



# NEVADA

## Introduction and General Description

 Nevada has been the fastest growing State in the nation for 10 years. The population is expected to double over the next decade. Given that this growth is occurring on less than 20 percent of the land, and that many imperiled species depend on aquatic systems found on these lands, partnerships with private landowners are essential to restoring and maintaining Nevada's unique biodiversity.



The area in yellow shows the geographic limits of the Great Basin desert.

Although less than 13 percent of Nevada is in private ownership opportunities for Partners for Fish and Wildlife projects do exist. Nevada is the most arid State in the nation. Thus, the value of water for agriculture and recreation means that much of the land along perennial water courses and springs is under private ownership.

## Habitats of Special Concern

### *Aquatic Habitat*

Aquatic habitats in Nevada support 25 rare fish species and 2 amphibians that are on the candidate species list. The Great Basin, which covers most of Nevada, supports the highest diversity (at least 150 species) of spring-dwelling mollusks in the United States, 65 of which are found only in Nevada.

The Partners Program has worked with private landowners to restore habitat for the Bonneville cutthroat trout in eastern Nevada on Big Wash Creek near the Great Basin National Park. The States of Utah, Nevada, Wyoming, and Idaho have developed a cooperative agreement and range-wide strategy for the recovery of this trout.



**Big Wash Creek, Nevada  
Bonneville cutthroat trout  
habitat**

### *Wet Meadows*

Partners projects are also helping with implementation of a conservation agreement to keep the Amargosa toad from being listed as a federally endangered species. The Partners Program has worked with private landowners, State agencies, Nye County, The Nature Conservancy, and the University of Nevada at Reno, on projects to restore wet meadows and permanent pond habitat for the toad in the Amargosa Valley. These projects are likely to benefit the protected southwestern willow flycatcher.

### *Sagebrush Steppe*



**Crystal Spring, Nevada,  
Amargosa toad habitat**

Much of the sagebrush habitat in Nevada is used to graze livestock. Overgrazing and the invasion of exotic or nuisance plant species is degrading this habitat.

The Partners Program in Nevada is beginning to focus efforts to restore this habitat and control invasive plants.

## Threats

### *Water Issues*

Nevada has lost over 52 percent of its wetlands. This loss is primarily due to water diversions and groundwater pumping for urban and agricultural uses. Urban use is replacing agriculture as the major water user in some areas. Current hard rock mining practices also impact wetland and stream habitats. Huge mining pits dug well below the water table require de-watering to extract the silver or gold-bearing ore. De-watering affects streams, springs, and wetlands by lowering the ground water table for decades. For some mines, the impact is projected to last over 100 years after mining has ceased.

### *Wildfires*

Devastating wildfires over the past



**Pit mine lake**

few years are responsible for the decline in the health of many Great Basin ecosystems.

Summer thunderstorms in 1999 alone, resulted in fires that charred more than 1.7 million acres in northern Nevada. Without quick, decisive restoration actions, much of the native grasslands and shrublands burned will be invaded by exotic annual grasses and noxious weeds.

Exotic grasses contribute to the



**Cheatgrass fire**

natural burn cycle and accelerate the loss of native vegetation of the Great Basin ecosystems.

Restoration of these ecosystems must include actions that promote diverse, native plant communities that are resilient to disturbance and resistant to invasive species over the long term. Restoration will also assist in the recovery of diverse wildlife and fish populations.

### *Livestock Grazing*

Heavy, season-long livestock grazing has degraded stream, riparian (streamside), and upland habitats throughout Nevada. Livestock grazing can affect stream and riparian areas by changing dominant plant species, reducing or eliminating vegetation cover, compacting soils, trampling streambanks, and degrading water quality. Riparian areas are lost through channel widening, channel degradation, and lowering of the water table.

The effects of livestock grazing on fish habitat include reduction of shade and cover resulting in increased water temperature, more intermittent than permanent flows, changes in stream channel and bottom shape, and additional

sedimentation due to streambank and upland soil erosion.

Grassland and shrub habitat is degraded as soils are compacted and native plants are replaced by invasive species. In sagebrush ecosystems, the loss of understory grasses and forbs results in the loss of nesting and foraging habitat for species such as the sage grouse.

## Conservation Strategies

### *Wetlands*

The focus of the Partners



**Over-grazed stream corridor**

Program on wetlands has been due to their important role in the arid ecosystems of Nevada for migratory birds, fish, and amphibians. Wetlands are restored by removing water diversions and returning flows into wetland basins. Wetland restoration projects have focused on the Humboldt River and its tributaries, Carson Valley, and Amargosa Valley. Wetland restoration projects cost about \$1,000 per acre.

### ***Streams and Riparian Areas***

Fish, amphibians, invertebrates and many other upland species are dependent for at least a portion of their lives on streams and riparian areas for water and cover.

Stream corridors are restored by installing fences (to exclude livestock), bank stabilization and replanting trees and shrubs.

Riparian restoration projects have focused on streams in the Bonneville and Lahontan basins. The McCarran Ranch project will restore 10 miles of riparian habitat along the Truckee River and up to 400 acres of uplands over the next 5 years.

Riparian restorations cost about \$10,000 per mile of stream.

### ***Sagebrush Steppe***

The conversion of agricultural lands back to native sagebrush steppe will benefit Great Basin wildlife species (e.g., sage grouse, Brewer's sparrow, sage sparrow, pygmy rabbit, sagebrush vole, and sagebrush lizard). The installation of livestock fencing and reseeding native vegetation is currently planned on 260 acres of a private ranch and will restore habitat for sage grouse and other sagebrush dependant species. The fencing will also benefit a designated recovery stream for Lahontan cutthroat trout.

Livestock fencing costs \$2.50 per linear foot to install, sagebrush seeding by fixed-wing aircraft costs \$59 per acre and seeding by no-till drill costs \$62 per acre.

### ***Invasive Species***

The exotic plants, purple loosestrife and tall whitetop have



**Male sage grouse**

been introduced to the United States from Europe and Asia. Purple loosestrife is invading wet meadows, pasture wetlands, marshes, stream and river banks, lake shores, and irrigation and drainage ditches. Tall whitetop is invading fallow agriculture fields, stream and river banks, and drainage ditches.

These exotic plants are extremely hardy. They crowd out native plant species and interfere with the regeneration of willows and cottonwoods. They provide less shade and cover than the native shrub species along streams for fish, waterfowl, migratory birds and other wildlife.

Exotic plants are controlled by application of herbicides. This work costs about \$80 per acre.

Restoration of riparian and upland habitats in the Truckee and Carson River watersheds will reduce or eliminate populations of these exotic species.

### **Partners**

Natural Resources Conservation Service  
National Fish and Wildlife Foundation  
Bureau of Reclamation  
U.S. Army Corps of Engineers  
Bureau of Land Management  
Nevada Division of Wildlife  
Nevada Division of Environmental Protection  
Nevada Division of Forestry  
Nevada Division of State Parks  
Nevada Department of Prisons  
University of Nevada, Reno  
Pyramid Lake Paiute Tribe of Indians  
Washoe County  
Storey County  
Nye County  
The Nature Conservancy  
Trout Unlimited

### **Accomplishments**

The Partners Program started in Nevada very recently and private landowners are looking to us for help to restore their lands.

- < 8 landowner agreements have been completed
- < 232 acres of sagebrush habitat have been restored. An additional 242 acres are scheduled for restoration including 62 acres of sage grouse nesting habitat

- < 2 miles of stream-riparian habitats have been restored and an additional 4 miles are scheduled for restoration in the near future.
- < 9 miles of fencing have been constructed to protect habitat for wildlife and an additional 3 miles are scheduled for construction in the near future.



**A section of the Truckee River before a willow restoration project.**



**Truckee River after restoration.**

## **Future Needs**

- < Restore, protect, and enhance 50 miles of stream habitat in the Lahontan Basin for Lahontan cutthroat trout.
- < Restore or enhance 200 acres of wetlands in the Columbia Basin for the spotted frog.
- < Restore or enhance 1,000 acres of sagebrush-steppe in the Great Basin for the sage grouse.
- < Restore or enhance 50 acres of habitat for federally-listed (or proposed for listing) threatened or endangered plants such as the Tahoe yellow cress, Steamboat buckwheat and Sulphur Springs buckwheat.
- < Restore 500 acres of wetland habitat in Las Vegas Wash for migratory birds including the endangered Southwestern willow flycatcher and Yuma clapper rail.

## **CONTACT**



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