

Questions & Answers

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Frequently Asked Questions Regarding Reintroduction of Four Native Fish Species in the Muleshoe Ranch Cooperative Management Area

What fish are being reintroduced in the Muleshoe Ranch Cooperative Management Area?

Four native, threatened and endangered species are to be reintroduced. Each species has specific habitat requirements, so each species will be stocked in stream reaches containing habitat (flows, temperatures, substrates, etc.) best suited for their survival.

- Desert Pupfish (endangered) – Named for their gregarious and playful behavior pupfish are chubby, less than two inches long and capable of living in water up to 113° F and with high salinity. Breeding males are blue on top and sides and have yellow fins. Once common in desert springs, marshes and backwaters throughout Arizona, Baja California and Sonora, Mexico, desert pupfish are now restricted to three populations in California, restricted populations in Mexico and limited transplanted populations in the wild.
- Gila topminnow (endangered) – Guppy-like 1- to 2-inch fish that bears live young. Breeding males are jet black with yellow fins. Gila topminnow were abundant in the Gila River drainage and were one of the most common fish of the Colorado River Basin, but the population has been reduced to only a few small and highly threatened locations.
- Spikedace (threatened) – Silver-sided fish up to 3 inches long. Inhabits moderate and large perennial streams with fast velocity waters over gravel and rubble substrates. Once common throughout the Gila River drainage above Phoenix, spikedace are now common only in Aravaipa Creek, Arizona, and portions of the Gila River, New Mexico. Very small populations may occur in the Verde River and Eagle Creek, Arizona.
- Loach Minnow (threatened) – Slender fish, up to 3 inches long. Males develop vivid red-orange markings during spawning season. Found in creeks and rivers with turbulent riffles and swift currents. Like spikedace, was once common throughout much of the Gila River system



above Phoenix. Now found in small, geographically isolated populations at the upstream ends of their historical range.

What threatens these fish species?

The introduction and spread of exotic predatory and competitive fishes has contributed to the decline of each of these species. Introduced crayfish and bullfrogs affected some populations. Water impoundments and diversions, stream channelization and habitat modifications have also threatened these species.

Where are the stockings taking place?

Fish will be stocked into multiple sites along three perennial desert canyon streams of the southeastern Arizona's Galliuo Mountains. Fish will be released in Redfield Canyon (including the Swamp Creek tributary), Hot Springs Creek (including Secret Springs) and Cherry Creek. The area is about 30 miles northwest of Willcox, Arizona and within the jointly managed Muleshoe Ranch Cooperative Management Area.

Did these species occur in the streams of the Muleshoe Ranch area historically?

The presence of other desert fish species (longfin and speckled dace and Gila Chub) that are typically associated with the four species to be stocked, together with historical records from the watershed, indicate that the springs and streams of the Muleshoe Ranch CMA may have been historically occupied by this suite of fish species. Suitable habitat exists in these streams and the fish are expected to do well.

Why are they being reintroduced the Muleshoe Ranch CMA?

Stream and spring habitats in the canyons of the Muleshoe Ranch CMA provide habitat types essential to each of the four species. The persistence of other native fish populations further indicates that these habitats are of a sufficient quality to support the reintroduced fish. Bureau of Land Management, U.S. Forest Service and The Nature Conservancy watershed management of the Muleshoe Ranch CMA has improved aquatic habitat quality through prescribed burning, revised and retired livestock grazing and off-road recreation management. Additionally, non-native fish species have been excluded from the area due to natural downstream fish barriers (intermittent flow areas and waterfalls). Establishing populations of these fish in the Muleshoe Ranch CMA will enhance the survival and recovery of each of these species and help restore historical species diversity to the area.

Where are these fish coming from?

The desert pupfish and Gila topminnow stocks are being collected from captive stocks held at Arizona State University and a fish refugium funded by Bureau of Reclamation and managed by The Nature Conservancy in Dudleyville, Arizona. The spikedace and loach minnow are being collected from wild populations in Aravaipa Creek. The effects of a short-term reduction of these host populations have been evaluated and the number of fish being removed for this stocking has been determined to be sustainable.

How are they being transported?

Once collected, fish will be held in livecars (net boxes). Fish will either be transferred in water filled ice chests with battery-operated aerators and taken by vehicle or placed in drums fitted with special nets that will be lifted on a longline from a Bureau of Reclamation helicopter and flown to previously selected drop zones along creeks and springs in the

Muleshoe Ranch CMA. There, biologists will remove the chests and begin tempering the fish to local water conditions (pH, temperature, etc.). Fish will then be distributed along sections of the streams from which they can disperse to their preferred habitat niches.

Will the reintroduced fish be monitored to determine success, failure or a need to modify the reintroduction?

Yes. The Bureau of Land Management, in coordination with the Fish and Wildlife Service, TNC, Bureau of Reclamation and Arizona Game and Fish Department, has committed to monitoring all fish species and aquatic habitat variables at least annually and will monitor for fish kills following the first runoff event following prescribed fires in the watershed. Using monitoring data, additional stockings and program modifications will be conducted over the next five years to augment native fish stocks and improve the likelihood of establishing self-sustaining populations of each of the four species. After five years of augmentation and monitoring, the reintroduction team will determine the success of the reintroduction efforts and whether additional efforts/modifications are necessary.

What is the CMA?

The Muleshoe Ranch CMA is a 55,000-acre mosaic of public and private land administered by The Nature Conservancy, Bureau of Land Management and USDA Forest Service. Within its boundaries is most of the watershed area for seven permanently flowing streams, representing some of the best remaining aquatic habitat in Arizona. Some 80 percent of the region's wildlife species depend upon these streamside communities at some time in their lives.

Who are the cooperators in this project?

The Nature Conservancy, Bureau of Land Management, U.S. Fish and Wildlife Service, U.S. Forest Service, Bureau of Reclamation, Arizona Game and Fish Department, Arizona State Lands Department, and Arizona State University.