

Traditional Ecological Knowledge on the Cosumnes River Preserve

Stevens, M.L. and E. Zaloza. 2015. [Fire, Floodplains and Fish: the Historic Ecology of the Lower Cosumnes River Watershed](#). Edited by Pei Lin Yu, *In Rivers, Fish and the People*. Tradition, Science and Historical Ecology of River Fisheries in the American West. University of Utah Press.

Several current themes in ethnobiology are touched on by Michelle L. Stevens and Emilie M. Zelazo, such as traditional ecological knowledge, traditional resource management, and fire ecology. They propose that fire management, by the Plains Miwok in the floodplains of the Cosumnes River in Central California, helped maintain the vegetation needed for making cultural materials such as baskets and fishing-related tools. Further, fire management would have rejuvenated soils while also keeping the floodplain clear of overgrowth that could block habitat connectivity for juvenile fishes. By analyzing the ichthyofaunal record at four archaeological sites, the authors argue that juvenile taxa and taxa that prefer slow water settings dominate the assemblages. Thus, intentional and somewhat large-scale habitat modification by prehistoric groups seems to be directly related to the over 1000 years of sustainable use of the Cosumnes River fishery.

Key Points:

1. Our hypothesis is that floodplain biodiversity and native fish productivity benefited from burning and other traditional management practices utilized by the Plains Miwok and other Native Californians for thousands of years. These practices may have enhanced floodplain rearing habitats, thereby increasing fish growth and reducing fish mortality.
2. Young fish of fast-water habitats (such as Chinook salmon) enter the floodplain as larvae or small juveniles; these juveniles usually enter the floodplain early in the flooding cycle (early spring) in order to take advantage of zooplankton and large insect larvae. Jeffres et al. (2008) found that Chinook salmon reared on Central Valley floodplains grew faster and achieved larger sizes than fish reared in the main river.
3. Juvenile species of slow-water fish (such as tule perch, Sacramento perch, thick tail chub and Sacramento blackfish) also have substantially faster growth and survival rates when they move to the floodplain late in the flood cycle as the water becomes warmer (Moyle et al. 2007).
4. Traditional management of *Carex barbarae* through fire and coppicing created a more open and parklike physiognomy in the riparian corridor.
5. Before European settlement, the Miwok and Maidu tribes practiced Traditional Resource Management through burning and other tending practices of culturally significant resources. Santa Barbara sedge (*Carex barbarae*) and creeping wild rye (*Elymus triticoides*) are native rhizomatous species that have adapted to frequent fires through long periods of traditional management with fire. Using these understory species for ecological restoration may increase fire resilience on the landscape. Restoring the native understory vegetation will promote accelerated succession of habitat for native flora and fauna, as well as controlling invasive species.

6. Material culture remains found in the archaeological collections indicate that nets and other materials required a tremendous amount of plant materials to construct. Large quantities of milkweed and hemp were used to construct fishnets and fish line. These plant species are no longer abundant, especially in the large quantities once used.
7. Access to sedge beds and other basketry materials, particularly those safe from pesticides, is a priority of the California Indian Basketweavers Association and other California Indian basket weavers.
8. A sense of place. A major benefit of restoration of ecological and cultural health is to provide re-connection to the earth, to other cultures, to ourselves, and to all living things.

In Ethnobiology Letters – Reviews. Dombrosky, J. March 1 2016. [Rivers, Fish and the People: Tradition, Science, and Historical Ecology of Fisheries in the American West](#). Edited by Pei-Lin Yu. 2015. The University of Utah Press, Salt Lake City.

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