

***Ephydatia cooperensis* (Addis & Peterson 2005)**  
**Porifera: Spongillidae**

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**SUMMARY**

*Ephydatia cooperensis* is a freshwater sponge endemic to western Montana, where it is known from only three lakes in the northern Rocky Mountains. This species inhabits the underside of submerged rocks and logs in cool shallow mountain lakes. Extensive recreational use, roads, and shoreline development may threaten *E. cooperensis* habitat. Research should focus on understanding the biology of this species, establishing the distribution and population size, and protecting and managing existing habitat.

**CONSERVATION STATUS**

**Rankings:**

Canada – Species at Risk Act: N/A

Canada – provincial status: N/A

Mexico: N/A

USA – Endangered Species Act: N/A

USA – state status: Montana S1S3 Imperiled; US Forest Service Species of Concern

NatureServe: G1G3 Imperiled

IUCN Red List: N/A

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**SPECIES PROFILE**

**DESCRIPTION**

*Ephydatia cooperensis* was first described from specimens collected in western Montana (Peterson & Addis, 2000). *E. cooperensis* grows as a flattened disc-shaped structure on the underside of submerged rocks or logs. The spicules that compose the internal skeleton have a well-defined midregion bulb. The sponge has a hard consistency, and is light yellow to tan in summer, sometimes darkening to a light grey-green in winter. Disc size ranges from 13 – 30 mm (0.5 - 1.2 inches) in diameter and 2.2 - 5.5 mm (0.09 - 0.2 inches) in height.

**TAXONOMIC STATUS**

*Ephydatia cooperensis* (Addis & Peterson). The taxonomy of this species is currently accepted as valid. This species was initially described as *Clypeatula cooperensis* Peterson & Addis 2000, but was reassigned into the genus *Ephydatia* after genetic analysis (Addis & Peterson 2005). The species epithet refers to Coopers Lake, which is the type locality for this species.

**LIFE HISTORY**

*Ephydatia cooperensis* is a freshwater sponge in the family Spongillidae. This species colonizes the undersides of submerged rocks and logs in cool shallow lakes in western Montana. Sponges

are sessile (non-motile), and feed by pumping water through their bodies and filtering out small organic particles and bacteria. *E. cooperensis* reproduction occurs in early summer and is gonochoristic (involving two distinct sexes) or successively hermaphroditic, with egg and sperm production occurring in separate sponges once per year. New sponges are produced via settling larvae, not from outgrowth of clusters of gemmules (internal buds produced via asexual reproduction) as is seen in other species of freshwater sponges. This species appears to undergo a modified regression in the winter.

### **DISTRIBUTION**

*Ephydatia cooperensis* grows on the undersides of rocks and logs in cool shallow lakes in western Montana. It has been collected at depths ranging from 37-80 cm (1.2 – 2.6 feet). Type specimens were collected in Powell County, MT at the outlet of Coopers Lake, where the lake joins Salmon Creek. *Ephydatia cooperensis* is currently known from only three lakes in the northern Rocky Mountains of Montana in Missoula and Powell Counties: Coopers, Salmon, and Blanchard Lakes. These lakes are near the Lolo National Forest and the adjacent Clearwater Wildlife Management Area, and range in elevation from 1164 – 1369 meters (3819 – 4491 feet).

### **THREATS**

*Ephydatia cooperensis* is only known from only three sites in western Montana. Specific immediate threats to populations of *Ephydatia cooperensis* have not been identified, but land uses in the surrounding areas that could impair the quality of existing *E. cooperensis* habitat present a long-term concern. All three lakes where this species occurs are subject to extensive recreational use. Heavy boat traffic, unauthorized boat docking, and wading could damage this species' shallow water habitat. Water quality could be impaired by a variety of factors, including warmed and polluted runoff from nearby roads and highways; increased contaminant and sedimentation load from lakefront developments; increased sedimentation and habitat degradation from logging and logging roads in the watershed; and habitat degradation due to unauthorized ORV use in the area.

Small isolated populations are also generally at greater risk of extirpation from normal population fluctuations due to predation, disease, and changing food supply, as well as from natural disasters such as floods or droughts.

### **CONSERVATION STATUS**

*Ephydatia cooperensis* currently receives no federal protection. It is a Species of Concern on U.S. Forest Service Northern Region lands (Stagliano *et al.*, 2007).

### **CONSERVATION NEEDS**

Additional surveys are needed to identify potential new populations and assess population abundance and stability at existing sites.

### **RESEARCH NEEDS**

Little is known about the biology of this species. Research into life history and habitat management and conservation in the area would be valuable.

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## RESOURCES

### CONTACTS

### REFERENCES

Addis, J. S. and Peterson, K. J. 2005. Phylogenetic relationships of freshwater sponges (Porifera, Spongillina) inferred from analyses of 18S rDNA, COI mtDNA, and ITS2 rDNA sequences. *Zoologica Scripta* 34 (9), 549-557.

Peterson, K.J. and Addis, J.S. 2000. *Clypeatula cooperensis* gen.n., sp.n., a new freshwater sponge (Porifera, Spongillidae) from the Rocky Mountains of Montana, USA. *Zoologica Scripta* 29(3): 265-274.

Stagliano, D., M., Stephens, G. M. and Bosworth, W. R. 2007. Aquatic Invertebrate Species of Concern on USFS Northern Region Lands. Report to USDA Forest Service, Northern Region. Montana Natural Heritage Program, Helena, Montana and Idaho Conservation Data Center, Boise, Idaho. 95 pp. plus appendices.

### WEBSITES

NatureServe Explorer, [www.natureserve.org/explorer/](http://www.natureserve.org/explorer/), accessed March 2008