

Survey for Preble's meadow jumping mouse (*Zapus hudsonius preblei*) on US Forest Service land in the Douglas Ranger District of the Medicine Bow National Forest (T29N, R75W, Section 10, SE1/4SE1/4), September 6-14, 2001

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Executive Summary

The purpose of the survey was to determine the presence or absence of Preble's meadow jumping mice (*Zapus hudsonius preblei*) on US Forest Service land (T29N, R75W, Section 10, SE1/4SE1/4) in the Douglas Ranger District of the Medicine Bow National Forest. Roaring Fork Creek was trapped for 6 days and 1076 total trapnights. Traps were checked the mornings of September 6-7 and September 11-14. In order to comply with USFWS guidelines, no trapping was conducted after September 14. Snow fell the night of Friday, September 7, possibly causing any jumping mice present at the site to become dormant. No jumping mice were caught. A total of 95 small mammals was caught, including deer mice (*Peromyscus maniculatus*), voles (*Microtus* spp.), shrews (*Sorex* spp.), and Least chipmunks (*Eutamias minimus*).

Introduction

Preble's meadow jumping mice (*Zapus hudsonius preblei*; PMJM) were listed as Threatened under the U.S. Endangered Species Act in May 1998 (USFWS 1998). PMJM are thought to generally occur in dense or brushy riparian areas east of the Front Range in Wyoming and Colorado. A final special rule announced in May 2001 and effective for 36 months allows limited rodent control and landscape and structure maintenance, as well as existing agricultural activities and water uses (USFWS 2001a). A proposed amendment to the special rule would allow for limited noxious weed control and ditch maintenance (USFWS 2001b).

Four species of jumping mice occur in North America (Figure 1). Two of these species occur in Wyoming: the western jumping mouse (*Zapus princeps*) and the meadow jumping mouse (*Zapus hudsonius*). There are 5 subspecies of meadow jumping mice, but only the Preble's meadow jumping mouse (*Zapus hudsonius preblei*) occurs in southeast Wyoming, along with the western jumping mouse. The ranges of the two mice are adjacent and likely overlap in southeast Wyoming (Figure 2). Western jumping mice are generally thought to occur at higher elevations: subalpine, montane, and occasionally foothill and prairie zones. Meadow jumping mice are thought to occur at lower elevations in foothill and prairie riparian areas (Beauvais 2001). To date, however, genetic testing has largely failed to differentiate between western jumping mice and PMJM. Attempts to define morphological differences between western jumping mice and PMJM are currently underway (Mary Jennings, USFWS, pers. comm. in Keinath 2000).

Methods

Background

Approximately 100 m of Roaring Fork Creek cross the northwest corner of T29N, R75W, Section 10, SE ¼ SE ¼ (Figure 3). This ¼ ¼ section of Forest Service land is surrounded on all sides by private land. At some point in the past, a log cabin and associated outbuildings and chimney stove were built alongside Roaring Fork Creek and within the Forest Service boundary (Figure 3). Sale or exchange of land in the northwest corner of the parcel to the owners of the cabin is currently under consideration by the Forest Service. Prior to implementation of such an arrangement, the Forest Service is

required to evaluate the biological significance of the land with respect to threatened and endangered species, including PMJM.

Due to recent beaver activity, Roaring Fork Creek within the Forest Service parcel now consists of a series of beaver ponds (Figure 4). There are ribbons of willow (*Salix lasiandra*) along some portions of the stream (Figure 5). Quaking aspen (*Populus tremuloides*) forms the overstory within the riparian corridor (Figure 6). Herbaceous vegetation within the riparian corridor is dense (Figure 7), although height varies along different parts of the stream from about 3-18 inches.

Field Survey

Trapping was conducted as per U.S. Fish and Wildlife Service guidelines (1999) and slightly modified to meet trapnight requirements for the short stream segment. Two parallel rows of 50 live traps were placed on the south side of the stream, and two parallel rows of 40 traps were placed on the north side of the stream. One row was placed directly alongside the stream, and the second row was no more than 5 m from the stream. Within each row, traps were placed 2 m apart, rather than 5 m apart, to get enough traps within the Forest Service boundary. Traps were filled with polyester bedding material and baited with three-way feed. Traps were checked a total of 6 days, four of which were consecutive.

Results and Discussion

No jumping mice were caught in this survey. However, a total of 95 small mammals was caught. Of these, 76 were deer mice (*Peromyscus maniculatus*), 11 were voles (*Microtus* spp.), 3 were shrews (*Sorex* spp.), and 5 were Least chipmunks (*Eutamias minimus*; Table 1).

The total number of trapnights is 1076, which exceeds the minimum of 1,000 set by the U.S. Fish and Wildlife Service for the month of September. The total net number of trapnights is 998. Total net number of trapnights adjusts for those traps that were tripped and thus could not capture PMJM. It is calculated by subtracting one-half trapnight from the total for each trap that was tripped without capturing an animal or caught an animal other than a jumping mouse. Because it is unknown when the trap was tripped during the night, one-half trapnight represents the average amount of time that the trap was available to catch a jumping mouse (Beauvais and Buskirk 1999).

Repeated disruption of traps by other animals (e.g. raccoons) often necessitates additional small mammal trapping and/or supplemental trapping of the culprit animals. However, there was no evidence of trap-tampering by raccoons or beavers during this survey, so trapping these animals was unnecessary.

There are several reasons why the absence of jumping mouse captures during this effort might not conclusively exclude this site from consideration as PMJM habitat. First, this survey was conducted late in the season. Snowfall that occurred over the weekend between the second and third days of trapping may have caused jumping mice to become dormant, if they were present at the site. Second, WYNDD personnel caught jumping mice on a BLM parcel approximately 6 miles from this site in August, 2001. The elevation of the BLM site is about 300 feet higher than this site. The BLM site and this have similar vegetation structure consisting of relatively dense aspen overstory and dense, though not necessarily tall, herbaceous understory. Unlike the BLM site, this site does have willows along some stretches of the stream, which are usually a positive habitat association for PMJM. However, the BLM site has moving water, and this site has a system of small ponds due to beaver activity.

Finally, trends in jumping mouse captures are often not consistent between years at a given site. For instance, surveys have been conducted consistently at F.E. Warren Air Force Base, Cheyenne, Wyoming since 1996. Jumping mice

have been caught in 3 of 5 years (Keinath 2000, Young et al. 2000, Beauvais 1998, Schuerman and Pague 1997, Travsky 1997). Reasons for the apparent fluctuations in captures have not been studied and are currently unknown.

Acknowledgements

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Table 1. Summary of small mammal captures on Roaring Fork Creek within T29N, R75W, Section 10.

Species	Total captures	Captures per 100 trapnights ¹
Jumping mouse (<i>Zapus</i>)	0	0
Deer mouse (<i>Peromyscus maniculatus</i>)	76	7.6
Vole (<i>Microtus</i> spp.) ²	11	1.1
Shrew (<i>Sorex</i> spp.) ²	3	0.3
Least chipmunk (<i>Eutamias minimus</i>)	5	0.5
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Total captures	95	9.5
Total tripped traps ³	156	
Total trapnights	1076	
Total net trapnights [total - (0.5 * tripped traps)]	998	
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¹Calculated using total net trapnights.

²Due to difficulty identifying voles and shrews in the field, these animals were identified only to genus.

³Total tripped traps includes animal captures as well as traps tripped for unknown reasons.

Figure 1. Distribution of jumping mice in North America (Based on data from Hall, 1981; Hafner et al., 1981; and housed at the Wyoming Natural Diversity Database)

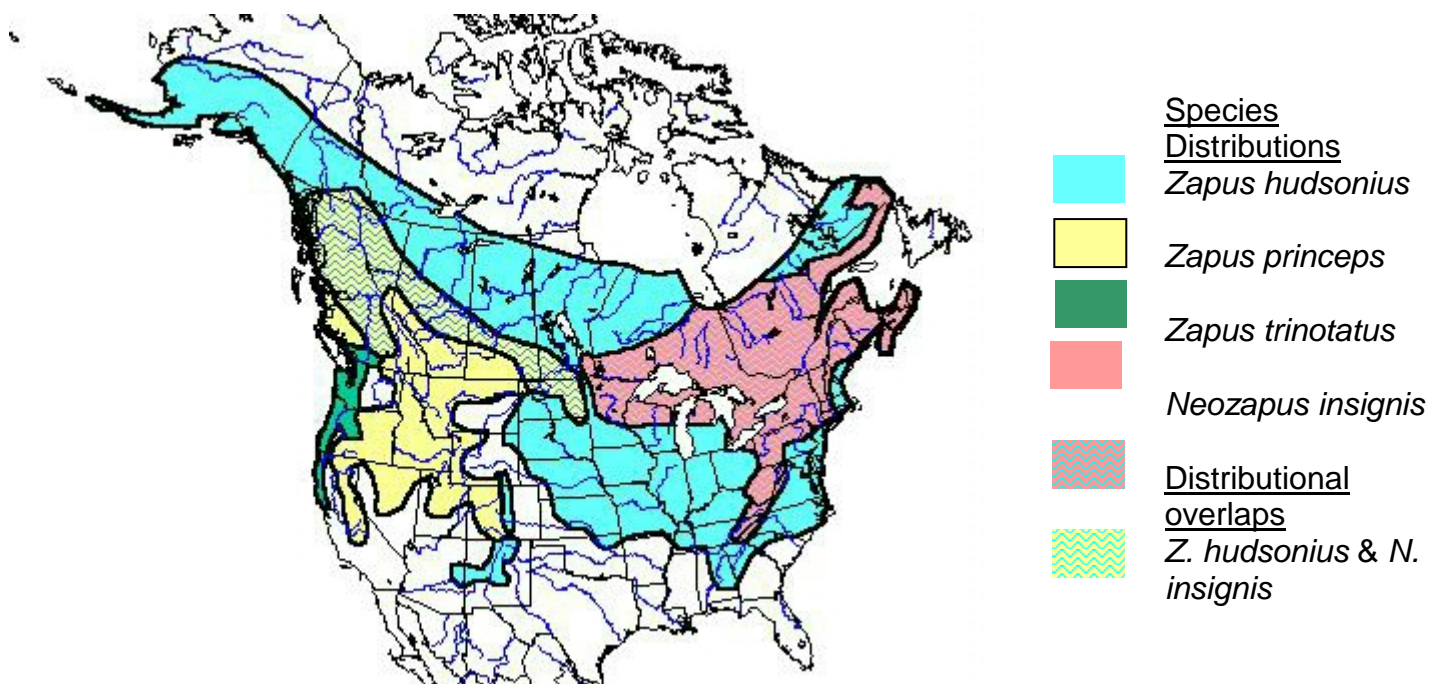


Figure 2. Distribution of jumping mice in Wyoming (Based on data from Hall, 1981; Hafner et al., 1981; and housed at the Wyoming Natural Diversity Database)

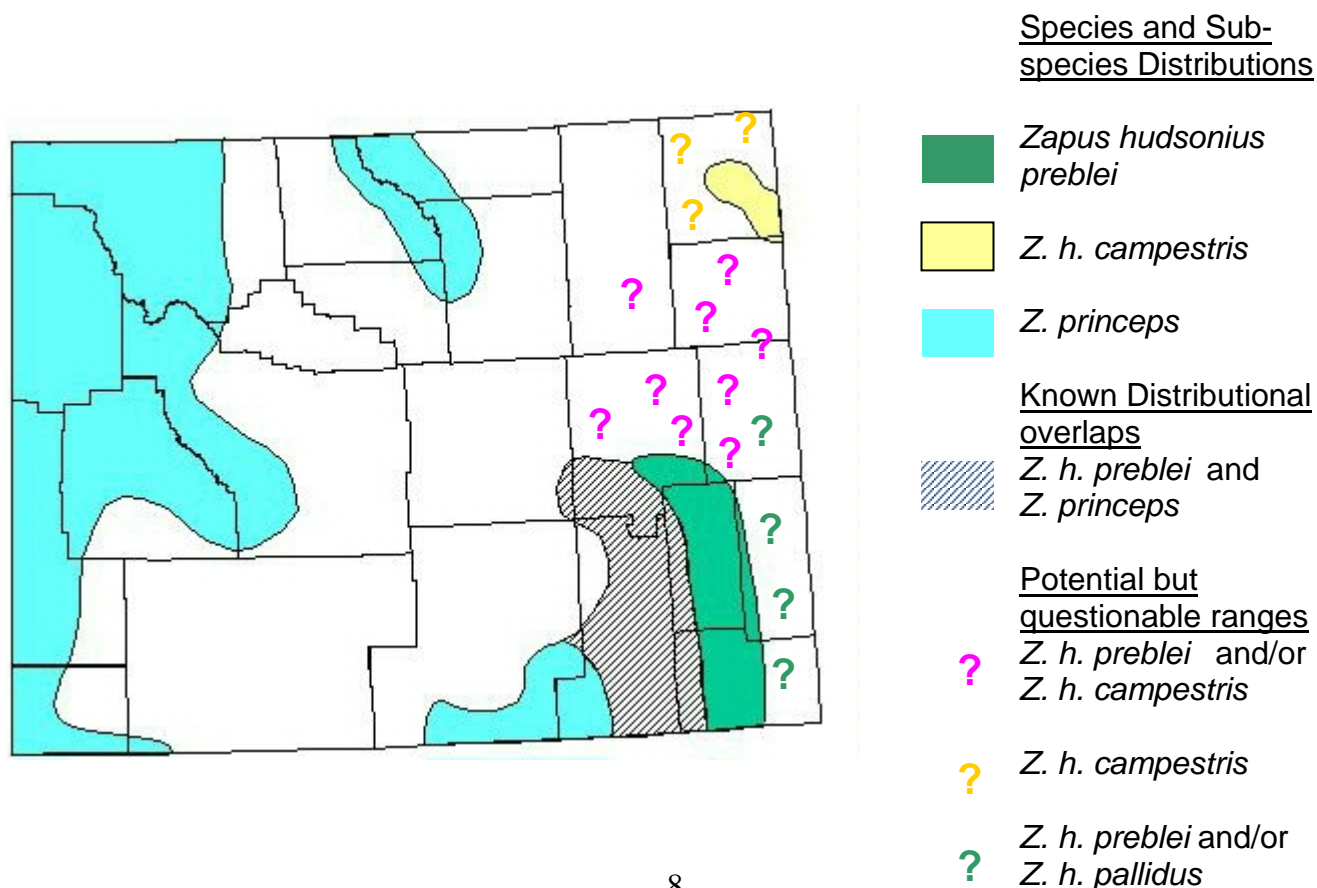


Figure 3. Map of Roaring Fork Creek, the cabin, and one of several outbuildings within T29N, R75W, Section 10, SE1/4SE1/4.

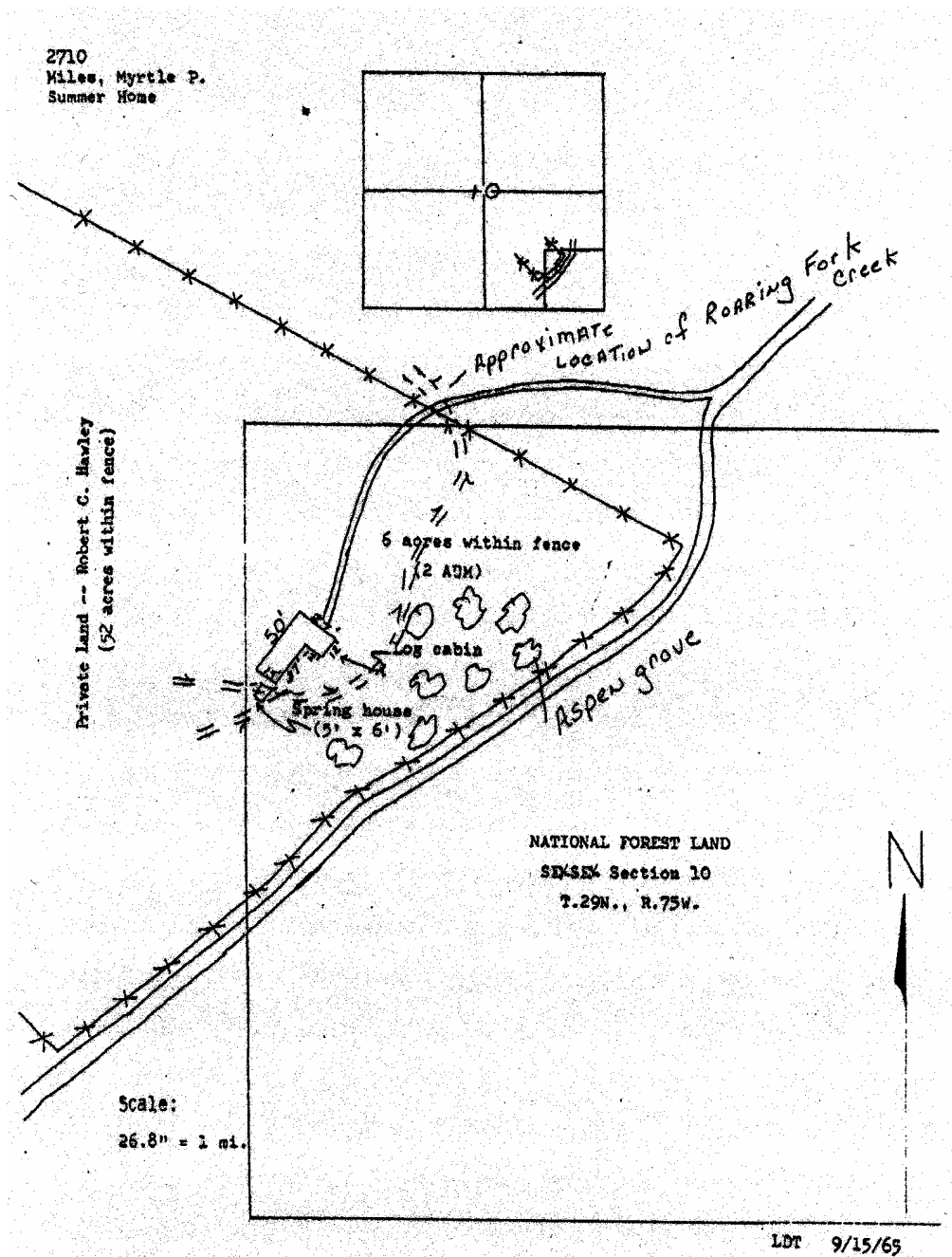


Figure 4. Beaver pond within Roaring Fork Creek.



Figure 5. Willows along a segment of Roaring Fork Creek.



Figure 6. Dense aspen overstory along Roaring Fork Creek.



Figure 7. Dense herbaceous understory along Roaring Fork Creek.

