

Summary

ADEQ received an Outstanding Arizona Water (OAW) nomination packet for the upper Verde River and Sycamore Creek from Sierra Club on November 22, 2023. Review of the nomination submitted by Sierra Club has determined that the nominated section of the Verde River outlined below does currently meet the criteria of R18-11-112(D). The factors that the “Director shall consider” (outlined in R18-11-112(F)) in the decision to propose the upper Verde River and Sycamore Creek as OAWs include:

- The social and economic impact of applying Tier 3 antidegradation protection
- Responses from the land managers
- Federal Wild and Scenic River (WSR) Designation
- Public comments received in support or opposition

Location

The closest towns are Paulden, upstream of the Granite Creek confluence, and Clarkdale, downstream of the Sycamore Creek confluence. The nominated reach of the Verde River starts at the Granite Creek confluence and extends to the Sycamore Creek confluence. The nominated reach of Sycamore Creek starts at the Cedar Creek confluence and continues downstream to the terminus at the Verde River. This nomination covers 35.93 miles of the upper Verde River and 11.71 miles of Sycamore Creek. Please see Figure 1 below (ADEQ, 2024a).

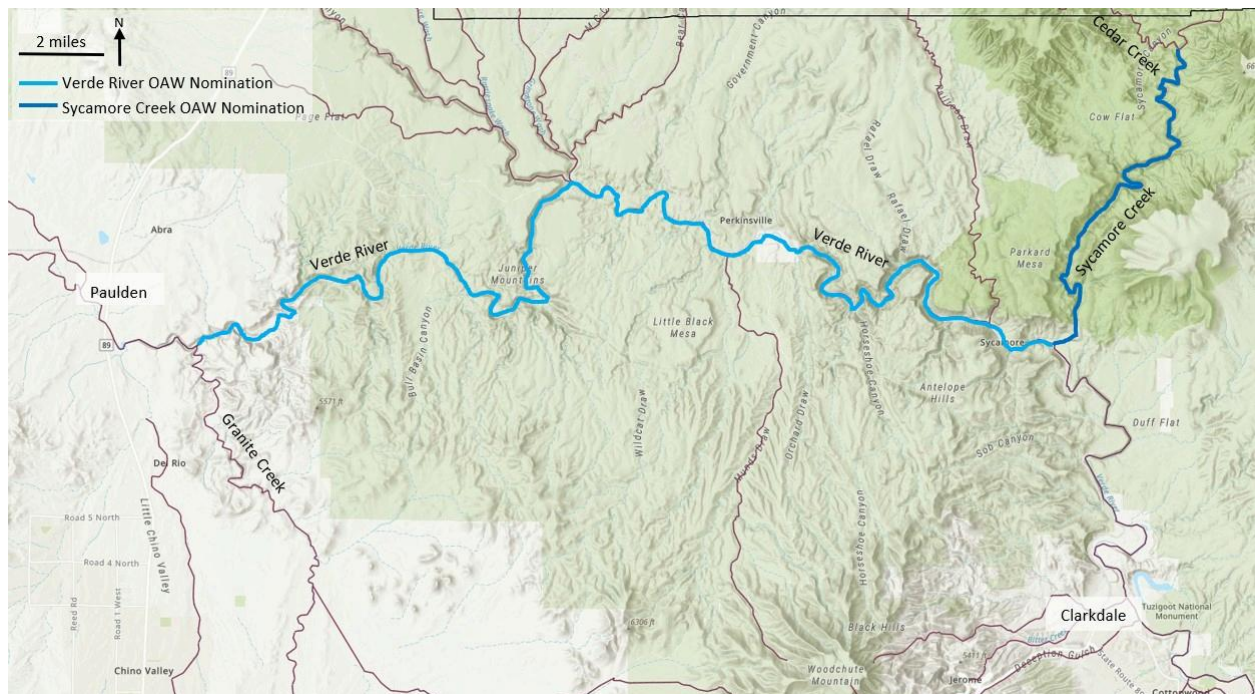


Figure 1. Map of the nominated sections of the Verde River (light blue) and Sycamore Creek (dark blue).

Water Quality (R18-11-112 D.3.)

All of the nominated reaches are “attaining” for all parameters in the 2024 Clean Water Act assessment approved by EPA and available for view at <https://azdeq.gov/SW-monitoring-n-assessment> (ADEQ, 2024b).

Flow Regime (R18-11-112 D.1.)

The Flow Regime is currently listed as perennial for the nominated reaches of the Verde River and as intermittent for the nominated reach of Sycamore Creek (ADEQ, 2024a). All nominated reaches have been verified as perennial or intermittent by ADEQ.

Land Ownership (R18-11-112 F.1. and F.6.)

The watershed of the nominated sections is primarily located within Prescott National Forest (PNF), Sycamore Canyon Wilderness (Coconino National Forest), and Arizona State Trust Land. There are small parcels of privately owned land on the nominated reaches, the largest is near Perkinsville (ADEQ, 2024a).

Cultural

PNF has documentation on 54 prehistoric and historic cultural sites along the upper Verde River. PNF stated that most sites are eligible for the National Register of Historic Places but have been impacted by vandalism or OHV use (USFS, 2024c).

Recreation (R18-11-112 D.4.a.)

Hiking trailheads in the area include; Parsons Trail, Packard Mesa, Railroad Draw Trail, and Lower Sullivan Canyon Trail. Sycamore Creek is commonly accessed for swimming via Parsons Trail. There are no established campgrounds along or near nominated waters. There is vehicle access along the Verde River via forest roads (USFS, 2024a, USFS, 2024b). It is possible to paddle the Verde River via kayak and pack rafts but the nominated reaches are not a commonly used route. The Arizona Game and Fish Department (AZGFD) stocks Roundtail chub in this area (AZGFD, 2014, USGS, 2022). A passenger train called the “Verde Canyon Railway” takes tourists along the Verde River at least once daily leaving from Clarkdale.

Ecology (R18-11-112 D.4.a.)

The upper Verde River watershed is a riparian corridor and one of the few remaining perennial, free-flowing rivers in Arizona for most of its length. The local climate and absence of dams allow for natural flash floods on the nominated reaches. The native aquatic species known within the nominated reaches include Spikedace, Roundtail Chub, Sonora Sucker, Desert Sucker, Longfin Dace, Speckled Dace, Pikeminnow (experimental population), Mexican garter snake, Narrow-headed garter snake, Arizona toad, Northern Leopard Frog, Sonoran Desert Toad, and Lowland Leopard Frog (AZGFD, 2024). The nomination listed 35 “struggling” species, including Threatened & Endangered, USFS-sensitive species, and AZGFD-concerned species.

Threatened & Endangered Species (T&E) (R18-11-112 D.4.b.)

The U.S. Fish and Wildlife Service (USFWS) has designated the upper Verde River as critical habitat for the following threatened and endangered species: Spikedace, Loach Minnow, Yellow-billed Cuckoo, Razorback Sucker, and Narrow-headed Gartersnake (USFWS, 2024a, USFWS, 2024b). USFWS has also designated portions of Sycamore Creek as critical habitat for the threatened Yellow-billed Cuckoo (USFWS, 2024a, USFWS, 2024b). NatureServe Explorer also identified the following threatened and endangered species as documented in the area: Gila Chub, Southwestern Willow Flycatcher, Mexican Spotted Owl, and Northern Mexican Gartersnake (NatureServe, 2024).

Economic Impact (R18-11-112 F.2.)

There are no known proposed or in-progress mining operations or other industrial activity that would be impacted by this nomination. ADEQ has reviewed the reaches and found there are no new or pending surface water permits that propose to discharge into these reaches and there are no existing discharge permits.

Free-Flowing Condition (R18-11-112 D.2.)

The nominated reaches are in a free-flowing state and there are currently no dams or major impoundments on the nominated reaches, nor have the channel or banks in this area been subject to significant structural modifications.

The Bureau of Reclamation (BOR) is considering constructing fish barriers that would protect federally listed threatened and endangered native fish species from non-native fish species. If actualized, this project would need to meet the temporary impact to water quality exemptions in R18-11-107.01 C.4. and likely require BOR to obtain a Section 401 Water Quality Certification from ADEQ.

Responses from land managers (R18-11-112 F.5.)

a. Bureau of Reclamation

“Reclamation is proposing the construction of two fish barriers to protect and restore native fish populations in the upper Verde River. The upper Verde River is one of the last major rivers in Arizona with the potential to restore habitat for federally listed spinedace and loach minnow. Reclamation supports the protection of the upper Verde River; however, our primary concern with the OAW nomination is if the potential classification would preclude Reclamation from pursuing the construction of fish barriers in the upper Verde River (if the upper Verde River is classified as an OAW prior to construction). This concern is brought about due to AAC R18-11-112 Section D which states that the Director may classify a surface water as an OAW based upon the following criteria “2. The surface water is in a free-flowing condition. For purposes of this subsection, ‘in a free-flowing condition’ means that a surface water does not have an impoundment, diversion, channelization, rip-rapping or other bank armor, or another hydrological modification within the reach nominated for an OAW classification.

As of note, Reclamation currently has fish barriers located within the OAW boundaries of Bonita Creek and Fossil Creek, as well as downstream of the OAW boundary in Aravaipa Creek.”

Prescott National Forest Appendix A.

References

ADEQ, 2023, Weight of Evidence Approach to Assign Flow Regimes to Arizona Stream Reaches. Available upon request via ADEQ Records Center <https://azdeq.gov/records-center>

ADEQ, 2024a, ADEQ Online GIS Webmap. Arizona Department of Environmental Quality. Phoenix, AZ. <https://azdeq.gov/emaps>

ADEQ, 2024b, Arizona's 2024 Clean Water Act Assessment (July 1, 2017 to June 30, 2022), Integrated 305(b) Assessment and 303(d) Listing Report. Arizona Department of Environmental Quality. Phoenix, AZ. <https://azdeq.gov/SW-monitoring-n-assessment>, Accessed 2024

AZGFD, 2014, Verde River Watershed Management Plan, Arizona Game and Fish, <https://www.azgfd.com/fishing-2/hatcheries-fisheries-management/fisheries-management/>, Accessed 2024

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NatureServe, 2024, NatureServe Explorer Pro. <https://explorer.natureserve.org/pro/Map>

USFWS. 2024a. Critical Habitat for Threatened & Endangered Species. U.S. Fish and Wildlife Service. Washington, D.C., <https://fws.maps.arcgis.com/home/index.html>

USFWS, 2024b, ECOS Environmental Conservation Online System. U.S. Fish and Wildlife Service. Washington, D.C., <https://ecos.fws.gov/ecp/report/critical-habitat>

USFS, 2024a, Coconino National Forest – Verde River. U.S. Forest Service. Washington, D.C. <https://www.fs.usda.gov/r03/coconino/recreation/groups/verde-river>

USFS, 2024b, Prescott National Forest – Verde Ranger District. U.S. Forest Service. Washington, D.C. <https://www.fs.usda.gov/r03/prescott/recreation/verde-ranger-district-0>

USFS, 2024c, Prescott National Forest – Discover History. U.S. Forest Service. Washington, D.C. <https://www.fs.usda.gov/r03/prescott/recreation/discover-history>

USGS, 2022, Comparison of electrofishing and PIT antennas for detection of hatchery-reared Roundtail Chub (*Gila robusta*) stocked into a desert stream, Arizona-Nevada Academy of Sciences, DOI: 10.2181/036.049.0209

Appendix A- Response from Prescott National Forest

Prescott National Forest Response to Outstanding Arizona Waters Nomination – Upper Verde River March 11, 2024

This response addresses the criteria used for classification of an Outstanding Arizona Water and provides comments to the nomination in relation to the proposed fish barrier installations and native fish restoration in the upper Verde River. These fish barriers would affect the free flow conditions of the upper Verde River at the site locations. In addition, the reduction/removal on non-native fish species using piscicides would have short-term effects on water quality. Both actions are needed to accomplish the recovery of the upper Verde River for listed aquatic species.

/s/ Albert Sillas
Fishery Biologist
Prescott National Forest

Title 18. Environmental Quality Chapter 11. Department of Environmental Quality - Water Quality Standards

R18-11-112. Outstanding Arizona Waters

D. The Director may classify a surface water as an OAW based upon the following criteria:

1. The surface water is a perennial or intermittent water;

The Verde River is a perennial water through the suitable Wild & Scenic River length of 38.2 miles.

2. The surface water is in a free-flowing condition. For purposes of this subsection, “in a free-flowing condition” means that a surface water does not have an impoundment, diversion, channelization, rip-rapping or other bank armor, or another hydrological modification within the reach nominated for an OAW classification;

The Perkinsville diversion ditch is located within the Verde River Wild & Scenic suitable length. The diversion starts on Prescott NF forestlands and extends about 0.75 miles before entering private lands at Perkinsville for irrigated pasture use. The amount of diverted water is unknown and return flows to the Verde River occur at the downstream end of private lands.

The proposal for the construction of two fish barriers in the upper Verde River is in progress for the NEPA Environmental Assessment process. The following description of barrier sites and potential effects to free-flowing conditions of the Verde River from the barriers is taken from the Upper Verde River, W&S Suitability Study and EA Free Flow Analysis (2022).

The first proposed barrier location, Site 1 (Hell Point), would be located 0.4 miles upstream of the confluence with Hell Canyon. The second site, Site 2, would be located about 3,700 feet upstream of the Verde River’s confluence with Sycamore Creek. Pg. 4-3, 4-4.

Both barriers would be up to 30 feet wide (measured upstream to downstream), including the dam, splash apron, and downstream revetment (sloping structures placed on banks or cliffs in such a way as to absorb the energy of incoming water). Both concrete dams would have a 4-foot drop height. Pg. 4-4.

The 4-foot-high barrier at each site would initially impound water and flow in the channel would be reduced by the creation of a pooled area upstream of the barriers. Effects would be most noticeable during low-flow conditions. Sediment deposition upstream of the barriers would eventually fill the pooled area and reduce the channel slope an unknown distance upstream of the barrier. A flatter channel slope would also slow the velocity of streamflows. The barrier would not change the amount of flow in the channel after infill and settling.

The free-flowing character would be permanently modified due to the presence of the barriers, which would cause changes to the channel, floodplain, and upland conditions and the hydrological and biological processes. Pg. 4-17.

Based on the definition of “free flow” in the WSR Act, the proposed fish barrier would affect the free-flow character because it would modify the waterway. Reclamation would design the barriers to maintain the free-flowing characteristics of the Upper Verde River to the extent practicable. Pg. 4-17.

Neither the volume nor timing of flood flows would be affected by the proposed fish barriers.

3. The surface water has good water quality. For purposes of this subsection, “good water quality” means that the surface water has water quality that meets or is better than applicable surface water quality standards. A surface water that is listed as impaired under R18-11-604(E) is ineligible for OAW classification; and

There would be short-term impacts to water quality associated with barrier construction. In the long term, the barriers would not be expected to impact water quality. Best management practices (for example, diverting the streamflow around the barrier site) and requirements under the permits employed during the construction of the barrier would minimize short-term turbidity increases in the stream. Once construction is completed, the fish barriers would not be expected to have effects on the river’s water quality.

4. The surface water meets one or both of the following conditions:

a. The surface water is of exceptional recreational or ecological significance because of its unique attributes, such as the geology, flora and fauna, water quality, aesthetic value, or the wilderness characteristic of the surface water;

The Upper Verde River retains a native population of the following fish species: roundtail chub (*Gila robusta*; USFS Southwestern Region sensitive species [SS]), Sonora sucker (*Catostomus insignis*; SS), desert sucker (*Catostomus clarkii*; SS), longfin dace (*Agosia chrysogaster*; not SS or Endangered Species Act [ESA]-listed), and speckled dace (*Rhinichthys osculus*; not SS or ESA-listed). The proposal for fish barriers and restoration of the native fish community of the Verde River would include repatriation of spikedace (*Meda fulgida*, endangered), loach minnow (*Tiaroga cobitis*, endangered), Gila topminnow (*Poeciliopsis occidentalis*, endangered), and razorback sucker (*Xyrauchen texanus*, endangered). Pg. 4-2.

b. An endangered or threatened species is associated with the surface water and the existing water quality is essential to the species' maintenance and propagation or the surface water provides critical habitat for the threatened or endangered species. An endangered or threatened species is identified in “Endangered and Threatened Wildlife,” 50 CFR 17.11 (revised 2005), and “Endangered and Threatened Plants,” 50 CFR 17.12 (revised 2005).

The Upper Verde River is a high-value stream for conservation of several aquatic and semiaquatic species. Aquatic species known to exist within the Upper Verde River corridor include the narrow-headed gartersnake (*Thamnophis rufipunctatus*; threatened). The northern Mexican gartersnake (*Thamnophis*

equus megalops; threatened) may potentially occur. Spikedace, a federally endangered species, has become rare in the Upper Verde River in recent years; it was last observed in 1999. Therefore, this species is presumed to be no longer present in the Upper Verde River. Present populations of loach minnow, also a federally endangered species, are geographically isolated and inhabit the upstream ends of their historical range outside the Verde River. One other federally endangered species, the razorback sucker, historically occupied the Verde River; however, it is no longer present in the project area.

The U.S. Fish and Wildlife Service (USFWS) has designated critical habitat in the Verde River for the spikedace (*Meda fulgida*), loach minnow (*Tiaroga cobitis*), razorback sucker (*Xyrauchen texanus*), and narrow-headed gartersnake.

Native aquatic species restoration in the Upper Verde River has been identified in various agency planning documents. The Bureau of Reclamation and the USFWS identified the Upper Verde River as a potential reach for a barrier in the 2008 biological opinion on impacts of Central Arizona Project (CAP) water transfers to the Gila River Basin and its potential to spread nonnative aquatic species (USFWS 2008). The highest-value streams under Reclamation's fish barrier construction program are those that can be secured to prevent extinction and to stabilize rare stocks of native fish, or that can be protected and renovated to replicate rare stocks of native fish.

The land and resource management plan for the Prescott National Forest (Forest Plan) identified the need to provide desired habitat for native fish species. This includes partnering with the State of Arizona to address control of nonnative species. The Arizona Game and Fish Department (AZGFD) has identified the Upper Verde River for native fish management with an emphasis on native sport fishing in its Verde River Watershed Fisheries Management Plan (AZGFD 2014).

Protection of an eligible river's free-flowing character and ORVs is provided through USFS policy, specifically FSH 1909.12, 82.5. The proposed fish barrier project is needed to protect and enhance the fisheries' ORV identified for the Upper Verde River (USFS 2010).

References

AZGFD (Arizona Game and Fish Department). 2014. Upper Verde River Wildlife Area. Internet website: <http://arcgis.azgfdportal.com/verdewatershed/onepageunitdesc/VerdeRiverHellCanyonToTAPCO.pdf> (accessed December 27, 2021).

Reclamation (U.S. Department of the Interior, Bureau of Reclamation). 2010. Appraisal-Level Investigation Summary of Findings, Verde River Fish Barrier, Central Arizona Project. Phoenix Area Office, Phoenix, Arizona.

USFS (United States Forest Service). 2010. Upper Verde River Eligibility Report Update for the National Wild and Scenic River System. Prescott National Forest. Forest Service, Southwestern Region, Prescott, Arizona.

USFS (United States Forest Service). 2022. Upper Verde River Free Flow Analysis. Coconino and Prescott National Forests. Internet website: <https://www.fs.usda.gov/project/prescott/?project=61191>

USFWS (United States Fish and Wildlife Service). 2008. Reinitiated Biological Opinion on Transportation and Delivery of Central Arizona Project Water to the Gila River Basin in Arizona and New Mexico and its Potential to Introduce and Spread Nonindigenous Aquatic Species. Phoenix, Arizona.