

CANDIDATE ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: *Zaitzevia thermae*

COMMON NAME: Warm spring zaitzevian riffle beetle

LEAD REGION: 6

INFORMATION CURRENT AS OF: February 4, 2003

STATUS/ACTION:

New candidate

Continuing candidate

Non-petitioned

Petitioned--Date petition received: __

90-day positive--FR date: ____

12-month warranted but precluded--FR date: ____

Listing priority change

Former LP: ____

New LP: ____

Latest date species first became a Candidate: _____

Candidate removal: Former LP: ____

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 ESA=s definition of "species."

X - Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: *Elmidae* (Beetle)

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Montana

CURRENT STATES/COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE:
Montana

LEAD REGION CONTACT: Chuck Davis, (303) 236-7400, extension 235

LEAD FIELD OFFICE CONTACT: Lori Nordstrom, Helena, Montana, (406) 449-5225,
extension 208

BIOLOGICAL INFORMATION:

Zaitzevia thermae is globally endemic to the Bridger Creek Warm Springs near Bozeman, Montana. This spring is on land managed by the U.S. Fish and Wildlife Service's Fish Technology Center (Center) and is a water source for the Center. The surface area of the springs is approximately 35 square meters. These flightless beetles feed on algae on the gravel bottom and among the vegetation and require flowing water to breathe. Water temperature is likely the most influential factor in the species' biology.

The species is presumed to have occupied most of the available habitat in the warm spring. In the early 1900's a large cement collection box was built around the spring. This box now provides some protection to the riffle beetle's spring habitat and it is within this sheltered area where the majority of the *Z. thermae* population occurs. There are small seeps adjacent to the box on the both the upstream and downstream sides where *Z. thermae* occurs in small numbers (approximately 1 square meter of habitat). Recent monitoring by entomologists from Montana State University and Service staff from the Fish Technology Center has demonstrated that *Z. thermae* is thriving in the box (U.S. Fish and Wildlife Service 2003).

In 1994, FWS completed a management plan for this species. The management plan is currently being updated (USFWS 2003). The beetle population appears to be doing well within the collection box.

THREATS:

A. The present or threatened destruction, modification, or curtailment of its habitat or range.

Initial discussion of coalbed methane development in the Bridger Creek watershed have been underway. Coalbed methane development has the potential to severely impact the water quality of Bridger Creek if the highly saline water that is removed during the process flows into the Creek. At this time the county has placed a temporary moratorium on coalbed methane development to allow for further assessment of the impacts of such development.

Early in the 1900s, a large cement water collection box was built around much of the spring. The species was still found within the box. In the 1970s a solid metal roof was put on the box, preventing all light from entering the box. Without light, the species' food, algae, did not grow, thereby eliminating the interior of the box as available habitat. The beetles were only found on the outside edge of the box and a small portion of the spring nearby.

In 1993, concerns existed that the population had been severely impacted when almost all seep habitat outside the box was inadvertently buried during construction activities. The fill was immediately removed and additional habitat improvements were made. Additionally, the cover on the cement water collection box surrounding the spring was converted to a sunlight-penetrating grate, restoring former beetle habitat. The area is now protected by a chain-link fence and signs, limiting foot traffic in the area (the area historically was used for swimming).

In 2002, with approval of entomologists from the University of Montana, the height of the collection box roof was raised an additional 2 feet to decrease the chance of Bridger Creek

runoff or flood water from entering this concrete box. The purpose of this project is to prevent potential diseases, silt, and harmful chemicals in Bridger Creek from entering this valuable warm water supply

B. Overutilization for commercial, recreational, scientific, or educational purposes.

Unknown.

C. Disease or predation.

Unknown.

D. The inadequacy of existing regulatory mechanism

The Clean Water Act provides some measure of protection with regard to water quality, but accidental contamination of the spring is a threat.

E. Other natural or manmade factors affecting its continued existence.

Because of restricted habitat of *Z. thermae*, any contamination or hazardous substances running into the creek could impact the spring and, therefore, the beetle. A high traffic road runs along the creek on the bank immediately opposite the spring. The potential exists for contamination of the spring if a vehicle crashed in the creek or if there was an accident on the road. Because of its extremely limited distribution, the species is vulnerable to randomly occurring natural events.

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

FOR RECYCLED PETITIONS: NA

- a. Is listing still warranted? ____
- b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? ____
- c. Is a proposal to list the species as threatened or endangered in preparation? ____
- d. If the answer to c. above is No, provide an explanation of why the action is still precluded

LAND OWNERSHIP:

One hundred percent Federal management, under jurisdiction of the FWS.

PRELISTING:

The FWS (Bozeman Fish Technology Center) completed and is updating a management plan for *Z. thermae* in 1994 and 2003. The Center ensures that habitat is being provided and protected for the species and encourages local experts to regularly monitor the population.

REFERENCES:

Hooten, M.M. 1991. Biological systematics of *Zaitzevia thermae* (Hatch). M.S. Thesis. Montana State University, Bozeman.

U.S. Fish and Wildlife Service. 1994. Conservation management of "Thermie" (*Zaitzevia thermae*) and Brown's riffle beetle (*microcyloepus browni*) at the Bozeman Fish Technology Center. Unpubl. Rpt., Bozeman, Montana

U.S. Fish and Wildlife Service. 2003. DRAFT conservation management of "Thermie" (*Zaitzevia thermae*) and Brown's riffle beetle (*microcyloepus browni*) at the Bozeman Fish Technology Center. Unpubl. Rpt., Bozeman, Montana.

LISTING PRIORITY

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: *Z. thermae* is a global endemic restricted to roughly 35 square meters of warm spring habitat but that habitat is fairly protected by a cement box around the spring.

Imminence: The cement box around *Z. thermae*'s spring habitat provides a high level of protection from water contamination or trampling. Habitat conditions are being maintained within the collection box and the box has features that enable movement of individuals to and from the seeps outside the collection box.

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: Ralph O. Morgenweck
Regional Director, Fish and Wildlife Service

April 1, 2003
Date

Concur: _____
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: March 12, 2002

Conducted by: Lori Nordstrom

(Rev. 7/02)