

CANDIDATE ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: *Pyrgulopsis thermalis*

COMMON NAME: New Mexico springsnail

LEAD REGION: Region 2

INFORMATION CURRENT AS OF: Feb. 2003

STATUS/ACTION (Check all that apply):

New candidate

Continuing candidate

Non-petitioned

Petitioned - Date petition received: 11/20/85

90-day positive - FR date: 8/20/86

12-month warranted but precluded - FR date: 4/15/94

Is the petition requesting a reclassification of a listed species?

Listing priority change

Former LP: ____

New LP: ____

Latest date species first became a Candidate: April 15, 1994

Candidate removal: Former LP: ____ (Check only one reason)

A - Taxon more abundant or widespread than previously believed or not subject to a degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.

F - Range is no longer a U.S. territory.

M - Taxon mistakenly included in past notice of review.

N - Taxon may not meet the Act's definition of a species. @

X - Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Mollusca: Hydrobiidae

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: New Mexico

CURRENT STATES/COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE: New Mexico

LEAD REGION CONTACT (Name, phone number): Susan Jacobsen 505/248-6641

LEAD FIELD OFFICE CONTACT (Office, name, phone number): New Mexico Ecological Services Field Office, Marilyn Myers 505/761-4754

BIOLOGICAL INFORMATION (Describe habitat, historic vs. current range, historic vs. current population estimates (# populations, # individuals/population), etc.):

The New Mexico springsnail is an aquatic species with a broadly conical shell 1.5 to 2 millimeters long. This species was described by Taylor (1987). Most freshwater gastropods are herbivores or detritivores that consume algae, bacteria, and decaying organic material, or that passively ingest small invertebrates while feeding. Respiration in hydrobiid snails is strictly aquatic via an internal gill with some oxygen absorption through the mantle (soft body). Hydrobiid snails are sexually dimorphic, and females are characteristically larger and live longer than males. Most of these snails reproduce several times during the breeding period (spring-fall) with varying degrees of replacement of generations. While longevity is variable, most prosobranch snails (snails that have gills and an operculum) live 9 to 15 months (Taylor 1987; Pennak 1989; Brown 1991).

At the type locality (an un-named hot spring on the east side of the Gila River), the New Mexico springsnail inhabits thermal waters (33 to 38°C (91 to 100 °F)) that issue from multiple sources along a vertical cliff adjacent to the Gila River. Principal spring outflows are too hot (greater than 38°C (100 F)) for the snails (Taylor 1987). The East Fork Gila River population of the New Mexico springsnail also inhabits thermal waters of vertical rock faces (38 to 39°C (100 to 102 F)), but is more abundant in cooler, lower gradient lotic habitats with thermal conditions similar to the type locality (Lang 1998, Landye 1981, Taylor 1987).

This species is known from only two separate populations associated with a series of spring-brook systems along the Gila River in the Gila National Forest in Grant County, New Mexico (Landye 1981, Taylor 1987, NM Dept. of Game and Fish 1988). The New Mexico springsnail co-occurs with the Federal candidate Gila springsnail.

The long-term persistence of the New Mexico springsnail is contingent upon protection of the riparian corridor immediately adjacent to springhead and springrun habitats, thereby ensuring the maintenance of perennial, oxygenated flowing water within the species= required thermal range (Lang 1998; Taylor 1987; Mehlhop 1996; Mehlhop and Vaughan 1994).

THREATS (Describe threats in terms of the five factors in section 4 of the ESA providing specific, substantive information. **If this is a removal of a species from candidate status or a change in listing priority, explain reasons for change**):

A. The present or threatened destruction, modification, or curtailment of its habitat or range. There has been no recent documentation of extirpation of New Mexico springsnail populations or reductions in their numbers. While the New Mexico springsnail populations may be stable, the sites inhabited by the species are subject to uncontrolled recreational use and livestock grazing (Mehlhop 1993). Therefore, this renders the long term viability of the species= metapopulation in question. Wetland habitat degradation via recreational use and overgrazing in and near the thermal springs and poor watershed management practices represent the primary threats to the New Mexico springsnail (Lang 1998, Taylor 1987, NM Dept. of Game and Fish 1988, Mehlhop 1993). Intense recreational or livestock use on springs where the species is found may result in increased sedimentation, reductions in water quality, reduced spring flow, and temperature changes. All of these impacts have the potential to negatively affect snail populations and result in local extirpations (Taylor 1987, NM Dept. of Game and Fish 1988, Mehlhop 1993, Lang 1998).

With increasing frequency and severity of wildfires in the Gila National Forest, contamination of spring areas due to retardant chemicals used for fire suppression, as well as large amounts of ash resulting from forest fires, is a growing concern that may result in potentially deleterious effects on this species. Large amounts of ash add nutrients to spring systems that can alter the balance between algae and invertebrate communities. Significant increases in algae can change the amount of dissolved oxygen available to springsnails and other invertebrates. Lang (New Mexico Department of Game and Fish, pers. comm. 2001) noted decreases in numbers of rare springsnail species on Bitter Lake National Wildlife Refuge in eastern New Mexico following a wildfire. Chemical retardants used to suppress fires may be toxic to aquatic species (McDonald and Hamilton 1995). These factors, when combined with natural events such as drought, forest fire, sedimentation, and flooding may further imperil populations (McDonald and Hamilton 1995).

B. Overutilization for commercial, recreational, scientific, or educational purposes. Not known to be a factor threatening the New Mexico springsnail.

C. Disease or predation. Not known to be a factor threatening the New Mexico springsnail.

D. The inadequacy of existing regulatory mechanisms. Existing regulatory mechanisms are not sufficient to protect the New Mexico springsnail. The species is listed as a New Mexico State endangered species, Group 2, which are those species **A.** whose prospects of survival or recruitment within the State are likely to become jeopardized in the near future (New Mexico Department of Game and Fish 1988). This designation provides the protection of the New Mexico Wildlife Conservation Act and prohibits taking of such species except under issuance of a scientific collecting permit. However, the law does not provide for habitat protection. Because most of the threats to the species are from effects to habitat, protecting individuals will not ensure the long-term protection of the species.

E. Other natural or manmade factors affecting its continued existence. The geographically restricted distribution of the New Mexico springsnail increases the possibility that a human-caused or natural event could eliminate the species. Because populations of the New Mexico springsnail are limited to two locations, stochastic events such as floods, severe droughts, contamination events, or fires could result in the extirpation of one or both populations. Reduced population numbers and localities may result in decreased genetic diversity and increasing vulnerability to extinction due to further stochastic events.

BRIEF SUMMARY OF REASONS FOR REMOVAL OR LISTING PRIORITY CHANGE: N/A

FOR RESUBMITTED PETITIONS:

- a. Is listing still warranted? YES
- b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? YES
- c. Is a proposal to list the species as threatened or endangered in preparation? NO
- d. If the answer to c. above is no, provide an explanation of why the action is still precluded: Since publication of the 2002 CNOR, the publication of a proposed rule to list this species has been precluded by other higher priority listing actions, and based on work scheduled we expect that will remain the case for the remainder of Fiscal Year 2004. Almost the entire national listing budget has been consumed by work on various

listing actions taken to comply with court orders and court-approved settlement agreements, emergency listing, and essential litigation-related, administrative, and program management functions. We will continue to monitor the status of New Mexico springsnail as new information becomes available. This review will determine if a change in status is warranted, including the need to make prompt use of emergency listing procedures.

LAND OWNERSHIP (Estimate proportion Federal/state/local government/private, identify non-private owners): This snail's entire range is Federal, occurring on Forest Service lands.

PRELISTING (Describe status of conservation agreements or other conservation activities): Previous attempts in the 1980's to develop a conservation agreement for the Gila springsnail and the New Mexico springsnail with the Forest Service and the New Mexico Department of Game and Fish were not successful. Since that time, other species have been of higher priority.

REFERENCES (Identify primary sources of information (e.g., status reports, petitions, journal publications, unpublished data from species experts) using formal citation format):

Brown, K.D., A. A. Echelle, D. L. Propst, J. E. Brooks, and W. L. Fisher. 2001. Catastrophic wildfire and number of populations as factors influencing risk of extinction for Gila trout (*Oncorhynchus gilae*). *Western North American Naturalist* 61:139-148.

Brown, K. M. 1991. Mollusca:Gastropoda. Pp. 285-314 In J. H. Thorp and A. H. Covich, eds. *Ecology and classification of North American freshwater invertebrates*. Academic Press, New York, New York.

Landye, J. J. 1981. Current status of endangered, threatened, and/or rare mollusks of New Mexico and Arizona. U. S. Fish and Wildlife Service, Albuquerque, New Mexico.

Lang, B. 1998. Status of aquatic mollusks of New Mexico. New Mexico Department of Game and Fish, Santa Fe, New Mexico. Rpt. E-20-7.

McDonald and Hamilton. 1995. Fire retardant and foam suppression chemical may be toxic to aquatic invertebrates and algae. USGS-BRD (NBS) Information Bulletin No. 35

Mehlhop, P. 1993. Establishment of a rare mollusc inventory and monitoring program for New Mexico. Year II Progress Report. NM Department of Game and Fish; Contract No. 80-519-52-Amendment 1.

Mehlhop, P. 1996. Ecology and conservation of hydrobiid snails. Biodiversity News Network, The Nature Conservancy, Arlington, Virginia.

Mehlhop, P. and C. C. Vaughan. 1994. Threats to and sustainability of ecosystems for freshwater mollusks. Pp. 68-77. in *Sustainable Ecological Systems: implementing an ecological approach to land management*. U. S. Forest Service General Technical Report RM-247.

New Mexico Department of Game and Fish. 1988. Handbook of Species Endangered in New

Mexico. Santa Fe, New Mexico.

Pennak, R. W. 1989. Freshwater invertebrates of the United States: Protozoa to Mollusca. John Wiley and Sons, New York.

Taylor, D. W. 1987. Freshwater molluscs from New Mexico and vicinity. New Mexico Bureau of Mines and Mineral Resources Bulletin 16. Socorro, New Mexico.

LISTING PRIORITY (place * after number)

THREAT

Magnitude	Immediacy	Taxonomy	Priority
High	Imminent	Monotypic genus	1
		Species	2
		Subspecies/population	3
	Non-imminent	Monotypic genus	4
		Species	5
		Subspecies/population	6

Moderate to Low	Imminent	Monotypic genus	7
		Species	8
		Subspecies/population	9
	Non-imminent	Monotypic genus	10
		Species	11*
		Subspecies/population	12

Rationale for listing priority number:

Magnitude: Populations of the New Mexico hotspring snail appear to be stable; however, threats are magnified because of its very limited distribution (two spring brook complexes). Use of the springs by recreationalists and livestock are threats because of the habitat degradation they cause. Because the springs occur on Forest Service land, management options for the protection of the snail should be possible. However, stochastic events, especially fire and drought could have a major impact on the species.

Imminence: Moderate use by recreationalists and livestock is ongoing. If use by these groups remains at the current or lower levels, they do not pose an imminent threat to the species. Of greater concern is the current drought which could impact spring discharge and increases the potential for fire. Catastrophic fires have occurred in the Gila National Forest and subsequent floods and ash flows have decimated aquatic life in streams (Brown et al. 2001). If the drought continues or worsens, the imminence of threat (decreased discharge, fire), will increase.

APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes to the candidate list, including listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all additions of species to the candidate list, removal of candidates, and listing priority changes.

Approve: Tom Bauer March 14, 2003
Acting Regional Director, Fish and Wildlife Service Date

Concur: Steve Williams April 5, 2004
Director, Fish and Wildlife Service Date

Do not concur: _____
Director, Fish and Wildlife Service Date

Director's Remarks:

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Date of annual review: Feb. 2003
Conducted by: Marilyn Myers

Comments:

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