



High Elevation Aquatic Ecosystem Recovery and Stewardship Plan

What are the high elevation aquatic ecosystems addressed in this plan and why is it important?

The high elevation aquatic ecosystems addressed in this plan include the lakes, ponds, marshes, and wet meadows found from approximately 5,500 feet (the upper end of the lower montane forest zone) up through the alpine zone. These high elevation aquatic ecosystems were chosen because they include the approximate range of two formerly abundant endemic amphibian species, the Sierra Nevada yellow-legged frog (*Rana sierrae*) and the Yosemite toad (*Bufo canorus*).

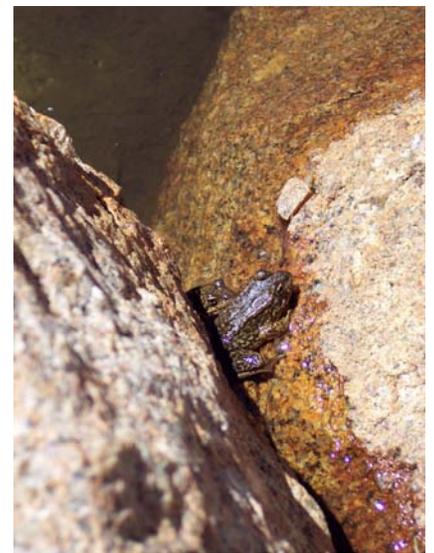


Sierra Nevada yellow-legged frog, once the most abundant amphibian in the Sierra Nevada, is now one of the most critically endangered amphibians in North America, having disappeared from more than 95% of their historic range. In their former abundance, the frogs were a vital link in energy and nutrient cycling in both the aquatic and neighboring terrestrial ecosystems—they were top predators feeding primarily on insects and they were an important prey for native birds, snakes, and mammals.

The Yosemite toad has also experienced a major population decline of at least 50% from its historic abundance. The toads are also important components of high elevation aquatic and neighboring terrestrial ecosystems. Like the frog, they play a key role in energy and nutrient cycling in these high elevation systems.

Why is a plan needed now?

- Two species of native amphibians (Sierra Nevada yellow-legged frog and the Yosemite toad) are experiencing serious population declines. Management action is needed to prevent additional loss and the potential extirpation or extinction of these species within the park.
- The presence of introduced non-native invasive aquatic species is adversely impacting the abundance and distribution of native species, resulting in unnatural species composition, and disrupted the structure and function of Yosemite's high elevation aquatic ecosystems. Management action is needed to reverse these impacts and to prevent future introductions of non-native species.
- Protection of the park's high elevation aquatic ecosystems requires a better understanding of the current status of these systems. Park staff need to evaluate and prioritize research needs and management actions that may be necessary to ensure that park resources and values within these systems are unimpaired.



Sierra Nevada yellow-legged frog

What action is Yosemite currently taking to manage high elevation aquatic ecosystems?

Yosemite National Park actively manages aquatic ecosystems. This includes ongoing water quality monitoring, habitat restoration, education and research. Current high elevation aquatic restoration projects and research include: experimental removal of non-native fish from four sites; reintroduction of Sierra Nevada yellow-legged frogs into already fishless lakes to study reestablishment success and determine why some populations are able to persist in the presence of amphibian chytrid fungus; a survey of over 3,000 lakes, ponds and marshes in Yosemite to determine the vertebrate and invertebrate species composition and to inform management decisions regarding long-term recovery and stewardship of these ecosystems; closure of a wet meadow with known breeding populations of Yosemite toads to packstock grazing to protect breeding habitat for the toad.

What would the High Elevation Aquatic Resources Management Plan address?

This plan provides a management framework for long-term recovery and stewardship of special status amphibian species and the ecosystem which they are a part of. This plan also provides guidance for managing aquatic non-native invasive species.

The plan will consider:

- Restoration of aquatic ecosystems and native biodiversity by removing non-native fish from select water bodies where it is feasible to use mechanical (gill nets and electro-fishing) tools. The use of chemicals is not being considered at this time.
- Yosemite would continue to offer high-quality recreational fishing opportunities in a wide variety of habitats.
- Reintroduction of Sierra Nevada yellow-legged frogs to locations within their historic range that are strategically important to the survival of this species.
- The development of Best Management Practices for recreational and administrative use of high-elevation aquatic ecosystems to ensure that park resources and values are unimpaired. This includes:
 - preventive measures to avoid the introduction or spread of non-native species or pathogens that may threaten native species or their habitats.
 - evaluation of human use within aquatic environments in order to ensure that human use does not result in loss of ecological function.
 - management of packstock camps and grazing in Yosemite toad habitat.

Public Participation

Public participation is essential for the success of this and all other park projects. Here are some ways to learn more about this plan and stay involved in the park:

- **Attend a monthly Yosemite National Park Open House** to talk with Park staff and obtain more information on this and other planning process:
 - Open House: generally the last Wednesday of each month in the Yosemite Valley Visitor Center Auditorium from 1:00-5:00pm
- **Add your name to the park's planning list** and receive the *Planning Update* or **submit your email address** to receive the park's periodic electronic newsletter online at www.nps.gov/yose/parkmgmt/updates.htm.
- **The public review period is anticipated Winter 2009/2010.** To request notification about the plans availability for review:
Mail: Superintendent
Attn: High Elevation Aquatic Resources Management Plan
P.O. Box 577
Yosemite, CA 95389
Phone: 209/379-1365; **Fax:** 209/379-1294
E-mail: Yose_Planning@nps.gov
- **Visit online:** www.nps.gov/yose/parkmgmt/aquatic.htm

Plan Timeline

Public scoping

Environmental Assessment anticipated for public comment

June 23 – July 25, 2008

Winter 2009/2010