



# ARIZONA

## Introduction and General Description

Arizona is defined by its diverse climate and geography. Annual precipitation ranges from less than 5 inches to 30 inches a year and elevations extend from 70 feet above sea level along the Colorado River to 12,633 feet on its highest peak. This variation creates the biological diversity found in habitats that range from alpine tundra to Sonoran and other desert types.

Stream systems connect these ecosystems, and lands along streams and springs were often the first settled and patented as private lands.

The Partners Program works to create alliances with willing landowners to improve these habitats. The Partners Program also strives to work with the seven National Wildlife Refuges in Arizona developing projects on private lands that also benefit Refuge objectives. The Partners for Fish and Wildlife program has been helping private landowners in Arizona since 1992 to improve habitats in this ecologically rich State.

### Arizona Activities

- T Fencing sensitive areas
- T Revegetating with native plants
- T Restoring habitat for threatened and endangered



Planting native species at Pantano Jungle near Tucson.

Photo: Julia Fonseca

- species
- T Educating the public
- T Closing unauthorized roads
- T Creating wetlands
- T Controlling invasive species

## Habitats of Special Concern

A major focus of the Partners Program is riparian and wetland habitats. In the arid West, these relatively moist, lush habitats are among the most valuable plant and animal areas with an estimated 90 percent of desert wildlife relying on riparian areas for at least some part of their life cycles. Riparian corridors have been described as the “lifeblood” of the region, forming vital linkages between streams and their surrounding uplands. Federally threatened and endangered species are another major focus of the Partners Program. Arizona habitats support 59 federally listed

species, placing the State as 10<sup>th</sup> in the nation for listed species. This high number of federally listed species provides many project opportunities.

## Threats

Habitats in Arizona face many of the threats of those across the nation such as fragmentation and destruction, invasion of exotic species, overgrazing, recreational impacts, and others. However, Arizona with its dry climate, has a special need to protect riparian and wetland habitats which face threats from competition for scarce water resources. Many of the State’s federally threatened and endangered species are found in these areas including all of its native fish. A major threat to riparian and wetland areas in Arizona is over use by livestock. Additionally, these habitats are threatened by heavy recreational use such as off-road vehicles. Non-native invasive plants and animals constitute a major and growing threat to the State’s wildlife.

## Conservation Strategies

### Stream, Riparian & Wetland Habitat

Fencing is an important and effective way to protect stream, riparian and wetland habitats, especially in an “open range” State like Arizona, where landowners must fence cattle off their lands.

With rest from heavy grazing or recreational use, habitats reestablish rapidly. Fencing costs \$5,000-\$10,000 per mile depending on terrain and accessibility. Revegetation of riparian habitats is sometimes necessary if the habitat has been cleared or severely damaged. For example, abandoned agricultural fields were often former riparian areas which can be restored. Restoration of the native vegetation can be accomplished by planting bare poles (cuttings) for species such as cottonwoods or willows, using containerized plants, or seeding.



**Gila topminnow, a federally endangered species.**

These restored areas provide high quality habitat for wildlife as well as improved water quality and infiltration to the aquifer, and reduce erosion. The Partners Program helped fence Cottonwood Spring, a 20-acre spring-fed riparian system in southern Arizona which is home to many species, including three threatened and endangered species.

Partners is also helping the Hualapai Tribe to establish their own native tree nursery on Tribal land to restore riparian habitats, including those found along the Colorado River in the Grand Canyon. Revegetation can run from \$100-\$6,000 per acre depending on the site.



**Waterman Mountains on the Tohono O'odham Reservation where the Nichol's Turk's head cactus (inset) is found. Photo: Robert Schmalzel**

### **Cactus**

The Partners Program helped the Tohono O'odham Tribe in southern Arizona protect the endangered Nichol's Turk's head cactus. This species is found in only three places in the nation, two of these locations are on the Tribe's lands.

The Tribe built fences around the two patches of these cacti to keep native desert bighorn sheep and javelina from eating them.

### **School Projects**

The Douglas High School science class received funding from the Partners Program to build refugia on the campuses of four schools in



**Douglas High School student building a frog refugium.**

*Photo: Hans Bodenhamer*

their District for the Chiricahua leopard frog, a Federal proposed threatened species.

### **Fisheries**

The Partners Program also funded the construction of a fish barrier on Aravaipa Creek to keep non-native fish out of stream segments where federally threatened and endangered native fish are found.

### **Invasive Species**

Invasive species are a serious problem which continues to expand. A major invasive plant in Arizona is saltcedar which invades riparian habitats, crowding out native cottonwood and willows. The Partners Program worked with the Imperial National Wildlife Refuge and a private landowner to remove saltcedar from 5 acres of land adjacent to the refuge and revegetate the area with native trees.

Another invasive species, the green sunfish, is native to the Mississippi River basin, but not the waters of Arizona.

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The Partners Program is working with The Nature Conservancy to remove the invasive green sunfish from O'Donnell Creek, a stream in southern Arizona which is home to the Gila chub, a Federal candidate species.

The Arizona State Land Department and the Partners Program have joined forces near Flagstaff to control two recent invaders, the Scotch thistle and yellow starthistle.

The control of invasive species varies greatly depending on the invasive species and situation. Costs can range from \$100 to \$5,000 per acre or greater.

## Partners

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U.S. Forest Service  
Natural Resource Conservation Service  
National Parks Service  
Arizona Game and Fish Department  
Arizona State Land Department  
Arizona Department of Transportation  
Colorado River Indian Tribes  
Navajo Tribe  
San Carlos Apache Tribe  
White Mountain Apache Tribe  
Hualapai Tribe  
Tohono O'odham Tribe  
Hopi Tribe  
Zuni Tribe  
The City of Nogales  
Pima County Flood Control District  
Douglas High School District  
The City of Prescott  
The Nature Conservancy  
YMCA  
Friends of the Santa Cruz River  
The Tucson Audubon Society  
Prescott Creek Preservation Association  
Sonoran Rincon Institute  
Desert Foothill Land Trust  
Cosanti Foundation  
The Arboretum at Flagstaff  
The National Audubon Soc. Research Ranch

## Accomplishments

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**T** 112 miles of riparian habitat have been restored or enhanced.

**T** 10,807 total acres of habitat have been restored or enhanced.

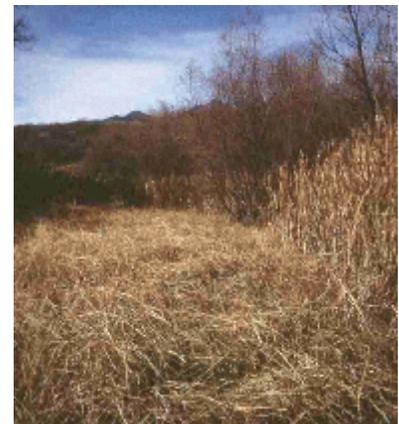
**T** Worked with 8 of the 20 Native American Tribes in Arizona.

**T** Implemented projects targeted directly to benefit 18 of the State's 59 federally threatened and endangered species.

**T** The Partners Program has worked with over 30 partners including Federal and State agencies, local governments, and private individuals.



**Cottonwood Spring before Partners livestock fencing project.**



**Cottonwood Spring after fence construction.**

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## Future Needs

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T Restore habitat on an estimated 100,000 acres of retired agricultural lands in the State.

T Assist private landowners to restore habitat for 59 federally threatened and endangered species in the State.

T Restore springs and seeps in the State.

T Control invasive species, noxious weeds and aquatic plants on 3,000 miles of stream corridor and over 2 million acres of land.

T Restore 17,500 miles of perennial, intermittent, and ephemeral streams in Arizona, especially riparian habitat occurring below 4,500 feet elevation.

T Assist schools to restore riparian habitats, using reclaimed water, for use as outdoor classrooms.

## CONTACT

**Marty Jakle**  
**U.S. Fish and Wildlife Service**  
**Partners for Fish and Wildlife Program**  
**2321 West Royal Palm Road, Suite 103**  
**602 242-0210 ext. 213 (Fax) 602-242-2513**



**August 2001**