

**scientific name****common name****Meda fulgida****spikedace****Bison code 010465**

---

**Official status**

---

**Federal (USDI): threatened****Endemism****State AZ: threatened****State NM: threatened****Gila River Basin, AZ/MN**

---

**Status/Threats**

The spikedace was formerly widespread and locally abundant in the Gila River Basin above its confluence with the Aqua Fria River but is now reduced to three drainages in Arizona and the headwaters of the Gila River in New Mexico. Nonnative fishes, especially red shiner have been implicated as a rationale for the species marked decline historically, however, other than cursory data no studies have demonstrated a direct causal, negative effect. Habitat displacement has been suggested by red shiner has been suggested. Other larger predator species, principally smallmouth bass appear to be a major reason for population reduction in the upper Verde River.

**Distribution**

Although spikedace was once widespread in the Gila River basin, it has become remarkably reduced in range and now occurs in only the upper Verde River, Aravaipa Creek, and Eagle Creek in Arizona. In New Mexico, it has been extirpated from the San Francisco River, the last specimens being collected in the 1950s. It occurs irregularly in the Gila River headwaters in New Mexico, but is common in the extreme headwaters to very abundant in the Gila-Cliff Valley. In the upper Verde River, the species has been irregularly abundant temporally and spatially, but is currently (1999) rare to absent in this 60 km reach of river.

**Habitat**

The species is commonly associated with sand and gravel-bottom substrates of moderate depth (20 to 50 cm, in low gradient riffles and run (0.3-0.5 % gradient) habitats. The species is pelagic and frequents shear zones and eddying currents created by stream braiding and canyon walls.

**Life history and ecology**

The spikedace is a small (50-60 mm adult size) pelagic cyprinid species that inhabits riffle and run habitats. The species feeds principally on mayflies, but mayflies and caddisflies are components of diet. Spikedace will also consume adult aquatic and terrestrial insects at the surface similar to spinedace and trouts. The species grows to a mean size of 30-40 mm their first year and are 50

mm in size by age 1. The species grows very little to not at all in winter. Young-of-year spikédace may drift downstream more than 50 miles to populate additional habitats. Adults appear to be highly mobile and appear to vacate and/or reoccupy habitats in very short time periods (2 weeks to a month).

## **Breeding**

Spikédace reproduce in early spring (February-March) at lower elevation (1,000 m) streams such as Aravaipa Creek to early summer (April-June) at upper elevation sites in the Gila River headwaters in New Mexico. Timing varies with water temperature and flow regime. Spawning takes place in moderate velocity (25-50 cm/sec) riffles over gravel-pebble substrates. Demersal eggs are broadcast spawn and drop to and develop on the substrate. Females may contain from 50-100 eggs. Incubation period is not known, but is probably between 4-7 days and young emerge at 5-7 mm in size.

**Key habitat components:** moderate velocity current, eddies and shear zones, sand gravel substrate

**Breeding season** Variable, February-March at lower (< 1000 m) elevations to April to June at upper (> 1500 m)

## **Grazing effects**

No specific studies on the effects of grazing are available in the Southwest. Excessive sediments fines could affect both reproductive successive and food supply. On the upper Verde River, spikédace declined dramatically and numbers remain low during grazing removal. Habitat change in form of increased instream and streambank vegetation appears to parallel dramatic increase in smallmouth bass which potentially, and directly could affect spikédace populations.

## **Selected references**

**Minckley, W. L. 1973. Fishes of Arizona. Arizona Game and Fish Department. Phoenix, Arizona. 293 pp.**

**Neary, A. P., J. N. Rinne, and D. G. Neary. 1996. Physical habitat use by spikédace in the upper Verde River, Arizona. Hydrol. and Water Resources in Arizona and the Southwest 26: 23-28.**

**Propst, D. L. 1999. Threatened and endangered fishes of New Mexico. New Mexico Game and Fish Technical Report 1. Santa Fe, New Mexico. 84 pp.**

**Propst, D. L., K. R. Bestgen, and C. W. Painter. 1986. Distribution, status, biology and conservation of spikédace (*Meda fulgida*) in New Mexico. *Endangered Species Rep.* 15: 1-92. U. S. Fish Wildlife Service. Albuquerque, New Mexico.**

Rinne, J. N. 1991. Physical habitat use by spikedace, Meda fulgida in southwestern desert streams with probable habitat competition by red shiner, Notropis lutrensis (Pisces: Cyprinidae). Southwest. Nat. 36(1):7-13.

Rinne, J. N. 1992. Physical habitat utilization of fish in a Sonoran Desert stream, Arizona, southwestern United States. Ecol. Freshwater Fishes 1: 1-8.

Rinne, J. N. 1999. The status of spikedace, Meda fulgida, in the Verde River, 1999. Implications for research and management. Hydrology and Water Resources in the Southwest 29.

Rinne, J. N. , P. Boucher, D. Miller, A. Telles, J. Montzingo, R. Pope, B. Deason, C. Gatton, and B. Merhage. 1999. Comparative fish community structure in two southwestern desert rivers. In, S. Leon, P. Stine, and C. Springer (eds) Restoring native fish to the lower Colorado River: Interactions of native and non-native fishes: A symposium and Workshop.