SURVEY FOR PREBLE'S MEADOW JUMPING MICE ON DRY CREEK TRAIL CITY OF BOULDER OPEN SPACE BOULDER COUNTY, COLORADO

19 November 1998

Conducted by
Carron Meaney, Ph.D.
777 Juniper Avenue
Boulder, CO 80304
(303) 444-2299

4469

Conducted for
City of Boulder Open Space
66 S. Cherryvale Road
Boulder, CO 80303

Dry Creek with Social Trail in Foreground

Introduction

We conducted a survey to determine the presence or absence of Preble's meadow jumping mice (*Zapus hudsonius preblei*) at the Dry Creek Trail, City of Boulder Open Space. Three drainages were surveyed: Dry Creek, Enterprise Ditch, and Dry Creek Ditch on the Klein property, Boulder County, Colorado. The study was conducted during the week of 8-11 September, 1998, for City of Boulder Open Space.

The project involves the closure of one trail and the formalizing of an existing social trail. The proposed trail will follow Dry Creek upstream from the trailhead, heading generally west, along the path of an existing social trail on the south side of the creek. It will continue about one-quarter mile along the creek, and then head south at the western property boundary. At this point the formal trail hooks up with the existing social trail where they cross Dry Creek Ditch at the bridge and start a loop that also would become the formal trail. The loop goes over to the edge of Baseline Reservoir and heads south, following the contour of the reservoir before looping back to the east, and then north along Dry Creek Ditch back to the bridge. The purpose of formalizing the new trail is to close the old one, which goes through a prairie dog colony. The goal is to reduce disturbance to the prairie dogs from domestic dogs on the trail.

Preble's meadow jumping mouse was listed as threatened under the Endangered Species Act by the U.S. Fish and Wildlife Service on May 12, 1998. This subspecies occurs only in parts of Colorado and Wyoming. While its distribution and status in Colorado are currently under investigation, there have been a number of successful trapping efforts in Larimer, Weld, Boulder, Jefferson, Douglas, Elbert, and El Paso counties in the past couple of years.

In Boulder County, jumping mice have been found on Coal Creek (Colorado Natural Heritage Program), St. Vrain Creek and its numerous ditches (Meaney et al. 1996), and South Boulder Creek and its numerous ditches including East Boulder Ditch and Doudy Draw (Meaney et al. 1998, Colorado Natural Hertitage Program). Historic records indicate they were on Left Hand Creek and Boulder Creek (Armstrong 1972). Rock Creek also may be occupied (one possible capture in 1997). As additional trapping occurs, it is likely they will be found in other drainages as well.

Jumping mice have been found on Dry Creek Ditch just south of Baseline Reservoir by City of Boulder Open Space staff in 1997 (Cary Richardson, personal communication), and on Dry Creek Ditch #2 during the presence/absence survey conducted for the extension of the South Boulder Creek Trail (Meaney et al. 1997a). Jumping mice have also been captured at numerous sites along South Boulder Creek from near the town of Eldorado Springs to Baseline Road (Greystone 1998, Meaney et al. 1998).

Site Description

Dry Creek emerges from the northeast end of Baseline Reservoir, forming a medium-sized creek that runs generally west to east in the project area. Dry Creek Ditch comes off of South Boulder Creek further south, runs south to north, and crosses Dry Creek in the project area.

The project area is located in the northern half of Section 2, T1S, R70W. It is on the City of Boulder Open Space's Klein property, at the Dry Creek Trail. The elevation is 5,300 ft. The UTM (Universal Transverse Mercator) measurements of the extent of the drainages that we surveyed are: Dry Creek 13S, 0483725, 4427490 to 0483316, 4427420; Dry Creek Ditch 13S, 0483650, 4427552 to 0483119, 4426906.

Vegetation along the drainages is lush and well-developed with tree and shrub overstories, and a mixture of forbs and grasses in the understory. Trees include cottonwoods (*Populus deltoides* and *P. angustifolia*) and Russian-olives (*Elaeagnus angustifolia*). Box-elders (*Negundo aceroides*) occur along the ditch. Coyote willows (*Salix exigua*) form patches in a number of places on the low-energy side at curves on the north bank of Dry Creek and also along Dry Creek Ditch; skunkbrush (*Rhus aromatica*) also occurs. Forbs include milkweed (*Asclepias* sp.), thistle (*Cirsium* sp.), catnip (*Nepeta cateria*), curly dock (*Rumex crispus*), yucca (*Yucca glauca*), wild rose (*Rosa woodsii*), wild licorice (*Glycyrrhiza lepidota*), golden aster (*Heterothica villosa*), common plaintain (*Plantago major*) and others. Grasses and their allies include rushes (*Juncus* sp.), sedges (*Carex* sp.), smooth brome (*Bromopsis inermis*), foxtail barley (*Critesion* sp.), Kentucky blue (*Poa pratensis*), western wheatgrass (*Pascopyrum (=Agropyron) smithii*), cheatgrass (*Anisantha (=Bromus) tectorum*), and others.

Methods

This survey was conducted in accordance with U.S. Fish and Wildlife Service "Interim Survey Guidelines for Preble's Meadow Jumping Mouse", revised June 15, 1998. Transects were laid out as two parallel lines of traps, one on each side of the creek when possible. On each transect line, traps were placed 5 m apart, and tagged and numbered with survey tape. Polyester batting and bait (horse sweet feed, a mixture of oats and other grains with molasses) were placed in each trap.

Four transects were placed as follows: Transect A, 27 traps on the south side of Dry Creek; Transect B, 63 traps on the north side of Dry Creek; Transect C, 51 traps along Dry Creek Ditch north of Dry Creek; Transect D, 74 traps along the west side of Dry Creek Ditch; Transect E, 13 traps along the east side of Dry Creek Ditch. A total of 228 traps were run for three nights, resulting in a 684 trap night effort.

Traps were placed out on the afternoon of September 8; they were checked at 6:00 A.M. each morning for three mornings, and closed after processing any small mammals captured. They were reopened at 5:00 P.M. each afternoon. Closing them during the day results in reduced mortality as no animals are held captive during the warm days or through a 24-hour period. Protocol followed the "Acceptable field methods in mammalogy: preliminary guidelines approved by the American Society of Mammalogists" (Journal of Mammalogy, Supplement to Volume 68, No. 4, 1987).

Captured small mammals were identified, sexed, and aged. They were marked with a permanent pen at the base of the tail and on the belly to distinguish recaptured animals on subsequent mornings. All capture data were recorded on data sheets. Time, weather condition, and approximate temperature were recorded, as well as any sign of disturbance on the trap line (primarily by raccoons). The "Recommended Survey Field Data Compilation Form" was completed, as requested by the U.S. Fish and Wildlife Service (see Appendix).

Results, Discussion, and Recommendations

No Preble's meadow jumping mice were found. A total of 51 individual small mammals were captured: 7 prairie voles (*Microtus ochrogaster*), 10 meadow voles (*Microtus pennsylvanicus*), 1 unidentified voles (*Microtus* sp.), 2 house mice (*Mus musculus*), 30 deer mice (*Peromyscus maniculatus*), and 1 western harvest mice (*Reithrodontomys megalotis*) (Table 1). The 684 trap nights and 62 total captures (51 individuals plus 11 recaptures) result in a relatively low trapping success of 9 percent.

During the survey we noted that the water level in Dry Creek and Dry Creek Ditch fluctuated. Water was flowing bank to bank on September 4 and 8, but was low with dry spots on September 9, and back up again on September 10 and 11. We do not know what, if any, effect this might have on jumping mouse occupation of the drainages.

Adult jumping mice enter hibernation in September, with juveniles typically following in October once they have gained sufficient weight. On East Boulder Ditch, we captured juveniles and adults through September. Thus immergence into hibernation is not likely a factor in our lack of captures.

Although no jumping mice were found during this trapping effort, two factors suggest that they could come up onto the Klein property:

- They have been captured nearby on Dry Creek Ditch, and also all along South Boulder Creek and on Dry Creek Ditch #2.
- There is suitable habitat with adjacent grasslands.
- To the best of my knowledge, Dry Creek Ditch forms a continuous, uninterrupted drainage with reasonable habitat and no development between the previous capture site and the present site.
- We are capturing jumping mice in large numbers through the summer and into this fall along nearby East Boulder Ditch, which also emerges from South Boulder Creek.

For these reasons the lack of captures must be regarded conservatively, in other words they may be present at other times of the year or in other years if individuals move along Dry Creek Ditch.

Baseline Reservoir is not well-vegetated and probably does not offer much for jumping mice. I would expect that movement of mice, if such occurs, would be along Dry Creek Ditch.

My recommendations in regard to jumping mice are as follows:

- Proceed with the new trail as discussed. Place it on the south side of Dry Creek in order to avoid disturbance to the north side. This will protect the vegetation along the north bank of the creek where it is well developed with patches of willows, and will also protect Dry Creek Ditch on the north side of the creek.
- Maintain lack of disturbance at the confluence of Dry Creek and Dry Creek Ditch. If individuals move up along the ditch, this would gain them access to the creek. I understand this is private land and there may not be much control.
- Attempt to maintain well-vegetated corridors along all three drainages.

References

Armstrong, D.M. 1972. Distribution of mammals in Colorado. Monograph, University of Kansas Museum of Natural History 3:1-415.

Greystone. 1998. Draft Report: Gross Reservoir hydroelectric project, City of Boulder Open Space Preble's meadow jumping mouse survey, Boulder County, Colorado. Prepared for Denver Water, Denver, Colorado, March 1998.

Meaney, C.A., N.W. Clippinger, A. Deans, and M. O'Shea-Stone. 1996. Second year survey for Preble's meadow jumping mouse (*Zapus hudsonius preblei*) in Colorado. Prepared for the Colorado Division of Wildlife, 15 November, 1996.

Meaney, C., A. Deans, and M. Rider. 1977. Survey for Preble's meadow jumping mice, South Boulder Creek trail westward expansion, Boulder, Colorado. For City of Boulder Open Space, 22 August 1997.

Meaney, C., N.W. Clippinger, A. Deans, and M. Rider. 1998. Preliminary results: First year study of the impact of trails on small mammals on City of Boulder Open Space. For Greenways Program City of boulder Transportation Department, 3 February 1998.

Table 1. Small Mammal Captures at Dry Creek Trail Head, Boulder, Colorado, 8-11 September, 1998.

Species	Adult Male	Adult Female	Subadult Male	Subadult Female	Juvenile Male	Juvenile Female	Total Male	Total Female	Total All
Microtus ochrogaster									
Prairie Vole	1	4			1	1	2	5	7
Microtus pennsylvanicus									
Meadow Vole	2	5		3			2	8	10 [1]
Microtus species									
Vole species						1		1	1
Mus musculus									
House Mouse	1		1				2		2
Peromyscus maniculatus									
Deer Mouse		5	1	7	5	12	6	24	30 [10]
Reithrodontomys megalotis									
Western Harvest Mouse				1				1	1
Total									51 [11]

Notes:
All values based on 684 trap-nights.
Values in parentheses are recaptures.

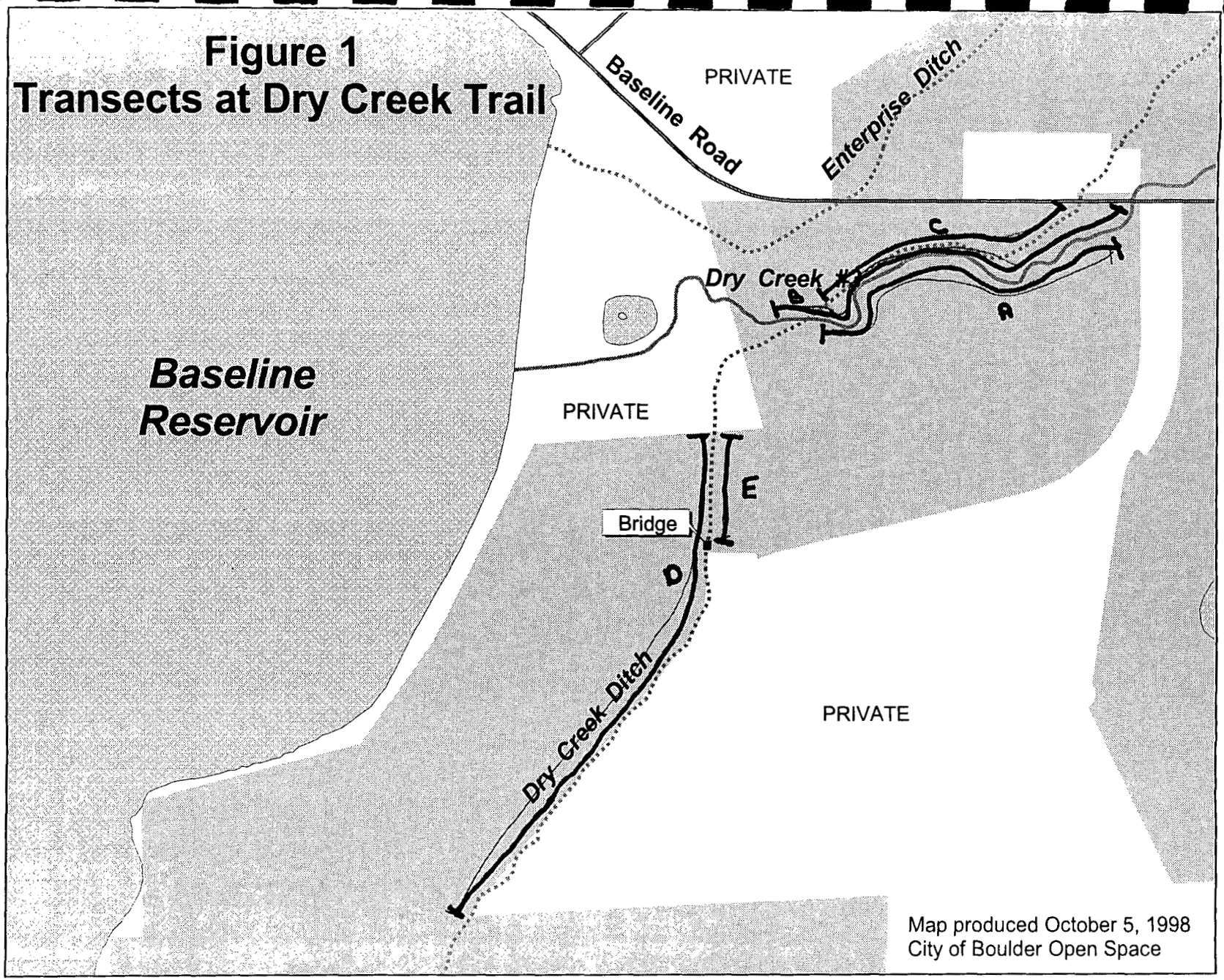
Figure 1
Transects at Dry Creek Trail
Baseline Road
PRIVATE
Enterprise Ditch
Dry Creek #1
C
B
A
Baseline Reservoir
PRIVATE
E
Bridge
D
Dry Creek Ditch
PRIVATE
Map produced October 5, 1998
City of Boulder Open Space
Reservoir
Stream
Ditch
City of Boulder Open Space
Road
Transect
0 200 400 600 800 1000 1200 Feet
0 100 200 300 Meters

APPENDIX

U.S. Fish and Wildlife Service Form

Zapus hudsonius preblei, Preble's Meadow Jumping Mouse

Recommended Survey Field Data Compilation Form

Z. h. preblei found ? Yes ☐ No ☑ Date of Survey 9/8/98

Surveyor(s) Carron Meaney

Full Name(s) Carron Meaney and Anne Ruggles

Survey Section(s) 2 ¼¼ Section(s) N ½ Township(s) 1S

Location: Range(s) 70 W County Boulder Site Name Dry Creek trail

USGS 7½ Quad Map Name Louisville Elevation 5,300 ft.

UTM Coordinates (to the nearest 50 meters) 483725 0.00, 4427490 0.00

Land Ownership City of Boulder open space

Ecological Condition/Management History Historically agricultural - grazed. Presently managed as open space

Directions to Site: East on Baseline ~~Rd~~ Road, past Cherryvale and Baseline Reservoir. See trailhead on right

Brief Project Description (indicate proposed impact to site) Alteration of trail

Habitat Type Riparian System

Vegetation Structure Within Survey Area:

Total Tree Cover (%)	15%	Total Shrub Cover (%)	20%
Total Forb Cover (%)	15%	Total Rock/Log Cover (%)	
Total Graminoid Cover (%)	40%	Total Bare Ground (%)	
Total Moss/Lichen Cover (%)		Other Types of Cover (%)	

Additional Associated Plant Species Cottonwoods, Russian-olive, box elders, willows, thistle, catnip, curly dock, rushes, sedges, smooth brome, Kentucky blue

Aspect (S, NNW, etc.) ____ % Slope ____ Slope Shape (concave, convex, straight, etc.) ____

Light Exposure (open, shaded, partial shade, etc.) partial shade

Topographic Position (crest, upperslope, midslope, lowerslope, bottom, etc.) bottom

Moisture (dry, moist, saturated, inundated, seasonal seepage, etc.) moist

Hydrology, Geomorphology, and Soils at the Trap Site

Site's Climatological/Meteorological Conditions on Day Prior to Survey rain

Site's Climatological/Meteorological Conditions on Day of Survey rain First two days, dry third day

small handful

Type of Trap Used Sherman Type and Amount of Bait Used horse sweet feed

Proximity, Degree, and Type of Human Development/Disturbance in Survey Area Housing on N Wide Baseline Rd, and east of Dry Creek Ditch there are 1 or 2 house.

No. of Mice Found and/or Seen ___ Approximate Age or Maturity _____ Weight ___ gms.

Total Length_____ mm. Tail Length _____ mm. Hind Feet Length _____ mm.

Other characteristics (e.g., enlarged mammary glands - lactation, scars, missing limb or toe, etc.) _____

Associated Animal Species voles, house mice, deer mice, harvest mice

Other Relevant Information (evidence of disease, predation, injury, etc.) _____

Type (e.g., fur-dying, toe-clipping, tag, etc.) and Exact Location of Markings _____

Photographs (mouse and its habitats): Photographer _____ Repository _____

Sketch of Surveying Area, Map of Site, etc.

See attached Figure 1.

Additional Comments (relevant ecological/ethological info.; if site is disqualified, DETAILED explanation)

(SUBMIT THIS FIELD DATA FORM WITH THE SURVEY REPORT)