

Grand Canyon

National Park Service
U.S. Department of the Interior

Grand Canyon National Park
Arizona



Tamarisk Management and Tributary Restoration



Tamarisk (on left) growing near a water source

Tamarisk (*Tamarix ramosissima*), also known as salt cedar, is a highly invasive plant native to Eurasia. Introduced to the U.S. in the 19th century for erosion control, it has spread throughout the West, causing major changes to natural environments. Tamarisk reached the Grand Canyon area during the early 1930s, becoming a dominant in the riparian zone along the Colorado River following completion of Glen Canyon Dam in 1963. The side canyons, seeps and springs within Grand Canyon National Park are among the most pristine watersheds and desert riparian habitat remaining in the United States. The encroachment of tamarisk into these areas now poses a significant threat to the integrity of natural ecosystems within the park.

Why is tamarisk undesirable?

Although wildlife species use this plant for shelter, food, or nesting habitat, and people rely on it for shade, tamarisk threatens the park's native ecosystems. A large mature tree produces close to a million seeds which are dispersed by wind and water, making tamarisk an aggressive invader. Tamarisk spreads quickly in riparian areas and often develops into monoculture stands. Dense thickets of tamarisk trees crowd out native vegetation, reduce suitable wildlife habitat, increase fire frequency, and decrease the water available for native plants and animals.

National Park Service policies call for managing non-native species "if control is prudent and feasible, and the exotic species interferes with natural processes and the perpetuation of natural features, native species, or natural habitats." Tamarisk in tributaries of the Colorado River meets these criteria. The Tamarisk Management and Tributary Restoration project seeks to prevent further loss or degradation of the existing native flora and fauna and to restore more natural conditions. This project protects the park's riparian areas, some of the nation's last intact examples of these rare desert ecosystems.

Project history and methods

Through a public review process, called an Environmental Assessment / Assessment of Effect, park management evaluated the impacts to natural, cultural and wilderness resources, and solicited public comments. Managers selected the environmentally preferred alternative that includes the control of tamarisk in side canyons, tributaries, developed areas, and springs above the pre-dam water level of the Colorado River.

Crews remove tamarisk through a combination of mechanical and chemical controls, allowing for native vegetation to recover. Methods include pulling, cutting to stump level and applying herbicide, or girdling to leave the dead tree standing for wildlife habitat. The combination of hand tools and herbicide ensures maximum effectiveness with minimum impact to visitors and the environment. The particular method used is specific to each site and determined by the restoration biologist or on-site project leader.

Project update

Phase I of the project, supported by the Arizona Water Protection Fund (AWPF), the Colorado River Fund (CRF), the Grand Canyon National Park Foundation (GCNPF), the Grand Canyon Wildlands Council (GWC), and the National Park Service (NPS) began in 2002 with 63 side canyons. The AWPF provided funding for the NPS and GCNPF to expand this project into 35 additional side canyons during 2005-06 (Phase IIa), and another 30 side canyons during 2006-07 (Phase IIb). Some Phase IIb project areas lie on Hualapai Tribal lands, and combined NPS and Hualapai crews work cooperatively in these areas.

The project is now in a cyclic maintenance phase with NPS and Grand Canyon Association (GCA) support. Crews are returning to previously treated sites and retreating any regrowth.

To date, crews have completed work in 130 project areas, removing more than 275,000 tamarisk trees from over 6,000 acres. Only 12 percent of the controlled trees require follow-up treatment. Prior to treating areas, biologists assess areas for potential habitat of the endangered southwestern willow flycatcher and install long-term monitoring components.

The monitoring includes 35 vegetation transects and more than 1000 fixed photo points. Post treatment assessment of transects show control techniques are effective, but overall return of native diversity is slow. Park biologists continue to monitor project areas.

Tamarisk Leaf Beetle Update: In August 2009, the first tamarisk leaf beetle (*Diorhabda carinulata*) survey was conducted along the Colorado River. The survey found beetle larvae at Navajo Bridge (4.5 Mile) and Browns Inscription (12 Mile). In 2010, beetles were found for the first 30 miles and then sporadically from river mile 138-180, in addition to a few major tributaries. By September, obvious signs of tamarisk defoliation were visible. It is unknown how fast the beetle will spread down the river corridor in the park. Resource managers are proactively addressing the potential incoming beetle infestation by prioritizing sites for future restoration based on wildlife needs, exploring project funding options for large scale restoration, coordinating and continuing monitoring of tamarisk beetle spread, distribution, and impact, building consensus with stakeholders on priorities for riparian restoration, and increasing public awareness of the issues confronting riparian areas.

Upcoming work

From September through March each year, crews will be working in side canyons along the Colorado River. They will be revisiting sites in which tamarisk was previously controlled and removing new tamarisk and re-treating as needed.

For project reports and the Environmental Assessment/Assessment of Effect for this work please refer to the park's webpage: www.nps.gov/grca

If you would like additional information about this project, please contact the park's Backcountry Vegetation Program Manager and Project Coordinator at: Lori_Makarick@nps.gov

If you would like to volunteer to help with this effort, please contact Grand Canyon Trust at (928)774-7488

Or visit www.gcvolunteers.org

Special thanks



The tamarisk management project is extremely labor intensive and time consuming. The enormous progress made over the last eight years is largely due to the hard work of volunteers who have collectively donated more than 44,000 hours of their time to this project.

We thank all of the individual volunteers for making this project a success!



NOTICE

Tamarisk control work takes place between September and March each year. You may encounter work crews or notice cut stumps as you visit the Inner Canyon. In addition to removing smaller trees with hand tools, certified herbicide applicators selectively spray a triclopyr based herbicide, which is low in toxicity, directly onto the cut stumps, but not into creek or water sources. If you are in area while crews are working or 1-2 days after the work is completed, you may notice a varnish odor and blue color from the oil mixed with the herbicide.