

## **Tucson Mitigation Corridor (Managed as part of Tucson Mountain Park)**

### **Size**

- 2,514 acres total in two tracts separated by the Central Arizona Project (CAP) canal. The canal and accompanying right-of way consists of 216 acres.

### **Ownership/Managing Entity**

- The U.S. Department of Interior, Bureau of Reclamation holds title to all 2,730 acres (including title to the Central Arizona Project canal)
- Managed by the Pima County Natural Resources, Parks and Recreation Department.

### **Reserve Document**

- Intergovernmental Agreement: Cooperative Agreement for Use of Project Lands for Wildlife and Plant Conservation and Management, Tucson Mitigation Corridor, Central Arizona Project
- Resolution No. 1989-248: Resolution Calling for the Execution of a Cooperative Agreement for Use of Project Lands for Wildlife and Plant Conservation and Management of the Tucson Mitigation Corridor, Central Arizona Project

### **Activities Allowed**

- Archery hunting
- Research/studies permitted
- Hiking
- Equestrian trails
- Picnicking
- Birding

### **Known/potential Biological Impact Areas and/or Activities**

- Air Traffic
- Utilities
- Proposal by the Public Service Company of New Mexico to construct and operate high-voltage electrical transmission lines through the Tucson Mitigation Corridor.

### **Priority Vulnerable Species**

#### **Mammals-**

- Mexican Long-tongued bat(*Choeronycteris mexicana*)-Likely uses food resource in area
- Lesser Long-nosed bat(*Leptonycteris curasoae yerbanbuena*)-May use the area for food resources

- California Leaf-nose bat (*Macrotus californicus*)-Uses the area for food and roost resources
- Merriam's mesquite mouse (*Peromyscus merriam*)-May use food and shelter resources
- Pale Townsend's big-eared bat (*Plecotus townsendii pallescens*) - Likely to use food resources

#### **Birds-**

- Rufous winged sparrow (*Aimophia caralis*)-May be found in Tucson Mountain Park
- Swainson's hawk (*Buteo swainsoni*)-May be found in Tucson Mountain Park
- Cactus ferruginous pygmy owl (*Glaucidium brasilianum cactorum*)-May be found in Tucson Mountain Park
- Abert's towhee (*Pipilo aberti*)-Likely to be found in Tucson Mountain Park
- Bell's vireo (*Vireo bellii*)-Likely to be found in Tucson Mountain Park

#### **Reptiles-**

- Tucson Shovel-nosed snake (*Chionactis occipitalis klauberi*)-May be found in Tucson Mountain Park
- Giant spotted whiptail (*Cnemidophorus burti stictogrammus*)-Likely to be found in Tucson Mountain Park
- Ground snake (valley form) (*Sonora semiannulata*)-May be found in Tucson Mountain Park

#### **Plants-**

- Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*)-May be found in Tucson Mountain Park
- Gentry indigo bush (*Dalea tentaculoides*)-May be found in Tucson Mountain Park
- Nichol Turk's head cactus (*Echinocactus horizonthalonius* var. *nicholii*)-May be found in Tucson Mountain Park
- Needle-spined pineapple cactus (*Echinomastus erectocentrus* var. *erectocentrus*)-May be found in Tucson Mountain Park
- Tumamoc globeberry (*Tumamoca macdougalii*)-May be found in Tucson Mountain Park

#### **Potentially Problematic Species**

The problematic plant species for Tucson Mtn. Park are:

- Lehmann lovegrass (*Eragrostis lehmanniana*)
- Fountain grass (*Pennisetum setaceum*)
- Red brome (*Bromus ruens*)
- Bermuda grass (*Cynodon dactylon*)
- Mouse barley (*Hordeum murinum*)
- Buffelgrass (*Pennisetum ciliare*)

The problematic animal species for Tucson Mtn. Park are:

- European starling (*Sturnus vulgaris*)

#### **Baseline Information**

- *Detailed Vegetation Map:* No
- *Plant Inventory:* No
- *Animal Inventory:* No
- *Water Inventory:* The area contains no naturally occurring water sources. There are two wildlife drinkers maintained by Pima County Natural Resources, Parks, and Recreation Department.

#### **GAP Status**

- Status 1a

The Tucson Mitigation Corridor is managed to prohibit future developments within the area, other than existing or future wildlife improvements. Management activities of the CAP right-of-way are not included as part of the Mitigation Corridor and may include the maintenance of dikes and cross-drainages, use of borrow materials, and trail building. Five siphons were located along the canal to facilitate movement of wildlife through existing washes. A recreation trail is planned on the CAP right-of-way.

#### **Acquisitions since 1/99**

- None

#### **Management**

Management goals of the Tucson Mitigation Corridor include: 1) to compensate for wildlife movement disruptions caused by aqueduct construction by providing an undeveloped wildlife movement corridor; 2) to preserve areas containing the Tumamoc globeberry, the night-blooming cereus, Thornber's fishhook cactus, desert tortoise, and Gila monster as compensation for populations impacted by project construction; 3) and to compensate for wildlife habitat lost due to aqueduct construction by prohibiting deleterious activities within the area boundaries.

The management plan for the Mitigation Corridor prohibits several categories of activities:

- any future developments within the area other than existing wildlife habitat improvements, or future improvements, management, or developments agreed to by Reclamation, Arizona Game and Fish Department, U.S. Fish and Wildlife Service, and Pima County;
- grazing, mining, dumping, discharge of firearms, trapping, recreation developments, and off-road vehicles to maintain the integrity of the area for both wildlife and special status plant species;

Pima County Parks and Recreation will maintain and repair two wildlife watering sites with the Tucson Mitigation Corridor (TMC), post and maintain signs around the TMC, ensure trash is kept out of the TMC, maintain and repair the 4 strand fences on the perimeter of the TMC,

maintain locked gates to exclude off-road vehicles, and to enforce all laws and regulations set forth in the management plan, and by the State of Arizona, for the entire 2,730 acres.

Any future improvements, developments, or changes in management must be agreed to by the Bureau of Reclamation, Arizona Game and Fish Department, U.S. Fish and Wildlife, and Pima County Natural Resources, Parks and Recreation Department.

Problems with attaining the management goals include the proposed Arizona Department of Transportation extension of San Joaquin Road along the gas pipeline road which extends through the middle of the TMC. Historically, the gas pipeline route has been used as a shortcut by local residents. This proposed road will have severe negative impacts to wildlife movements through the corridor, and will thereby negate one to the primary management goals. Alternative routes have been identified and discussed with the Pima County Department of Transportation. The TMC will also be negatively impacted by the construction and operation of high-voltage electrical transmission lines through the corridor by the Public Service Company of New Mexico (PNM), should that proposal be approved. Negative environmental impacts include those to wildlife and plant species, to the viewsheds of the most prominent tourist attractions in southern Arizona including Gate's Pass and the Arizona-Sonora Desert Museum, to the Tucson Mountain West Biological Corridor proposed to connect Saguaro National Park and Tucson Mountain Park with the new Ironwood National Monument, and to the new multi-use trail to be located within the CAP right-of-way.

### **Research**

The University of Arizona School of Renewable Natural Resources conducted a study for the Bureau of Reclamation to study movement corridors for large mammals along the aqueduct. The results of the study found that deer crossed the aqueduct within the TMC more often than outside the TMC. Forage, topography, water availability, and proximity to mountains around the TMC and surrounding area represent good habitat for mule deer. Human development around the Mitigation Corridor may reduce its effectiveness. Collared peccaries were also found to use the crossing in the Mitigation Corridor more often than outside the TMC. Coyotes were found to use the TMC crossings less than outside the TMC, yet used all the crossing more often than the mule deer and peccaries. Other tracks found in the Tucson Mitigation Corridor crossings include gray fox (*Urocyon cinereoargenteus*), mountain lion, bobcat, desert cottontail (*Sylvilagus audubonii*), skunks (*Mephitis* spp.) and ringtail cats (*Bassariscus astutus*). Human development around the Mitigation Corridor may reduce its effectiveness.

Bureau of Reclamation has issued a grant to the University of Arizona to investigate the status of mountain lions in the Tucson Mountain. This study may also look at lion movements in and around the Tucson Mountains.

### **References**

Gale Bundrick, Former Acting Director, Pima County Natural Resources, Parks and Recreation Department

Don Carter, Natural Resource Specialist, Pima County Natural Resources, Parks and Recreation Dept.

A Natural History of the Sonoran Desert, Arizona-Sonora Desert Museum Press, 1999

Amphibians and Reptiles of Western North America, McGraw-Hill Book Co., 1954

Arizona Flora, University of California Press, Kearny & Peebles, 1960

Birds of North America, National Geographic Society Press, 1983

Finding Birds in Southeast Arizona, Tucson Audubon Society, 1995

Issues of Non-native Species in Public Reserves, Pima County, June 2000

Land Stewardship in Pima County, February 8, 2000

Mammals of Arizona, The University of Arizona Press, Hoffmeister, 1986

Mammals of the Southwest, The University of Arizona Press, Cockrum, 1982

Mammals of Woodland and Forest Habitats of Saguaro National Monument, Arizona, 1992

Mitigation and Movement Corridors for Large Mammals along the Tucson Aqueduct, Krausman, P.R., J.C.

Tull, R.J. Popowski, and J.T. Avey, University of Arizona: School of Renewable Natural Resources, 1998

North American Range Plants, Fifth Edition, University of Nebraska Press, Stubbendeck, J., Hatch, S., Butterfield, C., 1997

Personal Communication, Messing, Henry, Wildlife Biologist, U.S. Bureau of Reclamation, September 13, 2000

Personal Communication, Duncan, John, Ranger, Pima County, September 13, 2000

Plants of Arizona, Falcon Press Publishing Co., Epple, A., 1995

Priority Vulnerable Species Habitat Data Analysis Sonoran Desert Conservation Plan, July 20, 2000

Technical Report NPS/WRUA/NRTA – 92/06 (CPSU/UA no. 47), Davis, R., Sidner, R., 1992  
The Cactaceae, Dover Publications Inc., 1963

Tucson Mitigation Corridor Master Management Plan, U.S.D.I. Bureau of Reclamation Lower Colorado Regional Office, May 1990.

Vegetation and Flora of the Sonoran Desert, Stanford University Press, 1964