

# Critical Mass

TRUTH AND CONSEQUENCES ALONG ARIZONA'S VERDE RIVER.  
BY DAN DAGGET

**D**o you recognize this story? Once upon a time, some obscure plant or animal was designated as "endangered." Ranching was saddled with the blame, and cattle were banned from a zillion acres where said species may or may not live. Then, in spite of having its habitat cleansed of the alleged cause of all its problems, the threatened thingamajig's

numbers continued to drop, and before you can say, "I told you so," it had disappeared altogether from its now cattle-free environment. Cattle were roundly condemned as the obvious cause of this tragedy, never mind that the rare whachamacallits lived in perfect harmony with bovines for a hundred years and only went kaput after the cows were removed.



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**ABOVE:** Al Medina takes a break from monitoring the Verde River at a place he has dubbed "The Little Slice of Heaven." This grassy meadow is sustained by intensive grazing and selective tree removal by the Almida Cattle Company. **INSET, BELOW:** Photo of a Verde River meadow in 1968 when year-round grazing kept the Verde's meadows mostly free of trees. **BELOW:** Same location in 2007. As much as eight feet of material has been eroded from the meadow due to the interruption of natural sediment flow by upstream dams and the destruction of the meadow by tree invasion.

INSET COURTESY USDA ROCKY MOUNTAIN RESEARCH STATION



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And if anyone points out the inconsistency in this line of thinking, they are summarily dismissed as hopeless toadies of the worldwide meat conspiracy.

Everybody knows at least one of these tales, and quite a few of us know several. Here's another to add to your collection. Maybe someday the total of these stories will reach critical mass and enough people will become outraged to actually do something about the injustice these stories expose.

This particular saga involves the upper reaches of the Verde River in central Arizona. The Verde flows from just north of Prescott to just east of Scottsdale. For some time, it has been home to one of the healthiest populations of native fish in the American Southwest. In fact, as recently as 1994, 80 percent of the fish in the Verde were natives. Some of them were listed under the Endangered Species Act as "threatened." All were considered rare.

In 1997, two environmental groups filed suit against the Forest Service to remove livestock grazing from along 898 miles of rivers and streams in the Southwest (including the Verde). Grazing was seen to be a threat to a number of threatened or endangered species, one of which was a native three-inch minnow named the spikedace. While the case was being argued in court, however, the Forest Service agreed out of court to the environmentalists' demands. Because that agreement was entered into without the knowledge or agreement of the Arizona Cattle Growers' Association and the New Mexico Cattle Growers' Association, which were intervenors in the case, that agreement was never ratified by the court. In spite of that, it is treated as if it had been.

The year 1997 was important to the spikedace for another reason. It was the first year that none of these items of maximum environmental concern turned up in the annual fish count on the Verde River. The reason? According to a recognized authority on Southwest native fishes, John Rinne (at the time, a wildlife biologist for the Rocky Mountain Research Station of the U.S.D.A.), the reason for the fish's disappearance was that the river had been transformed in such a way as to become more hospitable to nonnative predatory fish (smallmouth bass and flathead catfish) than to its natives, and the predators simply were eating all the natives.

How does a river become more hospitable

to fish that are foreign to it than to those that evolved in it? According to Rinne, the in-stream channel of the Verde had narrowed and deepened, creating pool-type habitats which were “better suited for the larger, non-native predatory species.” The reason for this transformation, Rinne stated in a 2006 paper, is “channel confinement by vegetation has resulted from removal of livestock grazing in 1997 and a lack of significant flooding since 1995.”

Al Medina, another scientist for the Rocky Mountain Research Station, has documented changes in the vegetation and river channel since 1996 and examined historical records (photos, first-person accounts) for evidence of other factors. Medina blames several dams in the Verde’s upper stretches as additional causes of its native fish’s problems. He says these dams have interrupted the flow of bed-load material (sediment) down the river. Robbed of replacement material, the river has begun eroding away the gravelly riffles and shallows on which the natives depend, leaving in their places rocky wastelands separating deep pools full of hungry predators.

This transformation started in 1938 when the largest and most disruptive dam, Sullivan Dam, was built where Big Chino Wash and Williamson Creek come together to form the Verde. Even though that dam filled to the brim with sediment by 1942, the native fish populations in the Verde remained relatively healthy until the mid-1990s. Medina explains that this happened because, even after the river was robbed of replacement materials, one natural feature continued to resist the erosive restructuring of the channel. That feature was the wet meadows or sedge meadows, which were once common along the 170-mile course of the small desert river.

These emerald-green meadows are populated by dense sods of sedges, grasses, and rushes. When the river floods, the flexible leaves of these plants bend with the flow to form a thatchlike cover, not unlike a thatched roof that sheds the erosive force of the water. At the same time, the thickly matted roots of these sod-forming plants hold the soils of the riverbed in place while floodwaters pass over them relatively harmlessly. Protected by these sedge meadows, much of the Verde resisted the erosive restructuring caused by the dams that made the river an unfriendly habitat to its own natives.

These meadows continued to perform their stabilizing function until recently when Medina’s research shows their rate of deterior-

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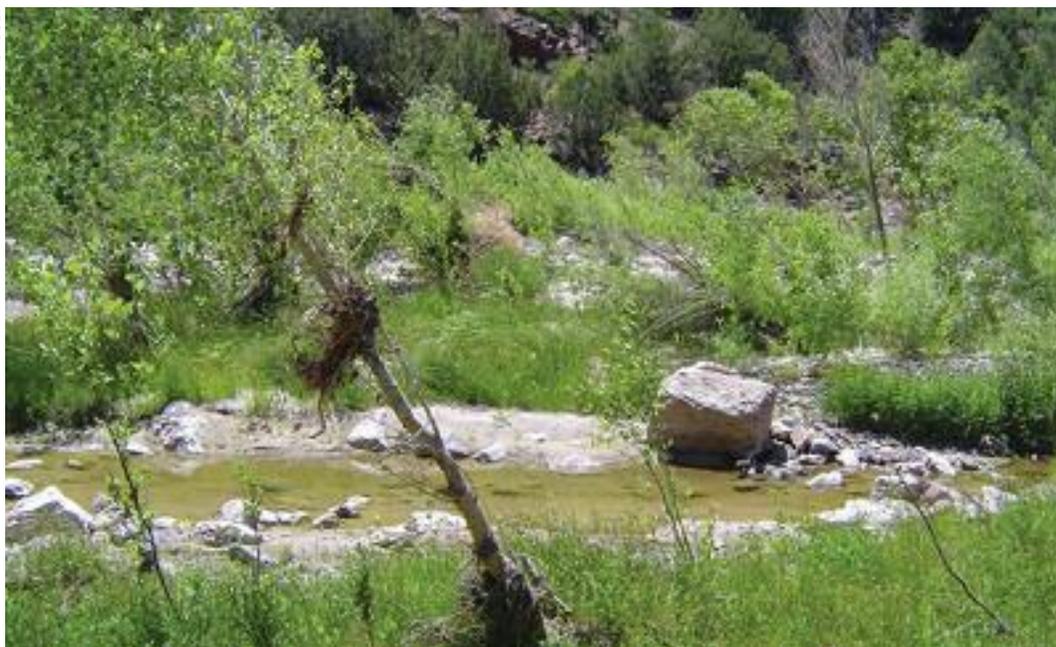
**ABOVE: Riders in a healthy Verde River meadow that has remained relatively free of trees. BELOW: When a tree invades a meadow, flood waters swirl around it creating sufficient disturbance to penetrate the sod and expose the underlying soil to erosion. Rare fish die.**

ation began to accelerate. Medina says this acceleration has coincided with two events. First, there has been a progressive reduction of cattle grazing on public lands along the river by the U.S. Forest Service. And, second, the meadows, which have retained their

discontinued, cattle grazing was the sole force sustaining one of the most significant native fish populations in the American Southwest.

Medina explains that cattle help in two ways. First, if the animals’ densities are high enough and if they graze one place long

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open, grassy character for centuries, have begun to be invaded by trees. Medina has identified a cause-and-effect relationship between these two events that has led him to the rather startling conclusion: Until it was

enough, they eat any young trees that have sprouted along with the grasses and sedges. In fact, the claim that cattle keep trees out of riparian areas has long been one of the reasons environmentalists have called for the



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ting down of the floods. To make his point with a positive as well as a negative case, Medina likes to take inquirers to a place he calls “a little slice of heaven.” This is a private riverside pasture that has continued to be grazed heavily at the same time the Forest Service has reduced grazing on the public lands that stretch up- and downstream from it. In addition to grazing this land in ways some would consider too heavy, the owners of this pasture have taken Medina’s advice, at least to a degree, and removed some of the few trees that have managed to

**ABOVE:** Rancher Ruben Verner rides through what used to be a meadow, destroyed by tree invasion and subsequent erosion. Even the horse is amazed. **BELOW:** The Little Slice of Heaven still successfully resists erosion in the fall of 2007.

removal of grazing from all streamside habitat in the West. I know that because, as a member of the Sierra Club during the 1980s, I helped make that case when I campaigned to get the Verde designated a “wild and scenic river.”

Also, according to Medina, as cattle

graze they contribute to the health of the grasses and sedges that make up the meadows in ways that have been chronicled by numerous studies and articles, many featured on the pages of RANGE. Thus invigorated, the meadows are better able to resist the invasion of the trees as well as the cut-

invade. The result supports Medina’s argument. The Little Slice of Heaven has remained stable while other meadows up and down the river exhibit signs of remediless deterioration.

So, there you have it. For those who doubt that removing grazing from a Southwest river could spell doom for a native fish, the Verde presents not only a clear-cut example but also a freeze-frame series of illustrations showing the mechanism by which that has happened. And that’s not all the Verde presents. It also presents clear evidence that environmental groups are “taking” members of endangered species by their actions (in this case by removing grazing from lands along the Verde), which is illegal. They are doing it without so much as an “oops” or an “excuse me” and without being held accountable by the managers of that land, the U.S. Forest Service, or by environmental law including the Endangered Species Act and the National Environmental Policy Act.

This example alone may constitute the critical mass necessary to make environmentalists as accountable for the environmental damage they cause as they demand we hold all other land users. The question is, will anyone use it? Tune in next issue for an update. ■

Dan Dagget is the author of “The Gardeners of Eden; Rediscovering Our Importance to Nature” and “Beyond the Rangeland Conflict: Toward a West That Works.” He is available to make personal presentations of this and a paradigm-shifting list of other such examples. Contact him at [dandagget@aol.com](mailto:dandagget@aol.com).



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