADWA) on applications for instream flow rights and with regard to water right settlements. The Department responded to 17 requests from the ADWR, and provided technical review of five instream flow water right claims for fish, wildlife, and recreation submitted by the USDA Forest Service. Claims are being considered under ADWR administrative processes for the East Verde River, Cherry Creek, Haigler Creek, Tonto Creek, and Christopher Creek. The Department also provided technical information to ADWR regarding proposed water rights settlement issues on the San Carlos Water Rights Settlement.
 - Research efforts continue at Lake Pleasant in a multi-year study in partnership with the Bureau of Reclamation. Research efforts were dictated as a component of the Plan 6 implementation of the Central Arizona Project that incorporated Lake Pleasant as regulatory storage for the system. This segment is focused on a post-impoundment study in order to compare the quality of the existing recreational fishery, with that of the lake prior to impoundment by new Waddell Dam.
7. Continue to reintroduce warm water and coldwater native sport fish into previously occupied habitats.
- Gila trout were reintroduced at Dude Creek and Raspberry Creek in Apache County in 1999 and 2002. Monitoring of those reintroductions continue. While Gila trout are listed as Endangered, Arizona's efforts in reintroduction are designed to contribute to recovery and achieve downlisting of the species to Threatened. Upon downlisting, the Department, along with the New Mexico Department of Game and Fish Department, intend to petition the Fish and Wildlife Service for a 4(d) rule that would allow regulated harvest of Gila trout as a sport fish.
 - The Commission kicked off a partnership with land managers and anglers to pursue the recovery of Apache trout commencing in 2000. The Department is working closely with partners to complete compliance for and initiate implementation of the recovery implementation plan for Apache trout. NEPA and ESA compliance efforts were completed in August of 2002. The Department continues to work with the Forest Service and the Water Master (Judge) for the Norveil decree concerning severance and transfer of water rights.
 - 2001 - The Department rears razorback suckers and initiated the rearing of bony tail chub for reintroduction to the Colorado River as a component of the Lake Havasu Fisheries Improvement Project. Upon stocking of the 30,000th razorback sucker in Lake Havasu in 2002, the Department continues to rear razorback sucker for reintroduction to other locations on the Colorado River and in central Arizona rivers in partnership with land and water management agencies. While focused on native fish restoration, these efforts are directed by, and in compliance with, the biological opinion for the Lake Havasu Fisheries Improvement Project and are in turn directly related to the management of sport fishes.
8. Continue to accumulate data on levels of toxic substances in fish to evaluate and respond to human and environmental health concerns.
- Under an agreement with the Arizona Department of Environmental Quality (DEQ) and Arizona Department of Health Services (DHS), the Department continues to

- assist in the selection of key sampling sites, collects fish tissue samples, and assists DEQ and DHS in advising the angling public of any human health concerns. During 2002, in conjunction with DEQ and DHS, advisories were posted for consumption of selected fish at Lake Mary.
- 2002/03 - Subsequently advisories were posted for Parker Canyon Lake and Lyman Lake. It is anticipated there will be more advisories in the coming year (pending decision making at DEQ and DHS). The Department continues to work with DEQ and DHS in sampling lakes and fish tissue around the state for contaminants.
 - The Department continues to respond to all fish kills reported in Arizona in order to collect data and determinate causes. Five fish kills, and a separate spill event that did not result in a fish kill, were reported and investigated in 2002. Fish kill events included post-fire effects of the Rodeo-Chediski fire (Canyon Creek, Black Canyon Lake, and some loss of fish on the Salt River).
 - One fish kill was reported and investigated thus far in 2003. Cholla Lake fish kill was a result of oxygen depletion. The causes were deemed to be a natural event.
9. Develop an "adopt a stream" program, in which citizens volunteer to help the Department monitor and protect aquatic riparian resources.
- The Department is working with Arizona Clean and Beautiful in their annual "adopt a shore program", however an "adopt a stream" program has not been instituted yet. Additional volunteer programs will be initiated during 2003 and 2004.
 - 2003 - "Adopt a lake" clean-ups were completed at Alamo Lake and Stone Dam.
 - 2001/02 - A "monofilament recovery program" was initiated with license dealers. The program makes monofilament fishing line-recycling bins available to license dealers. These cardboard displays are postage paid shipping containers that can be returned with their contents to Berkley (manufacturer of fishing line) for recycling. The Department is also coordinating a volunteer effort to construct recycling bins to be positioned at boat ramps and access points around the state.
 - The Department works with volunteers on Department owned lands to improve stream corridors. Significant partnerships were developed with the Northern Arizona Audubon Society for improvements along Oak Creek and at the Department's Page Springs and Bubbling Ponds hatcheries. Partnerships were also developed with the White Mountain Flyfishing Club for improvements along Silver Creek at the Silver Creek Wildlife Area (Silver Creek Hatchery).
 - December 2002 - The Audubon Society's National Board of Directors visited the Department's Page Springs and Bubbling Ponds fish hatcheries during their annual board meeting in Arizona. The site has been proposed as an "Important Bird Area" and is currently under consideration.
 - 2003 - The Northern Arizona Audubon Society worked with the Department in finalization of trails construction at Page Springs and Bubbling Ponds hatcheries, conducted tree plantings on the properties, and hosted a dedication celebration for the nature/birding trails.
10. Continue the weed harvester program to improve access and water quality.
- This annual program is targeted at improving water quality in lakes around Arizona. Lakes in the White Mountains are harvested with weed removal during the summer,

and southern Arizona lakes are harvested during the winter months. By agreement with the U.S. Fish and Wildlife Service, the Department provides weed removal services on Fort Apache Indian Reservation lakes.

- 2002/03 - The harvesting program was difficult due to low lake conditions making access with harvesting equipment difficult or impossible. The Department harvests weeds at up to 16 lakes per year, 8 routinely and harvests at two lakes on the Fort Apache Indian Reservation. A brief weed harvest summary follows.

| Year | Tons Cut | Cost per Ton |
|------|----------|--------------|
| 2001 | 3067 | \$16.57 |
| 2002 | 1573 | \$23.06 |

11. Investigate lake aeration programs to reduce seasonal fish kills.
 - During 2000-2002, in an effort to extend the trout stocking and fishing at Lynx Lake the Department and the Prescott National Forest installed and upgraded aeration equipment. Evaluation of this effort is ongoing.
 - 2001 - The Department assisted the Tonto National Forest with replacement of aeration pumps at Horsethief Basin Lake.
 - The Town of Kearney reconstructed Kearney Lake and installed aeration equipment. Subsequently, the lake experienced a fish kill. Investigation by the Department determined that the town had installed ozonater equipment that diffuses ozone (O₃) rather than oxygen or compressed air into the water. These proved useful at wastewater treatment plants, however high concentrations ozone can be toxic to fish. The Department consulted with the Town of Kearney in development of alternative use strategies. Having resolved the ozone problem, the Department continues to work with city officials concerning water quality issues related to algal blooms and elevated dissolved solids.
 - The Department continues work with our urban fishing partners to provide technical guidance for the installation of aeration at urban lakes. Technical advice was provided to municipalities concerning Cortez and Surprise Lake.

12. Continue fishing clinic programs to teach people how to fish, with emphasis on females, youths, and other under-represented groups
 - The Aquatic Education Program administered through the Education Branch is staffed with a full time educator that works with 3 contract-based educators, and a cadre of volunteer instructors that host clinics for youth and adults.
 - 2001/02 - The Department sponsored, sanctioned and conducted 278 clinics. Department personnel, sport fishing contractors and volunteer instructors conducted the clinics. Fish may be produced (Parker Take-a-Kid Fishing Day) or purchased (from our existing urban fish contracts) for selected angler clinics. The use of hybrid sunfish in conjunction with some of our special clinics has proven very popular with youngsters and adults alike.
 - The Arizona Game Rangers' Lodge sponsors an annual fishing clinic for handicapped youth at the Tempe Town Lake.
 - During 2002/03, 211 clinics with completed

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- Diversity report below represents 2001 - 2003 number of participants

| American Indian | Asian | Black | Hispanic | Pacific Islander | Caucasian | Other | Total |
|-----------------|-------|-------|----------|------------------|-----------|-------|-------|
| 780 | 1053 | 1695 | 9627 | 406 | 21578 | 994 | 36133 |

- Of diversity reports that recorded the sex of participants, the following was reported:

| Female | Male | Total |
|--------|-------|-------|
| 16724 | 19568 | 36292 |

- The Department participates annually in the Phoenix Mayor’s October Fish Program, hosting four angling clinics simultaneously around the city at urban fishing lakes and other city lakes.
 - National Fishing and Boating Week Activities - The Department partners with Walmart National Fishing and Boat Week. Clinic activities are hosted around the state of Arizona. The Commission sponsors a “Free Fishing Day” each June, when everyone can fish Arizona without having to meet a licensing requirement.
 - 2002 - The Department assumed responsibility for production of fish for Parker’s “Take-a-Kid” fishing day. Willow Beach National Fish Hatchery no longer provides fish for that event.
13. Continue to update information and education displays at hatcheries, Department offices, and the State Fair building.
- Facilities at the Arizona State Fairgrounds Wildlife Building were significantly improved in 2001/02. Exhibits included information on Arizona’s sport fish and sport fisheries, Arizona’s native fish and invasive species.
 - 2003 - Interpretive signage for nature trails at Page Springs Hatchery were installed in coordination with the Northern Arizona Chapter of the Audubon Society.
 - Visitor centers at both the Tonto Creek and Canyon Creek hatcheries were renovated during 2003, which included improvements for accessibility. Public visitation remains high at Tonto Creek. However, U.S. Forest Service closed public access to the Canyon Creek Hatchery due to hazards associated with the Rodeo-Chediski burn area.
14. Remove undesirable non-native fish from waters in which they pose management problems. (Included are descriptions of other activities associated with Aquatic Nuisance Species in addition to fish)
- The Commission kicked off a partnership with land managers and anglers to pursue the recovery of Apache trout commencing in 2000. These restoration efforts require renovation of numerous streams on the Apache-Sitgreaves National Forest. Compliance was completed in August 2002 clearing the way for needed renovations. Due to delays in the compliance process, renovations will commence in the spring of 2003.

- 2002 - The Department worked with the Bureau of Land Management to conduct renovation efforts on O'Donnell Creek in Southern Arizona paving the way for reintroduction of native fish.
 - 2000 - The Department worked with the Coronado National Forest to conduct renovation efforts on Sabino Creek near Tucson paving the way for reintroduction of Gila chub.
 - Beginning in 2000, the Department worked with the Giant Salvinia Task Force to address the infestation of this invasive plant on the Colorado River system. The infestation has the potential to threaten aquatic and terrestrial wildlife and water conveyance, and on other waters if accidentally transferred. In conjunction with a wide range of partners, the Department implemented an action plans to attempt to control and eradicate the plant by utilized public outreach techniques (brochures, boat registration stuffers, signs at boat ramps, print and broadcast media) to help inform the public about the plant, its inherent risks, and how recreationists are important in controlling the spread of the plant.
 - The Department is working with the Western Regional Panel of the Aquatic Nuisance Species Task Force to implement steps to inform the public about aquatic nuisance species, limit their potential pathways for importation (intentional or unintentional), and respond to infestations.
 - Public outreach techniques were utilized to inform the public about risks associated with the potential arrival of zebra mussel. Techniques include brochure distribution, boat ramp signage, print and broadcast media.
 - The Department and the National Park Service detected New Zealand mudsnail on the Colorado River. While the Department could not eradicate, public information campaigns were initiated to inform anglers and boaters of ways to limit the potential for movement of these invasive snails.
 - 2003 - "No Hitchhikers Signs" were installed at ramps and access points along the Colorado River and at Alamo Lake warning boaters about invasive species. The main emphasis has been on giant salvinia an invasive water fern. Having completed the Colorado River area, the Department is beginning the process to install signs on inland lakes.
 - The International Association of Fish and Wildlife Agencies on the Invasive Species Advisory Committee provides advice to the Invasive Species Council (Secretaries of the Interior, Agriculture, Commerce, Defense, and the Director of Homeland Security) regarding invasive species policy for the United States. The Arizona Game and Fish Department Director represents the Department on this Committee.
 - An Aquatic Nuisance Species Plan for Arizona was developed. Fisheries Branch personnel are coordinating with the Governor's Office staff to discuss strategies for establishment of an Invasive Species Council, policies for Arizona, and strategies to bring the Aquatic Nuisance Species Plan to completion with Governor's approval.
15. Evaluate angler demands and satisfaction through behavioral and economic surveys of the angling and non - angling public.
- Statewide angler survey completion - This survey traditionally focuses on participation rates and satisfaction measurement. In partnership with Arizona State University West, the instrument was adapted to collect expenditure information at

the county level. The final report, authored by Dr. Jonathan Silberman of ASU West, was presented to the Commission in March of 2003, which details economic impacts from fishing recreation at both the state and county level. Copies of the final report were distributed to elected state and local leaders.

- The Department participates with other state wildlife agencies and the U.S. Fish and Wildlife Service in a semi-decennial national evaluation of participation in hunting, fishing, and wildlife related recreation. This survey was conducted in 2001 and data on national and state based participation and expenditure is forthcoming. While this data is valuable, sample sizes at the county level are rather low and it does not replace our statewide angler survey data.
16. Determine the proportion of Arizona anglers who support "catch-and-release" versus "catch-and-kill."
- Survey efforts in 2001 and 2002 focused on overall participation, general satisfaction, and economic impact at the county level. Inquiries into catch-and-release practices will accompany the next angler survey in 2004 - 2005.
 - Select pilot waters in which to stock trout larger than 13 inches, and evaluate angler response and cost effectiveness.
 - The US Fish and Wildlife Service initiated work at Willow Beach. Willow Beach National Fish Hatchery is currently idled for reconstruction and efforts are on hold.
 - This work was not initiated at other Arizona lakes due to limitations in the Department's hatchery production because of the drought and discharge permit limitations. During 2001 and 2002, extreme drought reduced spring flow at the hatchery facilities by as much as 50%. Reduced water availability and attendant limitations on the ability to hold fish longer prevented the evaluating of this strategy. Work will be initiated upon restoration of more normal spring flows.
17. Develop additional sport fisheries in or near urban areas.
- Urban Fishing Opportunities - In 1999 the Department welcomed Water Ranch Park (Gilbert) into the program and in 2000 the Department renewed urban fishing intergovernmental agreements with numerous participants (Phoenix, Tempe, and Payson).
 - 2001 - The Department welcomed Sahuarita Lake into the Urban program
 - 2003 - Surprise Lake in Surprise Arizona joined the Urban Program.
 - The Department met with city personnel in Flagstaff, Bullhead City, and Douglas, Arizona relating to opportunities in or near their communities.
 - The Department worked with the Town of Gilbert to approach the Commission in 2001 for a catch-and-release designation for the Pond at Town Hall. This is the first catch-and-release site within a municipal area.
 - Special winter catch-and-release regulations were adopted for Silver Creek near Show Low, Arizona, creating a unique winter fly fishing opportunity near this Northern Arizona community. The opportunity is unique in that winter angling was a virtually absent activity near that community.
 - The Department worked closely with the City of Tempe in development of the Tempe Town Lake as a fishing opportunity in the heart of the metropolitan area.

Angling is allowed and encouraged at the lake. In 2001, the Department reserved a portion of the trout produced at state fish hatcheries for stocking the lake during the winter. Water quality concerns precluded routine stockings, however with careful management of water quality with the city, routine trout stockings commenced during the winter of 2002.

- Trout stocking at Tempe Town Lake continued into February of 2003, with more than 30,000 trout stocked. The public responded favorably, and took some pleasure at the prospect of catching “large” incentive trout at the lake. A state record trout (stocked from Canyon Creek Hatchery) was harvested at the lake.
 - 2002 - A new fishery was established at the Graham County Fairgrounds in Safford, Arizona. The lake is stocked with rainbow trout during winter months and channel catfish during summer months.
 - 2003 - The Department is developing fisheries management plans for new ponds proposed for Dead Horse Ranch State Park, in Cottonwood.
18. Evaluate one-day license use on the Colorado River.
- The one-day license is valid on the Colorado River. The Department will attempt to assess the level of use by anglers based upon sales from Department offices and license dealers. This assessment did not occur in 2002/03.
19. Investigate changes in watercraft motor restrictions on trout lakes.
- Initial investigations into potential changes in watercraft motor restrictions were conducted in conjunction with Commission Rules Article 5 (watercraft) rules review. Due to the majority of trout lakes are small and shallow, they have historically been limited to the use of electric motors or small gasoline engines. Based upon water quality and safety concerns there were no significant changes. Horsepower limitations on waters were increased from 8 horsepower to 10 horsepower to be consistent with modern engine designs (9.9 horsepower an industry standard small engine).
20. Investigate liberalizing requirements for a Pioneer License.
- There has been no activity on this strategy as yet. Investigations will be conducted during 2001/02. This investigation did not occur in 2001/02.
21. Continue to improve the quality of trout stocked.
- 2001/02 - The Department scientifically evaluated feeding and conversion tables for trout growth at site (hatchery) specific temperatures. Improvements were implemented at Page Springs Hatchery and were tailored for Tonto Creek and Canyon Creek Hatcheries as well.
 - A computerized and scientifically based Hatchery Management System for tracking inventories of fish, fish feed, feeding rates, growth, and distribution is maintained and constantly being improved.
22. Promote catch-and-release fishing as a viable angling technique, and apply catch-and-release fishing where it is consistent with the resource management strategy for a body of water, habitat capability, and the desires of the angling public.

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- 2001 - The Department approached the Commission with catch-and-release regulation proposals for Middle Tank, Elk Hill Tank, and J.D. Dam Lake. The proposals were approved and implemented in January 2002.
 - 2001 - Upon request from the City of Gilbert, catch-and-release regulations were implemented for the Pond at Town Hall.
 - 2000 - The Department approached the Commission with catch-and-release regulations for the West Fork of Oak Creek and a portion of Oak Creek. Regulations for a catch-and-release season were also approved and implemented for Silver Creek in January of 2001.
 - Catch-and-release, as an angling technique is advocated in the Department's fishing regulation booklet. The Department maintains annual catch-and-release records (Big Fish of the Year Competition Category) for the angling public.
 - Standards for catch-and-release records were modified in late 2002 and implemented in the 2003 regulations pamphlet.
 - Use wildlife law enforcement patrols to monitor, measure, and ensure compliance with fishing regulations, including directing high profile enforcement outreach to bolster compliance with fishing regulations.
 - From January 2001 and through the end of October 2002, 153 officers reported 57,707 angler contacts during fishing enforcement patrols. Officers expended 18,783 hours on fishing patrols.
 - From November 2002 through the end of April 2003, officers made an additional 10,656 enforcement contacts with anglers.
 - 2002/03 - Two high intensity profile patrols were conducted on the West Fork of the Black River in response to concerns raised by angling groups. A high profile patrol and "Operation Game Thief" outreach booth were employed at the site during the Memorial Day holiday weekend. A second high intensity patrol was conducted during the Labor Day weekend. Holiday weekends were selected for maximum visibility.
 - Regional office personnel and Phoenix-based officers included patrol at Urban Fishing Program lakes as part of annual patrol opportunities.
23. Enhance some waters currently managed for non - native trout to develop additional Blue Ribbon fishing opportunities for rainbow and potentially for brown trout (where they currently exist).
- 2001 - Special regulations (catch-and-release, artificial fly and lure only regulations) were implemented on the West Fork of Oak Creek and a small segment of Oak Creek. These techniques provide for "blue ribbon" fishing opportunities.
 - 2002 - Special regulations (catch-and-release, artificial fly and lure only regulations) were implemented for J.D. Dam Lake, Middle Tank, and Elk Hill Tank. These waters were historically managed in concert with "blue ribbon-like" approaches. With the ongoing physical renovation of J.D. Dam Lake and Middle Tank, these sites have transitioned to "blue ribbon" management strategies.
 - Canyon Creek (a specialty brown trout fishery) was seriously damaged during the 2002 fires. Future management will depend upon future restoration opportunities.
 - 2003 - Stocking of rainbow trout resumed at Carnero Lake. The lake was last stocked in 1980, but controversy over angler visitation caused the cessation of stocking.

Carnero was renowned for its ability to grow quality trout. The lake is managed under a limited harvest strategy for blue ribbon quality.

- 2003 - Environmental compliance was completed and brown trout stocking was initiated at Lynx Lake. Rainbow trout historically stocked at the lake had limited tolerance of elevated summer temperatures. Stocking of brown trout will extend the fishing season and create the opportunity for catches of larger than average catchable trout at Lynx.
24. Work with partners to develop and implement protocols and surveys for diseases and pathogens in native and wild populations of sport fish.
- The Department partners with the U.S. Fish and Wildlife Service (USFWS) in the Fish Health Programs. Department personnel are stationed at the Pinetop Fish Health Laboratory with Region 2 USFWS personnel. This activity facilitated sharing of expertise, equipment, and facilities.
 - The Department partners with the USFWS National Wild Fish Health Survey. Using protocols adopted by the Service, information and specimens are shared with the Service for recording into the national database. The database is administered through the USFWS Technical Center in Bozeman, Montana and contains records of wild fish health from streams and lakes across the nation.
 - The Department partners with the U.S. Geological Survey, Biological Resources Division Science Center in Flagstaff, (Grand Canyon Monitoring and Research Center) in monitoring pathogens and parasites of native and sport fishes in Glen Canyon and Grand Canyon. Trout populations at Lee's Ferry are routinely monitored for Whirling Disease and other parasites and pathogens.
 - The Department reviewed and provided input to the USFWS for the development of a USFWS fish health manual, policy, and protocols.
 - 2003 - The Department initiated surveys of largemouth bass populations for Large Mouth Bass Virus (LMBV), a disease that has caused significant concerns in the southeast and mid-west. Three reservoirs were tested to date, no evidence was found of LMBV.
 - 2003 - Monitoring continues of selected private waters that were exposed to Whirling Disease, a disease of trout. The lakes were exposed from legal private stockings from Colorado. Remediation plans were negotiated with the lake owners and exposed fish were removed and destroyed. Monitoring with "sentinel" fish continues as a condition of restocking those lakes.
 - 2003 - A new disease was reported for the first time in the United States, Spring Viremia of Carp. The disease devastated a koi farm in North Carolina. There is some evidence that the facility may have shipped fish to Arizona in the past. The Department is working with the State Veterinarian, the US Department of Agriculture, and the USFWS to investigate. It is not know if the disease is transmissible to native minnows or other species in North America.
25. Develop and implement streamside incubators (e.g. Whitlock-Vibert boxes) and any other on-site mechanisms, equipment, or technology as supplements to hatcheries in working toward recovery of Arizona's native Apache trout and Gila trout, and management of any other species for which they can be used effectively.

- 2001/02 - This project was currently a process improvement initiative being undertaken by hatchery personnel. Evaluation experiments were planned for at three locations adjacent to the hatcheries.
 - 2002/03 - Experiments conducted by hatchery staff demonstrated the potential efficacy of this strategy and the potential risks as well. Streamside incubators were evaluated at three hatcheries both in indoor trials and at streamside on hatchery property. Hatching success ranged from 90-95%, not significantly different as they were compared to traditional hatching jars (89-95%). One outdoor incubator was lost to flooding on Tonto Creek, illustrating the risk of putting all the incubators in one area. This strategy will be moved to field trials in 2003/04 for field implementation, but will not replace traditional hatchery production (concentrated on meeting Department needs for fingerling trout (3"+) and catchable trout (9"+). Streamside incubators produce fry, which are still quite fragile and may suffer significant mortality. The strategy does have merit as a supplement to traditional hatchery products or for more remote sites.
26. Develop and implement mechanisms to resolve the Parker Canyon Lake fishery problem resulting from unlawful introduction of northern pike.
- Public involvement meetings were held in 2000 in three locations. Resolution plans and alternatives were developed. Little progress has been made on this controversial issue. Significant environmental compliance will be required for resolution.

Nongame and Endangered Wildlife Management Subprogram (NGEWP)

Mission: Conserve, enhance, and restore (when appropriate and economically feasible) nongame and endangered wildlife as part of the natural diversity of Arizona, and provide opportunities for the public to enjoy these resources through uses compatible with their protection.

Goals:

1. Conserve, enhance, and maintain existing nongame and endangered wildlife populations and natural biotic communities.
2. Restore extirpated nongame and endangered wildlife and degraded natural biotic communities, where feasible to do so.
3. Provide and enhance public recreation opportunities for the full spectrum of nongame wildlife enthusiasts.
4. Prevent, minimize, or mitigate adverse impacts to nongame and endangered wildlife and biotic communities.
5. Avoid causing unnecessary adverse impacts from nongame and endangered wildlife resource conservation or use.
6. Provide information and guidance to, and cooperate with, land management agencies, property owners, lessees, and other interested or affected parties in nongame and endangered wildlife conservation and recreation programs.
7. Develop and implement ecosystem-based approaches to resource management.

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8. Increase public awareness of nongame and endangered wildlife, conservation and recreation programs, and values.
9. Develop a stable funding base that enables the subprogram to responsibly address the full range of issues associated with Arizona's diverse nongame and endangered wildlife values.
10. Aggressively pursue new federal funding adequate to support all State conservation and management activities for species that are newly-listed federally as endangered or threatened.

Objectives (numbered according to the Goals they support):

1. Maintain conservation projects for at least 25 of the 113 species listed as *Wildlife of Special Concern in Arizona*.
 - Conservation projects focused on 49 WSCA - listed species. These projects also provided information on 30 other non-target WSCA species. No change from 2001 through 2003.
2. Maintain at least five reestablishment projects for species listed as *Wildlife of Special Concern in Arizona*.
 - Reestablishment projects were maintained for 14 WSCA - listed species. No change from 2001 through 2003
3. (A) Provide nongame wildlife related recreation opportunities annually for at least 500,000 birdwatchers, wildlife photographers, backyard wildlife feeders and gardeners, hikers, campers, river runners, and other nongame enthusiasts.
 - The Department's May 2002 Trends Survey reported that 71% (3,642,749) of the total Arizona resident population (5,130,632) participated in "passive" wildlife recreation (e.g. feeding, photography, watching) in 2002.
3. (B) Achieve at least a 60 percent satisfaction rating among Arizona's recreating public (i.e. 60% of Arizona's public indicating they were satisfied with their nongame wildlife - related recreation experiences over the past year).
 - The Department's May 2002 Trends Survey reported that 32% (1,641,802) of the total Arizona resident population (5,130,632) indicated the Department's nongame and endangered species management efforts should receive more emphasis (Note: 32% = Net Value calculated by subtracting "less emphasis" responses from "more emphasis" responses). The Department also initiated a statewide survey on public attitudes relating to a variety of nongame/endangered species issues. Results are available on the Department Website.
4. Evaluate at least 500 external project proposals annually to identify and prevent, minimize, or mitigate adverse impacts to nongame and endangered wildlife and biotic communities.
 - 2001/02 - 1373 external project proposals were evaluated.
 - 2002/03 - 2071 external projects were evaluated as of May 26, 2003 (not including EA Checklists, which are addressed under Recreation, #4).

5. Evaluate all Department project proposals and hunt guidelines to avoid causing unnecessary adverse impacts from or to nongame and endangered wildlife resource conservation or use.
 - One hundred percent of Department project proposals and the annual hunt guidelines are evaluated yearly
6. Implement at least 20 cooperative agreements or conservation agreements with external cooperators, for nongame and endangered wildlife purposes.
 - 2001/02 - Fifteen agreements (1 new and 14 ongoing) were implemented with external cooperators.
 - 2002/03 - Four additional agreements (2 new and 2 ongoing) were implemented with external cooperators.
7. Develop and implement, in collaboration with the Sport fish Management Subprogram, at least two watershed-based approaches that maximize complementary management of sport fish and native fish to meet the Department's conservation and recreation objectives.
 - An integrated Fisheries Management Plan (NGEWP Technical Reports 146 and 169) was completed and is being implemented for the Little Colorado River Watershed.
 - 2002/03 - Implementation continued in the Little Colorado River Watershed.
 - 2002/03 - Collaboration was initiated with the University of Arizona to initiate a watershed-based planning process for the Verde River Watershed. The Department intends to complete this by the end of calendar year 2006.
8. Annually, distribute information about nongame and endangered wildlife, and Nongame and Endangered Wildlife Subprogram activities, in at least: 25,000 copies of *Arizona's Nongame News*; 35 of the Department's weekly news bulletins; 15 articles in *Arizona Wildlife Views* (magazine); 5 episodes of *Arizona Wildlife Views* (television show); 25 public or professional presentations by program personnel; Commission Orders 13, 14, 25, 40, 41, 42, and 43; 5 Nongame and Endangered Wildlife Program Technical Reports; and 3 Annual Work Plans and Performance Reports for the NGEWP Projects.
 - 2001/02 - 50,000 copies of *Arizona's Nongame News* were distributed, 23 articles were published in the *Arizona Wildlife Views* (magazine), segments were contributed to 3 episodes of *Arizona Wildlife Views* (television show), 82 public or professional presentations were made, copies of all 7 Commission Orders were disseminated, 11 NGEWP Technical Reports were published, and 3 Annual Work Plans and 3 Performance Reports were prepared and submitted.
 - 2002/03 - 30,000 copies of *Arizona's Nongame News* were distributed, 31 articles were published in the *Arizona Wildlife Views* (magazine), segments were contributed to 4 episodes of *Arizona Wildlife Views* (television show), 63 public or professional presentations were made, copies of all 7 Commission Orders were disseminated, 4 NGEWP Technical Reports were published, and 3 Annual Work Plans and 3 Performance Reports were prepared and submitted.
9. Work to see full enactment of the Conservation and Reinvestment Act, as proposed to Congress in the year 2000, and secure at least \$500,000 annually in cost-share

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agreements, contracts, and grants from outside entities to address issues associated with nongame and endangered wildlife values.

- 2001/02 - More than \$3 million in funding was secured from external sources.
- 2002/03 - More than \$4 million in funding was secured from external sources.

- 10 Propose and advocate (a) ten-fold increases for, and block granting to, state wildlife agencies for funds provided under Section 6 of the Endangered Species Act, (b) Congressionally-directed "line item" funds to the states to address specific "species at risk" partnership projects as proposed by the Western Association of Fish and Wildlife Agencies, and (c) reauthorization revisions to the Endangered Species Act to ensure that at the time of listing a species, sufficient funds are allocated to the states to carry out their Section 6 responsibilities for such species.
- These issues were advocated at both the state and national levels, but this did not result in final Congressional action.

Strategies:

Conservation

1. Improve the quality and availability of information on nongame and endangered wildlife, biotic communities, habitats, and other elements of natural diversity.
 - More efficient, effective methods of data collection and analysis were developed for 14 nongame species.
 - 2002/03 - More efficient, effective methods of data collection and analysis were developed for 9 nongame species. (Bald Eagle, Mexican Spotted Pigmy Owl, Gunnison Prairie Dog, and 6 native species of Ranid Frog)
 - Annually, manual and computerized information systems are maintained sufficiently to meet access (including information exchange), availability, project evaluation, and management needs within the Department and for its cooperators.
 - Standardized formats and procedures for reporting occurrence and other information on species of special concern are maintained annually.
 - Annually, Phoenix and regional front-counter staff and the public are provided with "read-only" availability of status and other summarized, current information ("read-only" means the reader cannot change the data).
2. Establish appropriately standardized inventory, survey, population modeling, monitoring, and other management techniques, protocols, and guidelines for nongame and endangered wildlife.
 - 2001/02 - Thirty five species (including 5 trans-border species) were identified to gather species-specific management information.
 - 2002/03 - No additional species during the reporting period.
 - 2001/02 - Four guilds or species groups that provide for more efficient, effective management were identified. These groups were identified on an as - needed basis, in the context of projects, e.g. land - management projects.
 - 2002/03 - No additional species were included during this reporting period.

- The efficacy of a watershed or drainage basin approach to fisheries management using the Little Colorado River, fully integrating sport fish and native fish management, continued to be evaluated, as a Department-developed approach was completed and implemented.
 - A literature review was completed to determine the efficacy of streamside incubators (e.g. Whitlock-Vibert boxes), and other on-site mechanisms, equipment, or technology as supplements to hatcheries in working toward recovery of Arizona's native Apache trout and Gila trout, and management of other species. This project continues as a process improvement initiative by hatchery personnel.
 - Evaluation experiments were implemented in 2003, at three locations adjacent to Department hatcheries.
3. Train Department personnel and cooperators in inventory, survey, monitoring, and other wildlife management methods.
- Training was provided to approximately 75 Department personnel (e.g. Native Fish, Ranid Frogs, Breeding Bird Atlas, Willow Flycatcher, Arizona Bats; Collaborative Conservation Planning; Endangered Species Act) during 2001/02.
 - Training was provided to approximately 80 Department personnel (e.g. Native Fish, Ranid Frogs, Southwestern Willow Flycatcher, Arizona Bats; Collaborative Conservation Planning; Endangered Species Act) during 2002/03.
 - 2001/02 - Training was provided to volunteers that resulted in the accumulation of 3000 donated volunteer hours.
 - Seven interagency and NGO workshops were conducted (e.g. Native Fish [two workshops for multiple species], Spikedace, Loach Minnow, Ranid Frogs, Chiricahua Leopard Frog, Breeding Bird Atlas, Willow Flycatcher, Arizona Bats; Collaborative Conservation Planning; Endangered Species Act).
 - Six interagency and NGO workshops were conducted (e.g. Native Fish [two workshops for multiple species], Chiricahua Leopard Frog, Willow Flycatcher, Arizona Bats; Collaborative Conservation Planning; Endangered Species Act) during 2002/03.
 - One tri-national wetlands workshop was planned and conducted to train 70 wetlands managers in Mexico. This workshop was also conducted in 2002/03 to train 70 wetlands managers in Mexico.
4. Identify species, biotic communities, and habitat types that are declining or imperiled, or likely to become imperiled in the foreseeable future.
- *Wildlife of Special Concern in Arizona* list is being redeveloped as a list of "Wildlife Species of Greatest Conservation Need" and is scheduled to be presented at the October 2003 Commission meeting.
 - A list of *Biotic Communities of Special Concern in Arizona* will be superseded by the lists of species and habitats of greatest conservation needs, which will be completed and presented at the October 2005 Commission meeting.
 - The biennial "status of diversity" will be incorporated into development of the lists of species and habitats of greatest conservation needs.
 - Input was provided for federal processes relating to endangered species designation and protection (e.g. draft U.S. Fish and Wildlife Service policies for critical habitat,

- measuring effectiveness of conservation efforts, post-delisting monitoring, and various listing or critical habitat designation packages).
- Priorities were identified and developed for conservation assessments, strategies, and agreements for species and habitats of special concern (including trans-border species), and for species that are not yet imperiled (e.g. black tailed prairie dog, various mollusks and crustaceans).
 - The 2002/03 priorities were identified and developed for conservation assessments, strategies, and agreements for species and habitats of special concern (including trans-border species), and for species that are not yet imperiled (e.g. roundtail chub, flannelmouth sucker, bluehead sucker).
5. Collect and evaluate occurrence (distribution), population, status, ecological, and other relevant information for nongame and endangered wildlife, biotic communities, or habitat types.
- 2001/02 - Forty nine inventory, survey, monitoring, and management projects were implemented to assess the status of nongame and endangered wildlife.
 - 2002/03 - One new inventory, survey, monitoring, and management project was implemented to assess the status of nongame and endangered wildlife.
6. Determine priority research needs for, and conduct research on, nongame and endangered wildlife. The Department:
- Conducted, sponsored, or advocated research that contributes to recovery of 15 federally listed threatened or endangered species (e.g. Kanab ambersnail, Apache trout, Gila trout, Little Colorado spinedace, razorback sucker, spikedace, loach minnow, Sonora topminnow, desert pupfish, Sonoran tiger salamander, Chiricahua leopard frog, desert tortoise, cactus ferruginous pygmy owl, Mexican spotted owl, jaguar, Hualapai Mexican vole, Mexican wolf). 2002/03 - Research work continues.
 - Conducted, sponsored, or advocated research on 12 species listed as *Wildlife of Special Concern in Arizona* (e.g. Gila chub, flat-tailed horned lizard, various bats).
 - 2002/03 - Previous work continues with the addition of the yellow-billed cuckoo, cactus ferruginous pygmy-owl, and aplomado falcon, and on 5 non - listed species of mollusks.
 - Conducted, sponsored, or advocated research that contributes to maintaining or enhancing wildlife diversity in caves, grasslands, riparian, and aquatic habitats. Research work continued during 2002/03.
7. Collaborate to enhance nongame and endangered wildlife, habitats, and biotic communities, or to prevent avoidable and mitigate unavoidable losses.
- 2001/02 - Thirty five projects were reviewed to meet the requirements of the National Environmental Policy Act (NEPA) during 2001/02.
 - 2002/03 - Sixteen projects were reviewed to meet the requirements of the NEPA.
 - The Department participated in 12 community - based planning processes for ecological and human - related issues (e.g. black - tailed prairie dog, jaguar, Mexican wolf, Arizona Partners in Flight). This process continued through 2002/03.
 - 2002/03 - The Department developed Memorandums of Understanding with three Native American Tribes to enhance wildlife habitats, with an emphasis on birds.

- The Sonoran Pronghorn Recovery Team is in the process of developing a semi-captive breeding program to arrest the decline of pronghorn in the United States. The Department is the lead in writing the plan and has prepared an initial working draft that addresses all activities from animal acquisition, to enclosure construction, husbandry, and eventual release plans. A final plan, or a good final draft is key to the Department's negotiation efforts with the Mexican government for acquiring pronghorn from Mexico. The goal is to have things in place for transfer of animals in December 2003.
8. Implement management actions, conservation strategies, and recovery programs for all nongame and endangered wildlife and for biotic communities.
- Recommendations for revisions were made to during calendar years: 2001, 2002, and 2003.
 - Commission Orders (e.g. 25, 40, 41, 42, 43, and others).
 - State and federal laws, rules, and policies (Title 17, Articles 3 and 4).
 - Processes to set program priorities were maintained using the WSCA list.
 - The Department worked aggressive to ensure water supplies, water quality, and water management programs were managed.
 - 2002/03 - Five non-acquisition management and stewardship agreements were developed with land management agencies and willing property owners and lessees in southeastern Arizona.
9. Identify and protect important habitats for nongame and endangered wildlife.
- 2001/02 - Sixteen properties identified by willing sellers were evaluated for possible acquisition (various Heritage properties). The Arizona Game and Fish Commission approved the acquisition of 295 acres.
 - 2002/03 - Four properties identified by willing sellers were evaluated for possible acquisition (various Heritage properties). The Arizona Game and Fish Commission approved the acquisition of 167.5 acres.
 - 2001/02 - Three non-acquisition management agreements or stewardship agreements were developed with land management agencies and willing property owners and lessees, various properties in southeastern Arizona.
 - 2002/03 - Five non-acquisition management agreements or stewardship agreements were developed with land management agencies and willing property owners and lessees, various properties in southeastern Arizona.
 - 2001/02 - A habitat improvement project focusing on birds was developed in an urban setting in the Tucson metropolitan area. Project continues in 2002/03.
 - 2002/03 - Habitat improvement projects focusing on birds were developed statewide. These projects included Evans Property in Region 1, Soda Springs in Region 2, and Lord Ranch in Region 5.
10. Provide guidance on Arizona's nongame and endangered wildlife management priorities. Identified project proposal priorities for Federal Aid and Heritage grant processes, using the WSCA list.
- Reviewed and recommended changes to federal list of/or actions pertaining to, wildlife and habitats of special concern (e.g. sage grouse, various critical habitat designations).

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- Reviewed and recommended changes in laws or rules pertaining to wildlife and habitats of special concern (Articles 3 and 4, Commission Orders 13, 14, 25, 40-43).
 - The listed above activities were/are completed annually.
11. Develop and implement guidelines for reintroduction, translocation, and reestablishment of nongame and endangered wildlife.
 - Work continues toward reestablishing populations of 13 extirpated nongame species that are sufficient to warrant delisting or to preclude listing because recovery was achieved (i.e. Apache trout, Gila trout, Little Colorado spinedace, Virgin River fishes (3 species), desert pupfish, Gila topminnow, Tarahumara frog, California condor, black footed ferret, Mexican wolf).
 - 2002/03 - Work continued in developing a nonessential experimental population designation for aplomado falcons released in New Mexico to ensure that any birds dispersing to Arizona would also be covered.
 12. Identify strategies and specific mechanisms, where feasible to do so, for reducing real and perceived conflicts among nongame and endangered wildlife and game species, sport fish, agriculture, livestock, non- native wildlife, and public health and safety.
 - Watershed-based management plans were developed (not all were completed) that will identify where sport fish and native fish will be managed and structure management programs to minimize conflict between these two groups. (Fossil Creek Restoration Project, Glen Canyon Adaptive Management, Little Colorado Watershed-Based Approach to Fisheries Management, Lower Colorado River Multi-species Habitat Conservation Plan, Roosevelt Lake Habitat Conservation Plan). This project continues through 2002 - 2004.
 13. Develop a single integrated annual work plan for Nongame and Endangered Wildlife Program activities, embracing parts or all of the following project narratives: Identification, Inventory, Management, Acquisition and Protection (Heritage); Urban Wildlife (Heritage); Nongame Wildlife Management Project (Federal Aid); Endangered Species (Endangered Species Act); and Nongame and Endangered Wildlife (Nongame Checkoff).
 - A “needs assessments” for each group of nongame and endangered wildlife was initiated that will be used to develop a Comprehensive Wildlife Conservation Plan, due by October 2005.

Recreation

1. Protect habitat for wildlife-oriented public recreation, consistent with wildlife and recreational values.
 - 2001/02 - Wildlife-oriented recreation habitat protection for such purposes and values was accomplished through various Heritage acquisitions. The Arizona Game and Fish Commission approved the acquisition of 295 acres.
 - 2002/03 - Wildlife-oriented recreation habitat protection for such purposes and values was accomplished through various Heritage acquisitions. The Arizona Game and Fish Commission approved the acquisition of 167.5 acres.

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2. Increase public awareness of how to make effective, non-intrusive use of the existing wildlife recreation opportunities available to the public.
 - Information was provided to the public via publications and presentations referenced elsewhere in this report.
3. Enhance public recreation opportunities focused on nongame and endangered wildlife.
 - The Department established or enhanced wildlife viewing opportunities statewide, on lands open to public recreation. This included management of Department wildlife areas, with enhancement of viewing opportunities at sites such as Sipe White Mountain Wildlife Area and Whitewater Draw Wildlife Area.
 - "How to/When to" information was published on wildlife recreation opportunities in various articles in *Arizona Wildlife Views* magazine, on television shows, and newspaper articles. Activities continue annually.
4. Work with public and private partners to set recreation-use guidelines and limits appropriate to nongame and endangered wildlife conservation needs.
 - Recreation-use guidelines were developed through project views, in cooperation with the Habitat Evaluation and Protection Program (HEPP).
 - 2001/02 - Needs for area, road, or trail access stipulations or closures were identified from 1373 project reviews, including Environmental Checklists, in cooperation with the HEPP.
 - 2002/03 - Needs for area, road, or trail access stipulations or closures were identified from 3609 project reviews, including Environmental Checklists, in cooperation with the HEPP.
 - 2001/02 - Compliance with, and the effectiveness of, recreation use guidelines and access restrictions were monitored through 1373 project reviews in cooperation with the HEPP.
 - 2002/03 - Compliance with, and the effectiveness of, recreation-use guidelines and access restrictions were monitored through 3609 project reviews in cooperation with the HEPP.

Information and Education

1. Increase the abilities of Nongame and Endangered Wildlife Program personnel to communicate effectively.
 - 2001/02 - Training in public speaking was provided to 15 employees.
 - 2001/02 - Twenty employees were provided Popular and scientific writing training
2. Survey public attitudes and perceptions about nongame and endangered wildlife, and related issues.
 - Pertinent preliminary information was gathered through the Department's May 2002 Trends Survey. A statewide general attitudes survey specific to nongame and endangered wildlife issues was completed in FY 2002/03. Results are available on the Department Website.
 - 2002/03 - A statewide general attitudes survey specific to nongame and endangered wildlife issues was completed. Results are available on the Department Website.

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- Issue-specific surveys were conducted with recreationists relating to knowledge and acceptance of the bald eagle closure at Lake Pleasant.
 - The Department continued to rely on the U.S. Fish and Wildlife Service national survey as a mechanism by which to accurately estimate the number of days spent by the public in nongame -oriented recreational activities in Arizona and to estimate the economic value of those days.
3. Broaden public awareness and understanding of the Department's nongame and endangered wildlife activities, accomplishments, failures, and program needs. To broaden public awareness:
- 2001/02 - Thirty two technical and popular workshops were conducted on the biology, management, and responsible public enjoyment of wildlife in 2001/02.
 - 2002/03 - Seven technical and popular workshops were conducted on the biology, management, and responsible public enjoyment of wildlife during 2002/03.
 - 2001/02 – Fifty-seven slide shows or PowerPoint presentations, 3 posters, 5 brochures, 1 book, and 2 booklets, etc. on wildlife, related management issues, and recreational opportunities were created or revised.
 - 2002/03 - Eight slide shows or PowerPoint presentations, 2 posters, 4 brochures, 2 book, and 1 booklet, etc. on wildlife, related management issues, and recreational opportunities were created or revised.
 - 2001/02 - Peer review was solicited and incorporated for 15 reports and findings pertaining to wildlife issues.
 - 2002/03 - Peer review was solicited and incorporated for 8 reports and findings pertaining to wildlife issues.
 - 2001/02 - Fourteen technical presentations were made on nongame and endangered wildlife, and related management issues, at professional conferences and workshops.
 - 2002/03 - Fifteen technical presentations were made on nongame and endangered wildlife, and related management issues, at professional conferences and workshops.
 - 2001/02 - Seventeen articles were published pertaining to wildlife issues and program activities in professional journals, *Arizona Wildlife Views* (the Department's magazine), *Arizona's Nongame News*, and other magazines, newsletters, newspapers, etc.
 - 2002/03 - Ten articles were published pertaining to wildlife issues and program activities in professional journals, *Arizona Wildlife Views* (the Department's magazine), *Arizona's Nongame News*, and other magazines, newsletters, newspapers, etc.
 - Continuously, information on wildlife issues and relevant Department activities to the public was provide to the public, via the Internet and television (e.g. via the Department's website and its television show, *Arizona Wildlife Views*).
 - The public continues to be informed (via the mechanisms referenced above) about the status of nongame and endangered wildlife, and actions or developments adverse to their protection and maintenance, and Department actions to reduce or eliminate such adverse influences.
 - Environmental education was promoted, including Project WILD and similar efforts (e.g. jaguar conservation curriculum).