



U. S. Fish & Wildlife Service

Nevada Fish and Wildlife Office

Conserving the biological diversity of the Great Basin, Eastern Sierra, and Mojave Desert

Frequently Asked Questions

Elongate Mud Meadow Springsnail CNOR

Q. What is the elongate Mud Meadow springsnail and where does it occur?

A. The elongate Mud Meadow springsnail (*Pyrgulopsis notidicola*) is a small species with a shell height less than 0.12 inches with fewer than five whorls which is a spiral of growth in the shell. The outer shell of the species is light to dark brown and is darkly pigmented internally. It is a member of the family Hydrobiidae, which consists of approximately 100 species of small freshwater gastropods found in the western United States.

This springsnail is endemic to Soldier Meadow, located in Nevada at the northern edge of the western arm of the Black Rock Desert. It occurs entirely on public land managed by the Bureau of Land Management (BLM) as part of the Black Rock Desert-High Rock Canyon-Emigrant Trails National Conservation Area (NCA).

The elongate Mud Meadow springsnail occurs in thermal aquatic habitats in four separate, unnamed spring systems. It occupies two types of habitat, one near the source of springs where temperatures are greater than 113 °F. In these high temperatures, the species is semi-aquatic and not submerged, and restricted to the splash zone on rocks and riparian grasses or wetted areas within 0.4 inch of the water. The other habitat occupied by this snail is downstream from spring sources; here the species becomes submerged, limiting itself to gravel substrate in riffles. This springsnail does not occupy sites with low current velocity or habitats with fine substrates.

Q. Why did the U. S. Fish and Wildlife Service (Service) originally determine protection of elongate Mud Meadow springsnail was warranted but precluded under the Endangered Species Act (ESA)?

A. In 2002, the Service elevated this springsnail to candidate status primarily because of concerns with the increased recreational use of Soldier Meadow, particularly bathing and camping and associated activities. In the summer of 2001, more than 400 campers were observed in and immediately adjacent to the single spring known to contain the species at that time. During this time period, recreational bathers frequently introduced soap, shampoo, and chlorine bleach into thermal spring pools and outflows, prompting additional concerns for the species and health of aquatic systems throughout Soldier Meadow.

Q. Have conservation actions been implemented to protect the elongate Mud Meadow spring snail and have populations increased since 2002?

A. Yes. The most common types of recreational use of the Soldier Meadows Area of Critical Environmental Concern (ACEC) are: bathing in hot springs, camping, all-terrain vehicle travel, and four wheel driving. BLM began controlling each of these uses in Soldier Meadow before the elongate Mud Meadow springsnail became a candidate. BLM has since increased its management through use of a seasonal on-site campground host, increased presence by BLM law enforcement, designating visitor use areas and bathing pools, and limiting camping within 200 feet of the springheads and outflow channels. BLM also inventories and dismantles bathing pools created in non-designated bathing areas.

Q. Why did the Service complete a review the of elongate Mud Meadow springsnail?

A. Each year the Service completes a Candidate Notice of Review (CNOR) to appraise the current status of plants and animals considered candidates for protection under the ESA. Candidate species are plants and animals for which the Service has enough information on their status and the threats they face to propose them as threatened or endangered, but developing a proposed listing rule is precluded by higher priority listing actions. Candidate species do not receive protection under the ESA, although the Service works to conserve them. The annual review and identification of candidate species provides landowners and resource managers notice of species in need of conservation, allowing them to address threats and work to preclude the need to list the species.

Q. Is the Service removing the elongate Mud Meadow springsnail from the list of candidate species?

A. Yes. The Service believes that the elongate Mud Meadow springsnail no longer meets the definition of a candidate species under section 4(a)(1) of the ESA. The present or threatened destruction, modification, or curtailment of its habitat or range (Factor A) from unmanaged and increasing recreational use was the greatest threat to the springsnail when the species was elevated to candidate status in 2002. However, since then, the BLM has issued multiple planning decisions and implemented numerous management actions that have effectively addressed the patterns and intensity of recreational use that threatened this species with extinction.

The elongate Mud Meadow springsnail is also found entirely within the boundaries of designated critical habitat for the federally-listed desert dace (*Eremichthys acros*). This critical habitat consists of the majority of springs and outflows containing this threatened fish, and is surrounded by a 50-foot riparian buffer. Because this critical habitat has been designated on lands managed by the BLM, any federal actions occurring within the critical habitat boundary must avoid adverse modification or destruction of the essential habitat features contained within this boundary. Activities that maintain or improve critical habitat for the desert dace are generally compatible with, and would likely benefit, the elongate Mud Meadow springsnail.

The discovery of three new populations in 2005 also indicates that the species is more widespread and abundant, and less susceptible to stochastic events, than previously assessed. Finally, repeat visits by the Service over the past several years have consistently indicated that the species remains abundant in each of the four known populations, suggesting that the elongate Mud Meadow springsnail is stable within its current range.

Q. Will the species continue to be monitored?

A. Yes. The BLM continues to monitor patterns and levels of recreational use within Soldier Meadows through use of an on-site campground host and seasonal presence by BLM law enforcement. The Service has conducted repeat surveys at known populations of the elongate Mud Meadow springsnail since 2006 and has observed a marked reduction in or elimination of threats from dispersed and unmanaged recreational use to the species over that time period. These surveys have revealed an abundance of springsnail individuals at each of the four known populations, indicating that the populations are stable and threats to this species are being adequately managed.

The Service routinely visits Soldier Meadow in conjunction with its conservation efforts for two other species found here (*Potentilla basaltica*, a plant that is also a candidate for listing and the threatened desert dace) and plans to continue its annual surveys within the habitats occupied by elongate Mud Meadows springsnail for a minimum of five years. In addition, the Service has contracted with Dr. Don Sada, a springsnail expert with more than 30 years of experience working in Soldier Meadow, to conduct three years of formal monitoring targeting this species beginning in 2012. Observations by Dr. Sada and his colleagues provide the best available scientific information regarding the status and threats to elongate Mud Meadow springsnail, and this information has greatly informed not only the Service's original decision to elevate species to candidate status but also our assessments of the species since that time, and our current decision to remove the species from the candidate list.

If any of these surveys or monitoring efforts reveal new information that indicates elongate Mud Meadow springsnail has declined or threats have increased such that the species again meets the definition of a threatened or endangered species under the Act, the Service may recommend returning the species to the candidate status.