



Arizona's Disappearing Rivers

by the CAP Public Lands Team February 2018

Note: On April 9, 2018, the authors added policy recommendations to this fact sheet.

Rivers are the lifeblood of Arizona. They irrigate crops, provide clean drinking water, serve as habitat for fish and wildlife, and fuel a \$21.2 billion¹ outdoor recreation economy in the state.

But rivers are under immense pressure. As documented in the Disappearing Rivers analysis—the first comprehensive snapshot of the state of Western rivers—climate change, dams, development, and an ever-changing landscape are placing increasingly more stress on the waterways that are so inextricably tied to the health of Western communities and economies.

Across the West, nearly half of all rivers—49 percent—are modified from their natural state. That's more than 140,000 unnatural river miles, or enough to circle the earth nearly six times.

In Arizona, 63 percent of all rivers are altered.

That's equal to 2,706 unnatural river miles—enough to cross the state more than eight times.

Of the 11 Western states in the Disappearing Rivers analysis, Arizona had the fourth most altered rivers in the West. When broken down by size, 96 percent of all major rivers, 56 percent of all smaller streams and rivers, and 32 percent of all headwaters are altered.

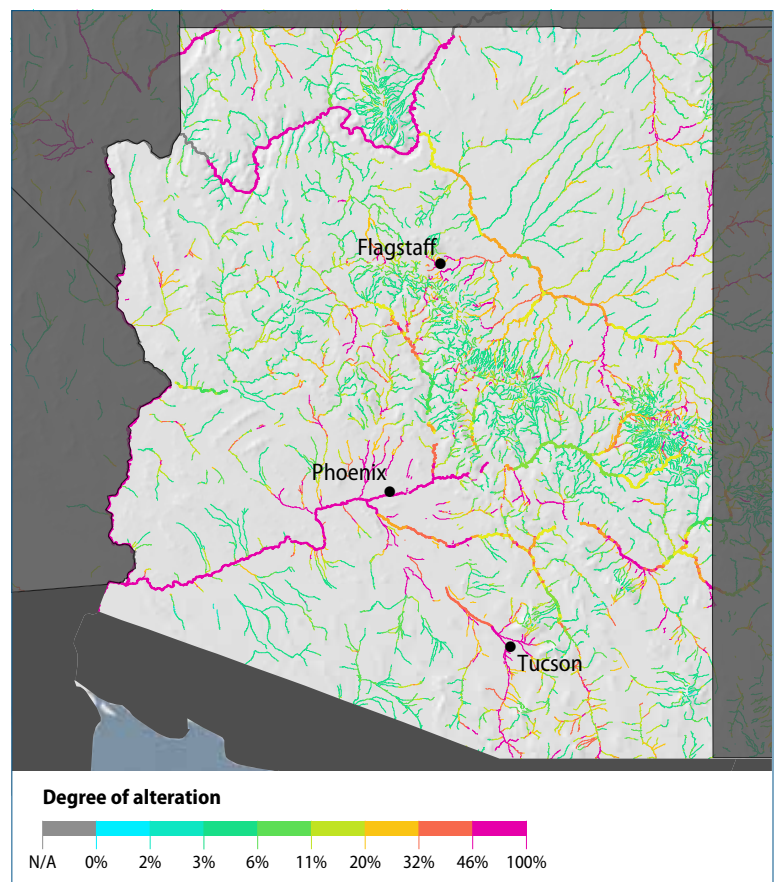


FIGURE 1
Unnatural rivers in Arizona

Modification by flow restriction and floodplain alteration

Share of headwaters that have been modified	Share of smaller rivers and streams that have been modified	Share of major rivers that have been modified	Share of all rivers that have been modified
31.6%	56.4%	95.6%	62.7%

Source: Dylan Harrison-Atlas and others, "Description of the approach, data, and analytical methods used to evaluate river systems in the western U.S." (Truckee, CA: Conservation Science Partners, 2017), available at <https://disappearingwest.org/rivers/methodology.pdf>.

In Arizona, three of the most-altered, major rivers are the Colorado River, the Virgin River, and the Gila River, at 67 percent, 56 percent, and 48 percent, respectively.

River degradation is being driven both by development within waterways and in the surrounding floodplains. In Arizona, 48 percent of rivers no longer flow freely due to obstructions and development within rivers—most notably the 373 major dams in the state. Thirty-three percent of rivers flow through lands that are significantly developed and altered by human activity.

Rivers also play an important role in Western economies. The Disappearing Rivers analysis found that watersheds in the West with the highest concentration of rivers drive 717 percent more outdoor recreation spending than those with the fewest rivers. In Arizona, there is 578 percent more outdoor recreation spending in watersheds with the highest concentration of rivers, fueling an impressive portion of the state's \$21.2 billion² outdoor recreation economy.

Despite the degraded state of rivers in Arizona and across the West, policies that promote conservation and protect public lands can have an enormous effect on water. The Disappearing Rivers analysis found that rivers that flow through protected lands are on average 50 percent more natural than rivers that flow through unprotected areas.

Recommendations

There are several actions that policymakers could take to conserve remaining natural rivers; restore damaged rivers; and protect the economic and ecological health of the state.

1. **Protect what's left of the large, natural rivers in Arizona.** Through the Wild and Scenic Rivers Act and other tools that protect both land and water, the state should set an ambitious goal to prioritize protections for its 38 miles of major rivers that are natural and currently unprotected. The Arizona Legislature should establish a state river protection system to help accomplish this goal.
2. **Conserve and restore Arizona's headwaters.** The state should expand its partnerships with federal land agencies, cities, and drinking water utilities to direct more consistent funding to projects that protect and restore forest headwater resources.
3. **Rethink Arizona's river infrastructure.** The state must re-evaluate dams and flood-control infrastructure by modernizing necessary functions and restoring natural processes where existing built infrastructure is no longer a net benefit.
4. **Collaborate with private landowners in Arizona.** The state must continue to prepare proactively for water scarcity, through planning with cities and utilities to reduce demand and through innovative solutions such as short-term, voluntary agreements used to protect streamflows in the Verde River basin.³

To explore the data, sources, interactive map, and the full project, visit DisappearingWest.org/rivers.

Endnotes

1 Outdoor Industry Association, "Arizona Outdoor Recreation Economy Report," available at <https://outdoorindustry.org/resource/arizona-outdoor-recreation-economy-report/> (last accessed November 2017).

2 Ibid.

3 Friends of the Verde River, "About the Verde River Exchange," available at <https://verderiver.org/verde-river-exchange/about-the-verde-river-exchange/> (last accessed March 2018).