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September 1, 2016

Mr. Drue DeBerry
US Fish and Wildlife Service
Ecological Services, Colorado Field Office
P.O. Box 25486, DFC (65412)
Denver, CO 80225-0486

Subject: Preble's Meadow Jumping Mouse Presence/Absence Trapping Survey, Hogan Pancost, Boulder County Colorado

Dear Drue:

This letter represents the results of a Preble's meadow jumping mouse (*Zapus hudsonius preblei* [PMJM]) presence/absence trapping survey conducted at the Hogan Pancost property, Boulder County, Colorado. Based on the results of the 2016 trapping survey and previous habitat assessments, we request concurrence from your office that the project area does not provide suitable PMJM habitat and development of the project area would have “no effect” on PMJM.

The 22.17 acre Hogan Pancost property is located in Boulder County, Colorado, southwest of the East Boulder Community Park. 55th Street bisects the property to create a 2.73 acre East Parcel and a 19.44 acre West Parcel. Specifically, the property is located in parts of Sections 3 and 4 of Township 1 North and Range 70 West in Boulder County (Figure 1).

Both the West and East parcels are undeveloped except for several small sheds on the West Parcel associated with an agricultural land use. The agricultural land use of the project site extends back to the settlement era in the late 1800's (Hogan, 2008). Recent agricultural use includes livestock grazing. The West Parcel is currently being grazed by horses. Historically, the Hogan Pancost property was extensively flood irrigated beginning with settlement in the late 1800's (Hogan, 2008). Flood irrigation of the West Parcel was terminated approximately six years ago, and the East Parcel is typically flood irrigated twice per year from the property to the south. The West Parcel has a population of black-tailed prairie dogs (*Cynomys ludovicianus*). The prairie dogs ground disturbances have increased the abundance of noxious and undesirable weeds while decreasing suitable PMJM upland habitat.

Several irrigation ditches and laterals are present on the project site. The Dry Creek Ditch #2 (Ditch) is located along the western boundary of the West Parcel, and the CD Bodam Lateral (Lateral) is located along the southern boundary of the West Parcel. The Super-phosticle Lateral flows northwest across the East Parcel and across the easternmost portion of the West Parcel, then continues northwest just outside the northern boundary of the West Parcel. There are no streams on the project site; however South Boulder Creek is located east of the East Parcel. A small irrigation water storage pond occurs on the property to the south and extends into the East Parcel near the Super-phosticle Lateral.

The vegetation of the East and West Parcels is characterized by 5.05 acres of a degraded agricultural seeding, 14.69 acres of Colorado noxious and other weeds, 0.324 acres of plains cottonwood trees (*Populus deltoides*) on the east end of the East Parcel, 1.59 acres of man-induced jurisdictional wetlands, and a 0.02 acre pond. The upland pasture is best developed in swales just north of the Lateral where they were historically flood irrigated. Please note, this Lateral is lined and the flood irrigation has been terminated. The swale areas are characterized

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by agricultural and native wetland and facultative plants such as meadow fescue (*Festuca pratensis*), redtop (*Agrostis gigantea*), Baltic rush (*Juncus arcticus* subsp. *ater*) and numerous upland species, including timothy (*Phleum pratense*), Kentucky bluegrass (*Poa pratensis*), chicory (*Cichorium intybus*), narrow-leaf birds-foot trefoil (*Lotus tenuis*), curly dock (*Rumex crispus*), and red clover (*Trifolium pratense*).

Weedy areas occur in the slightly higher elevations of the project site where prairie dogs have created disturbed habitats and in mesic areas on the East Parcel. These areas have a vegetation cover composed of a diversity of Colorado state listed noxious weeds and other introduced plants. The most abundant weeds in the West Parcel include Scotch thistle (*Onopordum acanthium*), diffuse knapweed (*Acosta diffusa*), Canada thistle (*Cirsium arvense*), mullein (*Verbascum thapsus*), chicory, and field bindweed (*Convolvulus arvensis*). The East Parcel has large stands of teasel (*Dipsacus fullonum*) intermixed with the wetland plants, as well as stands of Canada thistle and a few Russian olive (*Elaeagnus angustifolia*) trees.

Wetlands on the project site are dominated by graminoids and perennial forbs, and in places woody shrubs. Major graminoids include redtop, meadow fescue, American mannagrass (*Glyceria grandis*), Baltic rush, Nebraska sedge (*Carex nebrascensis*), clustered field sedge (*Carex praegracilis*), and prairie cordgrass (*Spartina pectinata*). Common forbs present include Macoun's buttercup (*Ranunculus macounii*), water smartweed (*Persicaria amphibia*), largeleaf avens (*Geum macrophyllum*), field mint (*Menta arvensis*), and white panicle aster (*Aster lanceolatus* ssp. *hesperius*). Many of the wetlands, especially on the drier edge, have introduced weeds including Canada thistle, teasel, prickly lettuce (*Lactuca serriola*), and others. Sandbar willows (*Salix exigua*) occur along the irrigation ditches. Less abundant woody plants include chokecherry (*Prunus virginiana* var. *melanocarpa*), Russian olive, plains cottonwood (*Populus deltoides*), and crack willow (*Salix fragilis*).

Finally, a small stand of plains cottonwood trees occur in the eastern portion of project area. The understory is comprised of upland and facultative plants such as smooth brome (*Bromus inermis*), meadow fescue, Canada goldenrod (*Solidago canadensis*), and goldenbanner (*Thermopsis divaricarpa*).

Designated Critical Habitat/Occupied Habitat. South Boulder Creek is identified by USFWS as Designated Critical Habitat. Because PMJM use uplands away from stream corridors, all uplands within 300 feet of the center of the stream have been included as a Critical Habitat buffer. The extreme south-east corner of the East Parcel is within approximately 30 feet of the upland buffer (Figure 2). All upland areas within the mapped buffer may not be suitable habitat (e.g. prairie dog colonies, disturbed areas, etc.) capable of adding important PMJM life history components.

In 2014 (most recent trapping conducted), the City of Boulder captured a PMJM approximately 246 feet east of the eastern edge of the East Parcel on the west bank of South Boulder Creek (Swanson 2016). Several individuals were captured along South Boulder Creek and all captures occurred within approximately 50 feet of the creek (most between 20-30 feet from the creek).

Consultation History. Several previous habitat assessments and USFWS concurrence have been completed for the project site (Appendix A). These assessments were conducted in 2003, 2007 and 2008, and each assessment was concurred with by the USFWS that the project area was not capable of supporting Preble's and any development of the project area would not harm Preble's.

2016 Trapping Survey Results. The survey was conducted under protocol set forth by the USFWS (USFWS 2004) using Sherman Live Traps baited with Purina Animal Chow™ (a combination of rolled oats, cracked corn and molasses). A total of 180 Sherman Live Traps were placed the evening of August 21, 2016 within the best habitat within the project area and the only area that could function as a movement corridor. A total of 100 traps were placed along the CD Bodam Lateral on the south side of the West Parcel and 80 traps on the south side of the East Parcel. Traps were set in two singular rows containing 50 traps each with each row 10 meters apart and traps spaced approximately 5 meters (16.4 feet) apart in the West Parcel and two parallel transects of 40 traps in

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the East Parcel (Figure 3). Traps remained in place and were open and available for capture on the nights of the 21st through the 24th. A total of 720 trap nights were completed. Trapping did not continue beyond the night of the 24th because of wet and cold conditions that were not favorable to trapping because of the risk of hypothermia for trapped animals. Appendix B contains the 2004 Survey Field Data Compilation Form. Photos 2 and 3 are representative of the habitat trapped on the West Parcel; Photos 4 and 5 are representative of the habitat trapped on the East Parcel.

The survey resulted in the total capture of 231 individuals representing four species. There were no captures of PMJM. The Deer Mouse (*Peromyscus maniculatus*) was the most common species trapped (115 captures; 49.7% of all captures) followed by the Meadow Vole (*Microtus pennsylvanicus*) with 95 captures (41.1 % of all captures). Western Harvest Mice (*Reithrodontomys megalotis*) and the House Mouse (*Mus musculus*) were the other two species captured at 4.7 and 4.3 percent, respectively.

Cover height and amount can be important in small mammal population regulation. Oftedahl (Oftedahl (1976) determined cover amount and height to be important in small mammal population regulation and reported that overgrazed areas with short vegetation and bare ground favored the Deer Mouse and areas that were not overgrazed had a greater occurrence of voles (*Microtus* spp. – Oftedahl 1976). The majority of the uplands associated with the project area have very short to no vegetation and the vegetation present is dominated by non-native invasive species (Photo 1). These areas likely support a small number of the Deer Mouse and likely are not capable of supporting other species including PMJM.

Trap availability was high; of the 489 available trap nights (231 not available because of captures) 39 traps (8 %) were recorded as ‘closed/empty’. These traps were often found away from the original trap location with the batting removed, likely the result of Raccoons (*Procyon lotor*) tampering with the traps. Ninety two percent (450 traps) of all traps were recorded as ‘open/empty’ and were available for small mammals to enter into.

Qualification of Surveyor. Mr. Jerry Powell has conducted small mammal studies since the early 1990s and PMJM habitat assessments and surveys since the late 1990s. His qualifications are on record with the USFWS.

In conclusion, based on the previous consultations conducted for the Hogan Pancost project area, the highly disturbed nature of the project area, and the lack of captures of PMJM during the 2016 trapping survey, we request concurrence that development of the Hogan Pancost project area would have “no effect” on PMJM and that the project area is incapable of supporting PMJM.

Sincerely,

Handwritten signature of Jerry M. Powell

Jerry Powell, M.S.
Certified Wildlife Biologist®
Certified Ecologist

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References

Oftedahl, L. O. 1976. Small mammal habitat modification in Northeastern Colorado. Technical Report No. 301. Grassland Biome, U.S. International Biological Program.

Swanson, H. 2016. Personal communication between Heather Swanson, Wildlife Ecologist City of Boulder Open Space and Mountain Parks, and Jerry Powell, Wildlife Biologist Wildlife Specialties LLC.

United States Fish and Wildlife Service (USFWS). 2004. Letter To Whom It May Concern regarding modified recommendations and guidelines for surveys to determine the presence or absence of the Preble's meadow jumping mouse, (*Zapus hudsonius preblei* - Preble's), in Colorado and southeastern Wyoming. Reference: ES/CO: T&E/PMJM/Other MS 65412 Lkwd

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Photographs



Photo 1. Looking southwest across the West Parcel.

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Photo 2. Looking at the western end of the West Parcel survey transect.

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Photo 3. Looking west toward the end of the West Parcel transect.

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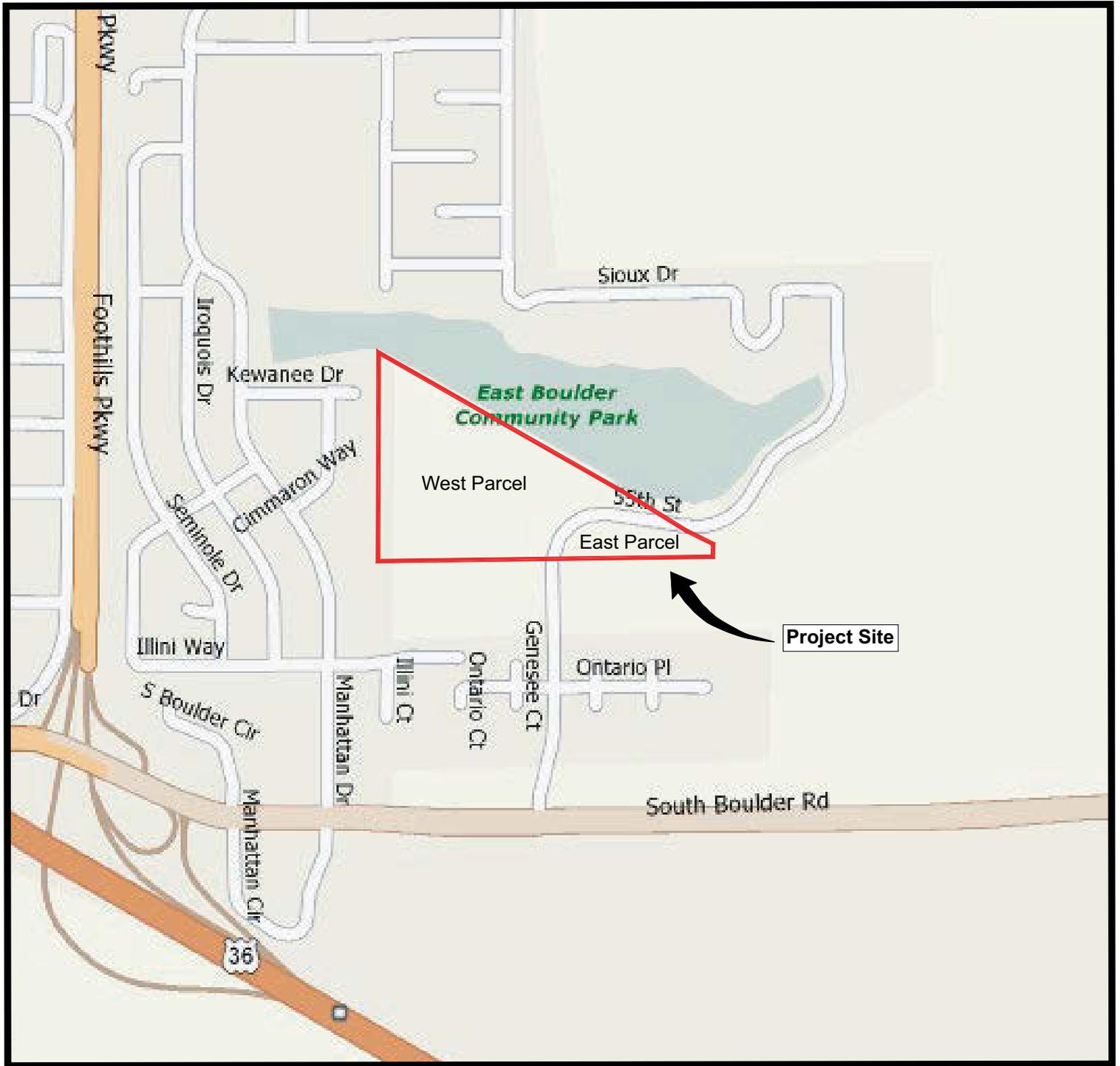
Photo 4. Looking east toward the end of the East Parcel transect.

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Photo 5. Looking west down the East Parcel transect.



BASE: Map Data Mapquest 2008 NAVETQ or TeleAtlas

**FIGURE 1. Vicinity Map
Hogan Pancost Property**



Scale 1" = 600'



711 Walnut Street • Boulder, CO 80302

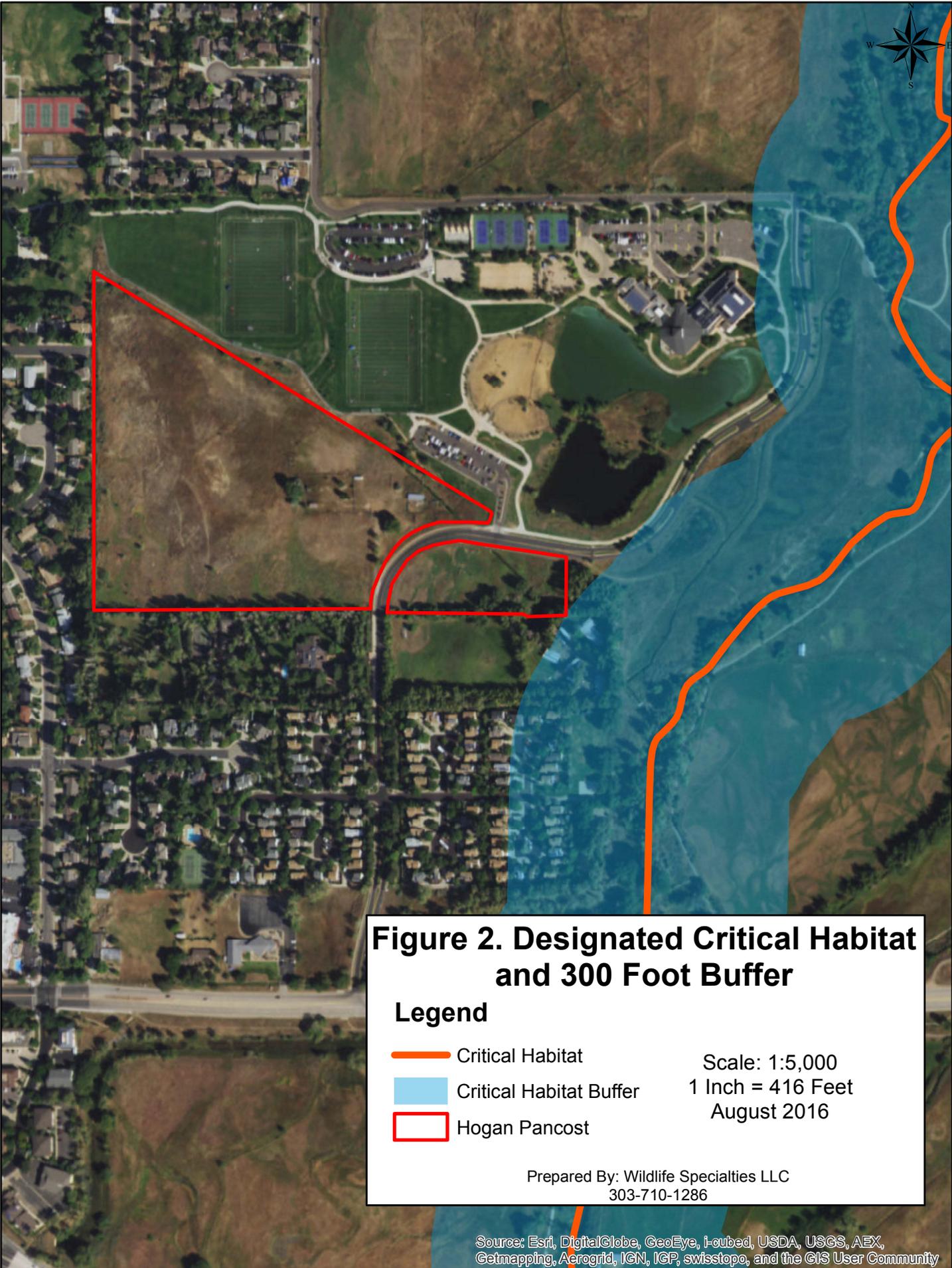


Figure 2. Designated Critical Habitat and 300 Foot Buffer

Legend

- Critical Habitat
- Critical Habitat Buffer
- Hogan Pancost

Scale: 1:5,000
 1 Inch = 416 Feet
 August 2016

Prepared By: Wildlife Specialties LLC
 303-710-1286

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



Figure 3. 2016 Survey Transect Locations

Legend

- Transect
- Hogan Pancost

Scale: 1:3,000
 1 Inch = 250 Feet
 August 2016

Prepared By: Wildlife Specialties LLC
 303-710-1286

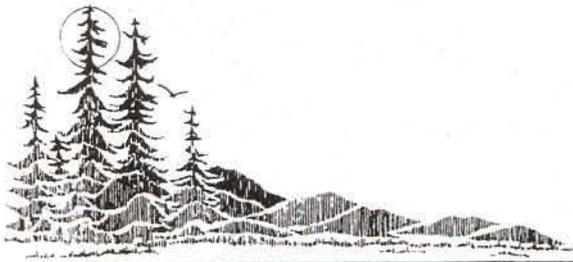
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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Appendix A Previous PMJM Habitat Assessments - Hogan Pancost



Mr. Charles Gee
MACKENZIE HOUSE
147 Walnut St..
Suite 102
Boulder, CO. 80302

July 24, 2008

Dear Mr. Gee;

I completed a site visit to the Hogan-Pancost property on July 14, 2008. The objective, following your request, was to evaluate current habitat conditions relevant to the federally threatened Preble's Jumping Mouse.

My site visit was directed primarily at evaluating your recent maintenance activities along the irrigation ditch at the southwest edge of the property. The disturbances to the vegetation adjacent to the ditch are minor and in no way represent a potential impact to the jumping mouse or to other wildlife species. Similarly, as no changes in the hydrology will occur due to this ditch maintenance, there will be no downstream effects or off-site impacts.

I hope the information provided here is satisfactory for your purposes. If I can be of further assistance, please feel free to call.

Respectfully,

Robert. E. Stoecker, PhD
Consulting ecologist



Mr. Peter Plage
U.S. Fish and Wildlife Service
Ecological Services
Colorado Field Office
P.O. Box 25486, DFC (MS 65412)
Denver, CO. 80225-0486

August 7, 2007

RE: Update of request for exclusion of survey trapping for the federally threatened Preble's jumping mouse

Dear Mr. Plage:

A request for excluding the property described below from a trapping survey for the Preble's jumping mouse was submitted to your office on August 8, 2003. On August 25, 2003 your office granted this request. I am enclosing pertinent materials from these correspondences with this report.

My client would like at this time to update the 2003 report and to again request an exclusion of a trapping survey. The project area is the **Hogan/Pancost Property**, located in the city of Boulder, approximately 1/4 mile north of South Boulder Road on 55th Street (Section 4, T1S R70W, UTM 4,426,400N 480,900E). After your review of these materials, would you please inform the client regarding your acceptance or rejection of my habitat evaluation? The client can be reached at the following address?

Mr. Tom Finley
MACKENZIE HOUSE
7887 E. Belleview Ave.
Suite 800
Englewood, CO. 80111
(720) 240-4580

In my 2003 report I presented the following habitat description:

The Hogan/Pancost Property consists of grassy meadows located to either side of 55th Street (Figures 1 and 2). A very small irrigation ditch parallels 55th Street at this location, and South Boulder Creek is approximately 375 feet east of the property boundary. The East Boulder Recreation Center is located immediately northeast of the property and two ponds belonging to this facility are just outside the property boundary. There is no riparian habitat on the Hogan/Pancost property or stands of willow or other mesic shrub. In my opinion, this site is unlikely to support a population of Preble's Jumping mice or to function as a movement corridor and therefore should be excluded from further Preble's Jumping mouse considerations. In my opinion, this site is unlikely to support a population of Preble's Jumping mice or to function as a movement corridor and therefore should be excluded from further Preble's Jumping mouse considerations.

I again visited this site, on August 6, 2007, to update my 2003 habitat evaluation. I am including two recent photographs, and re-submitting the 2003 photographs for your review. In my opinion there has been no significant habitat changes and therefore I would like to request that the property be again excluded from a Preble's jumping mouse live-trapping survey.

Thank you for your consideration of this request. If you require additional information regarding this project, please feel free to call.

Respectfully,

A handwritten signature in black ink that reads "Bob Stoecker". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Robert E. Stoecker, PhD
Consulting Ecologist

cc. Tom Finley

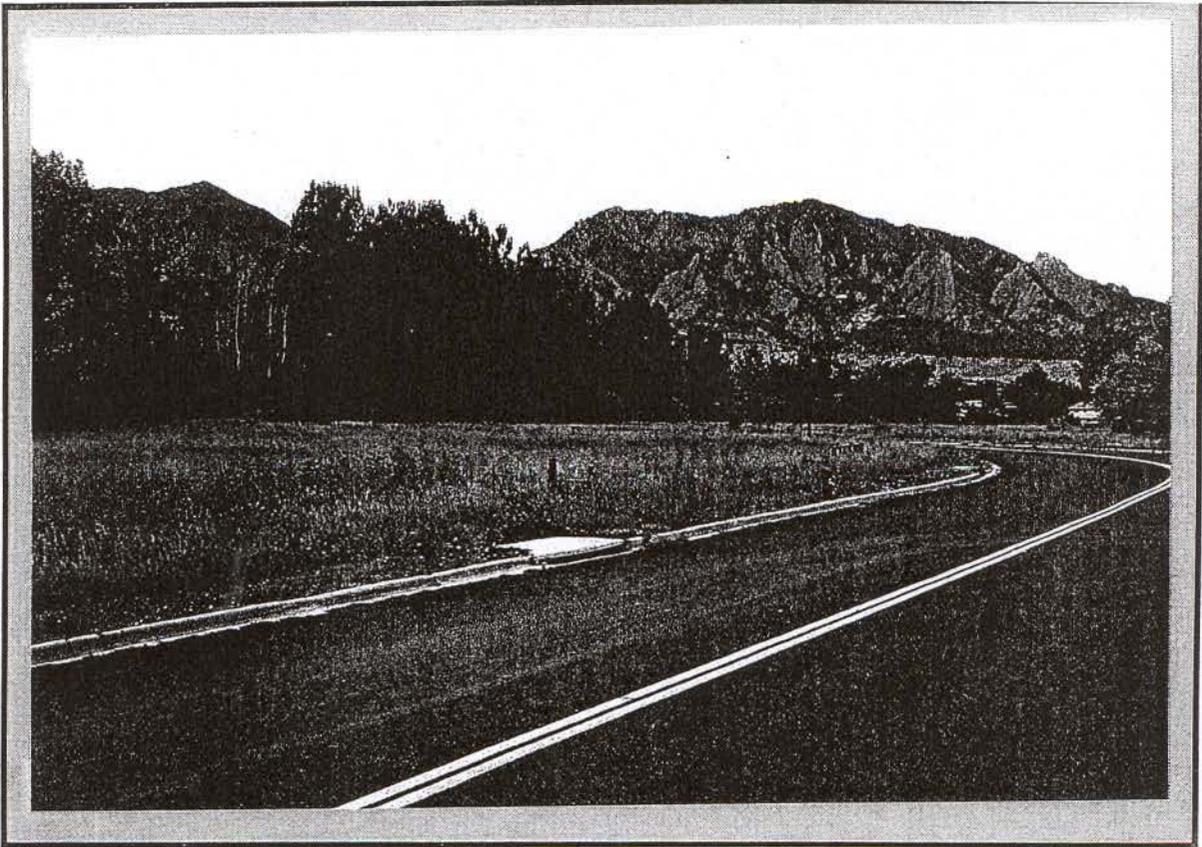


Figure 1.

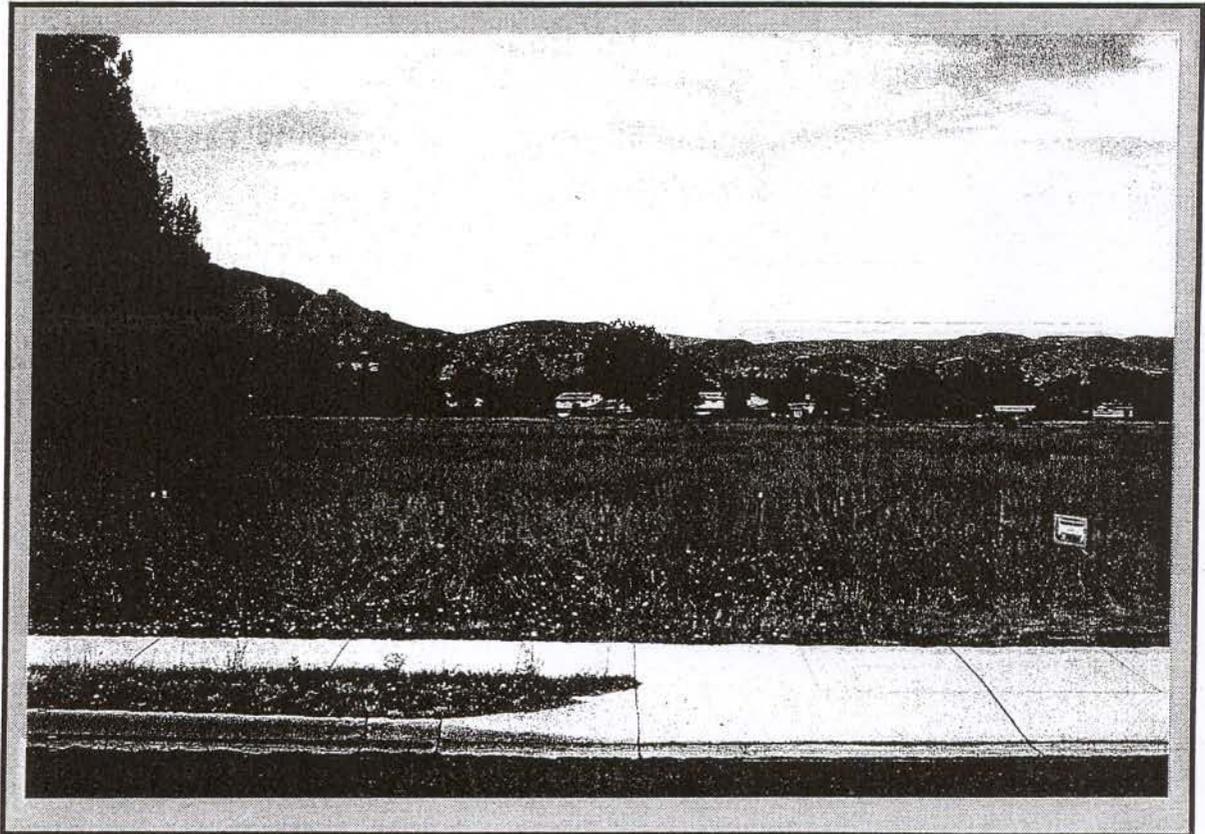


Figure 2.

Photographs taken in 2003

A-4

B-17

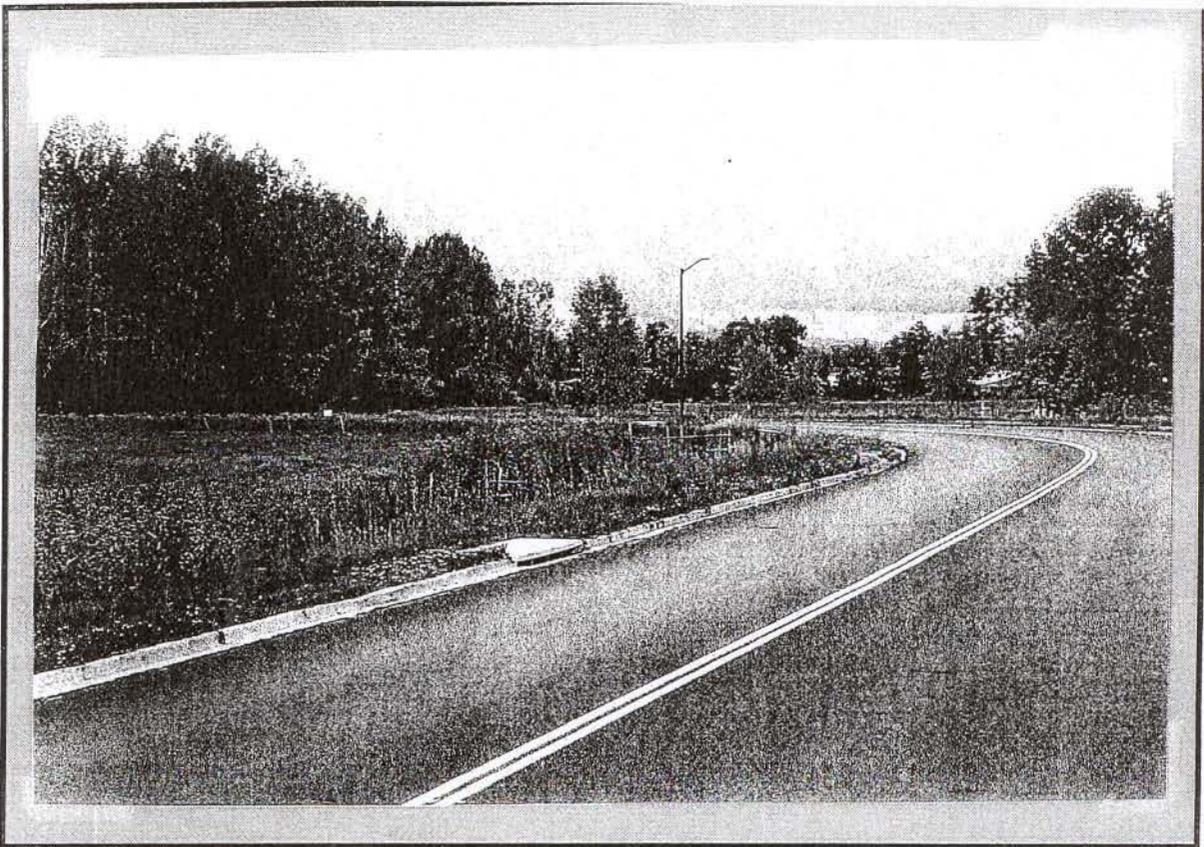


Figure 1

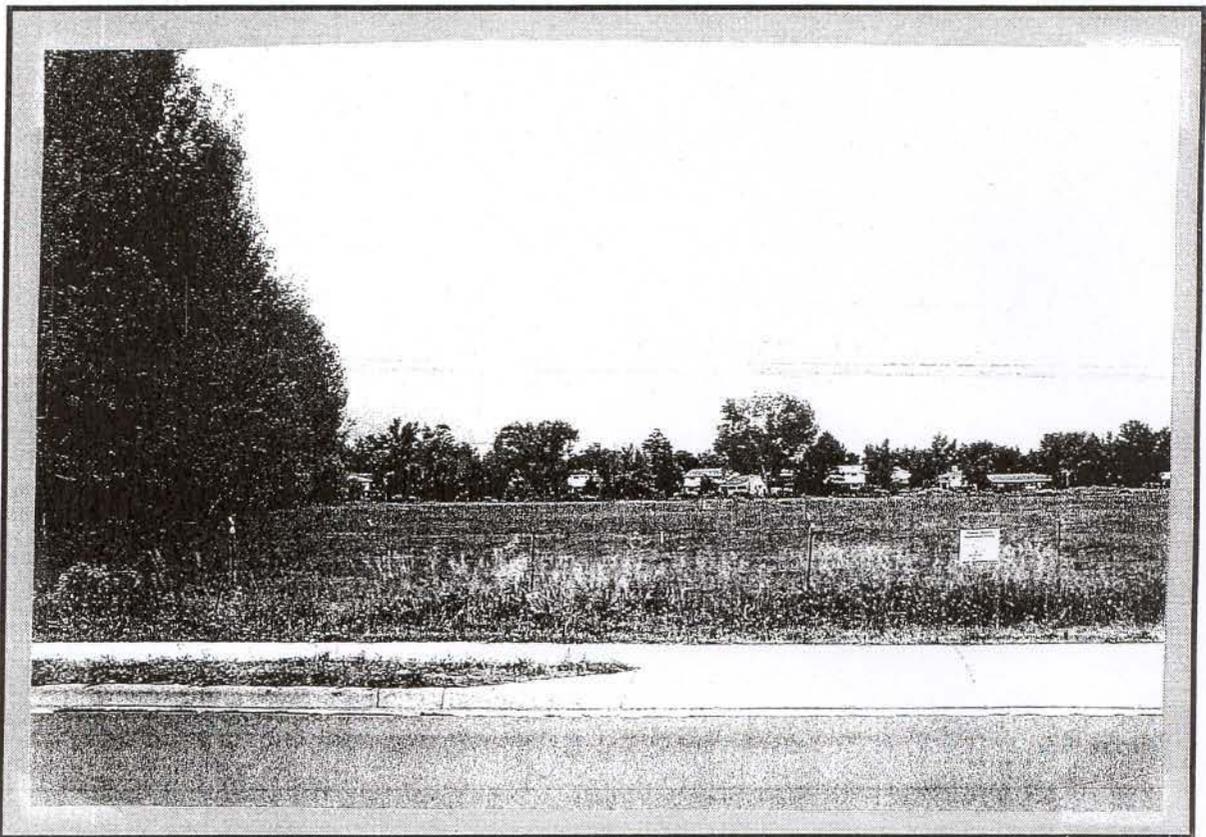
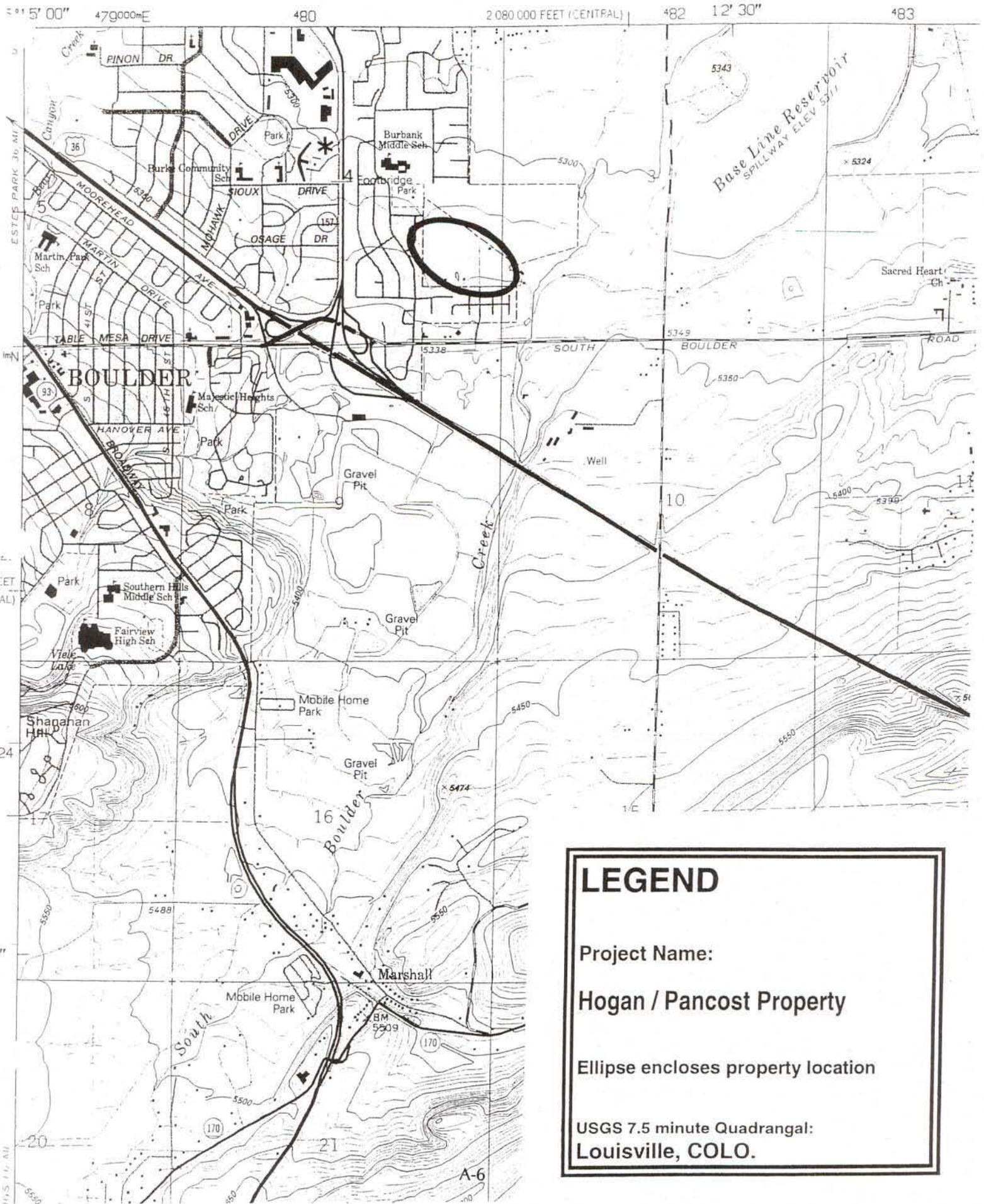


Figure 2.

Photographs taken in 2007

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



LEGEND

Project Name:
Hogan / Pancost Property

Ellipse encloses property location

USGS 7.5 minute Quadrangal:
Louisville, COLO.

Zapus hudsonius preblei, Preble's Meadow Jumping Mouse

Survey Field Data Compilation Form

TRAPPING SURVEY

EVALUATED, NOT TRAPPED

Fill out both sections 1 and 2 if trapping survey, fill out only section 1 if habitat evaluation (ie. not trapped).

SECTION 1

Surveyor:

Organization/Company

Full Name(s)

Stoecker Ecological Consultants
Robert E Stoecker

Location:

Descriptive Site Name (creek, nearby road intersection, etc.)

Hogan / Pancost Property

U.S.G.S. Quad Name _____ County _____ Elevation 5280 ft

Township(s) T1S Range(s) R20 W Section(s) 4

¼¼ Section(s) SE¼ of SE¼

UTM Coordinates, Zone 13 Northing 4,426,400 Easting 480,900

Directions to Location ¼ mile north of South Boulder Road

on 55th St.

Land Ownership private

Habitat:

General Habitat Description

Dense grassy meadow

Dominant Plant Community Native and introduced grasses

Drainage Type: Perennial Stream _____ Ephemeral Stream _____ Pond/Lake _____

Ditch _____ Other no on-site stream or lake

SECTION 2:

Z. h. preblei found? Yes No Dates of Survey _____

Trapping Information:

Type of Traps _____ Type of Bait _____

% Available (unsprung) _____ Number of Nights Trapped _____

Total Trapnights _____

Weather conditions prior to and during survey _____

Associated Animal Species (especially urban predators, rats, house mice)



Mr. Peter Plage
U.S. Fish and Wildlife Service
Ecological Services
Colorado Field Office
P.O. Box 25486, DFC (MS 65412)
Denver, CO. 80225-0486

July 24, 2008

Dear Mr. Plage:

This letter is merely to inform you of some minor activities on a project site that was recently cleared by your office of concerns regarding the Preble's Jumping Mouse. The project site is the **Hogan/Pancost Property** located in Boulder, Colorado. Your letter of clearance is dated September 14, 2007.

Because your letter of September 14 calls attention to problems that could possibly arise given any alteration in flow regimes, the client thought it appropriate to inform you of recent maintenance activities along an irrigation ditch located at the southwest edge of the property. This ditch runs to the west and is a lateral that retrieves water from Dry Creek Ditch #2 and returns water to this same ditch.

Only routine maintenance activities were performed along this ditch. These activities involved simply lining the ditch with a plastic membrane liner. Some minor disturbance to the adjacent vegetation occurred, as can be seen in Figures 1 and 2. Dry Creek Ditch #2 (Fig. 3), was not involved in the maintenance.

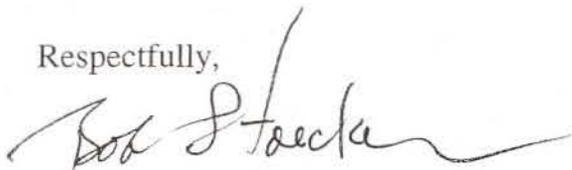
The client has informed me that no changes in flow regimes will occur. And, because the ditch is located well away from any potential jumping mouse habitat, the minor disturbance to the vegetation does not represent a significant impact.

After your review of these materials, would you please inform the client regarding your acceptance or rejection of my habitat evaluation? The client can be reached at the following address?

Mr. Charles Gee
MACKENZIE HOUSE
147 Walnut St.
Suite 102
Boulder, CO. 80302
(303) 669-3002

Thank you for your consideration of this request. If you require additional information regarding this project, please feel free to call.

Respectfully,

A handwritten signature in cursive script, appearing to read "Bob Stoecker", with a long horizontal flourish extending to the right.

Robert E. Stoecker, PhD
Consulting Ecologist

cc. Charles Gee



Figure 1

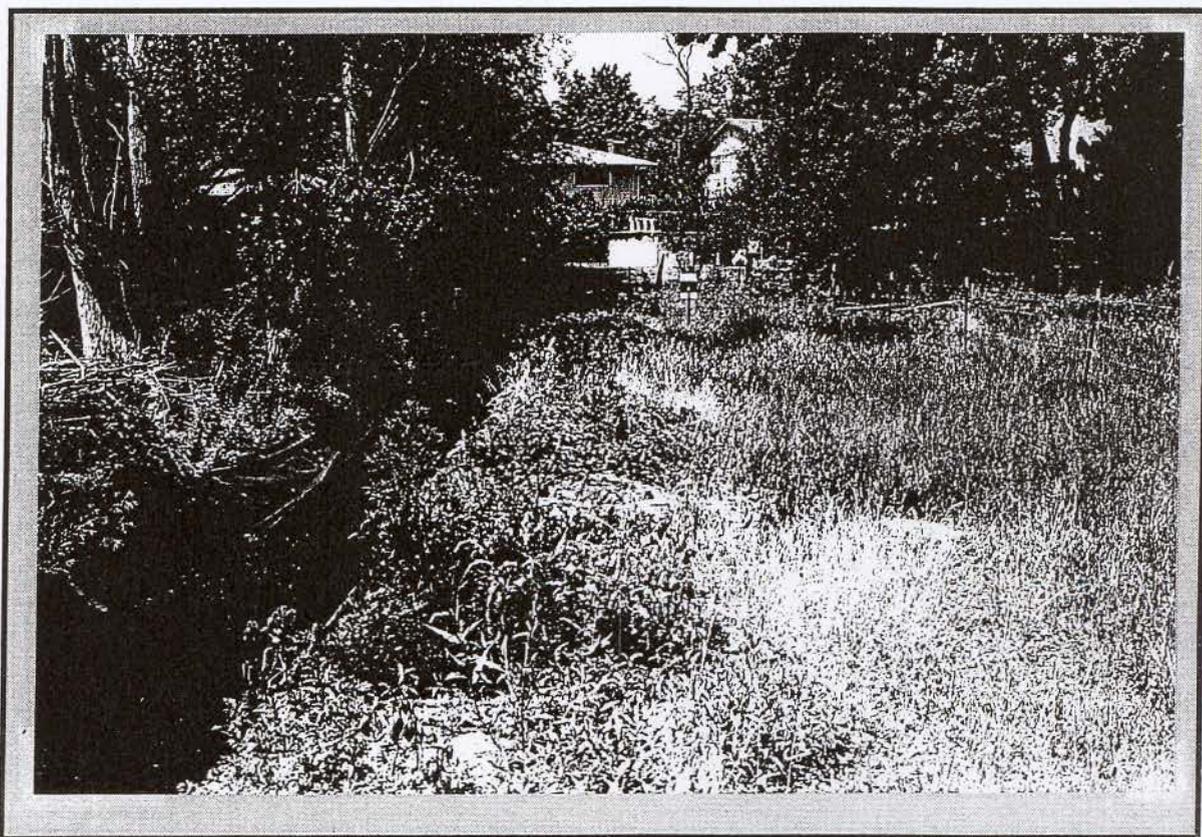
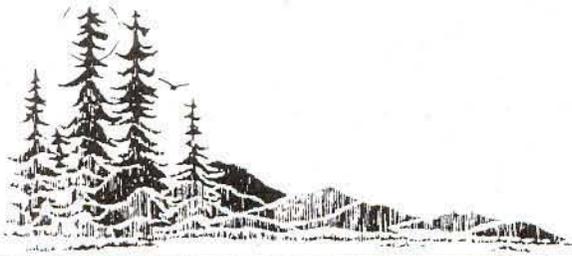


Figure 2.



Figure 3.



**Stoecker
Ecological
Consultants, Inc**

279 Forest Lane

Boulder, Colorado 80302

Ph/Fax (303) 444-3979

Mr. Tom Finley
MACKENZIE HOUSE
7887 E. Belleview Ave.
Suite 800
Englewood, CO. 80111

March 28, 2008

Dear Mr. Finley;

Pursuant to your request, I conducted a recent site visit to the Hogan-Pancost property. The objective, following your request, was to evaluate current habitat conditions relevant to the federally threatened Preble's Jumping Mouse. My site visit was conducted on March 26, 2008.

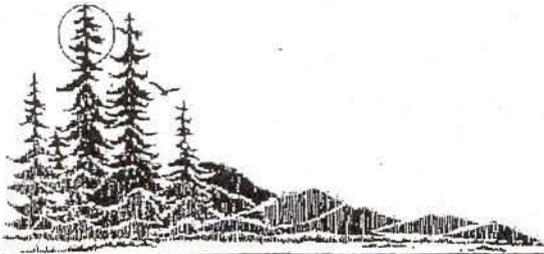
As you are aware, I conducted two previous habitat evaluations of this site (in 2003 and 2007), both of which were presented to the U.S. Fish and Wildlife Service for their review. The USFWS agreed with my assessment that the Hogan-Pancost site is not a critical habitat for the Preble's Jumping Mouse.

On my recent site visit I again examined the entire property. I did not find any significant change in the overall appearance of the vegetation, or detect any important modification of the habitat. If I were to submit another report to the USFWS (which is not required given their approval of my previous evaluation), I would again state that this site does not represent critical habitat for the Preble's Jumping Mouse.

I hope the information provided here is satisfactory for your purposes. If I can be of further assistance, please feel free to call.

Respectfully,

Robert. E. Stoecker, PhD
Consulting ecologist



Mr. Peter Plage
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Colorado Field Office
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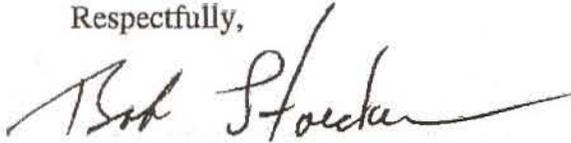
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Thank you for your consideration of this request. If you require additional information regarding this project, please feel free to call.

Respectfully,



Robert E. Stoecker, PhD
Consulting Ecologist

cc. Tom Finley



Figure 1

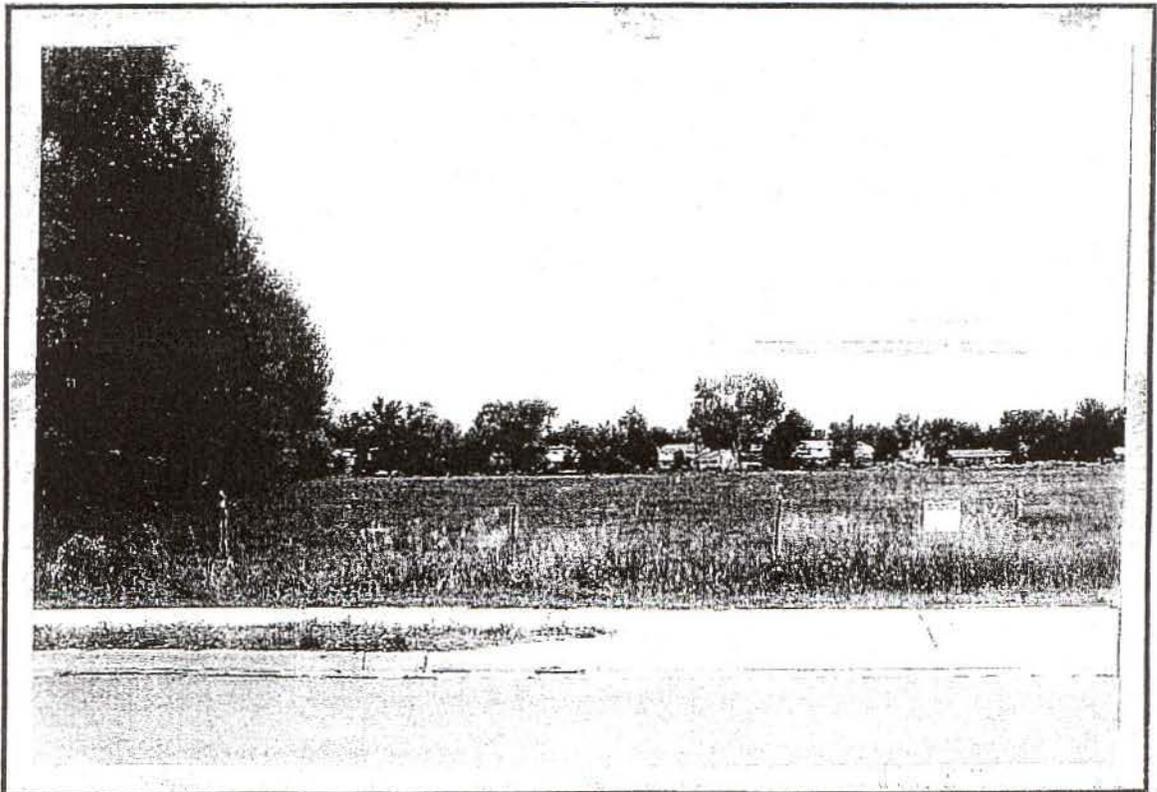


Figure 2.

Photographs taken in 2007



Figure 1.

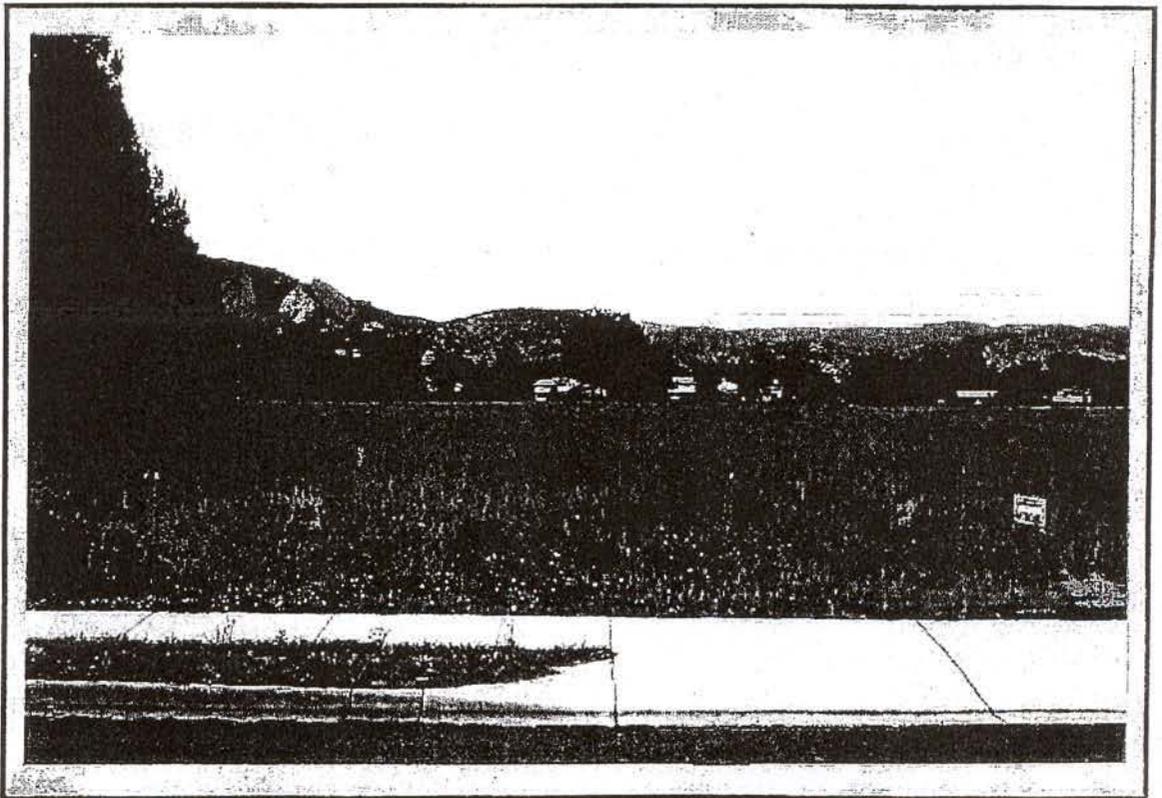


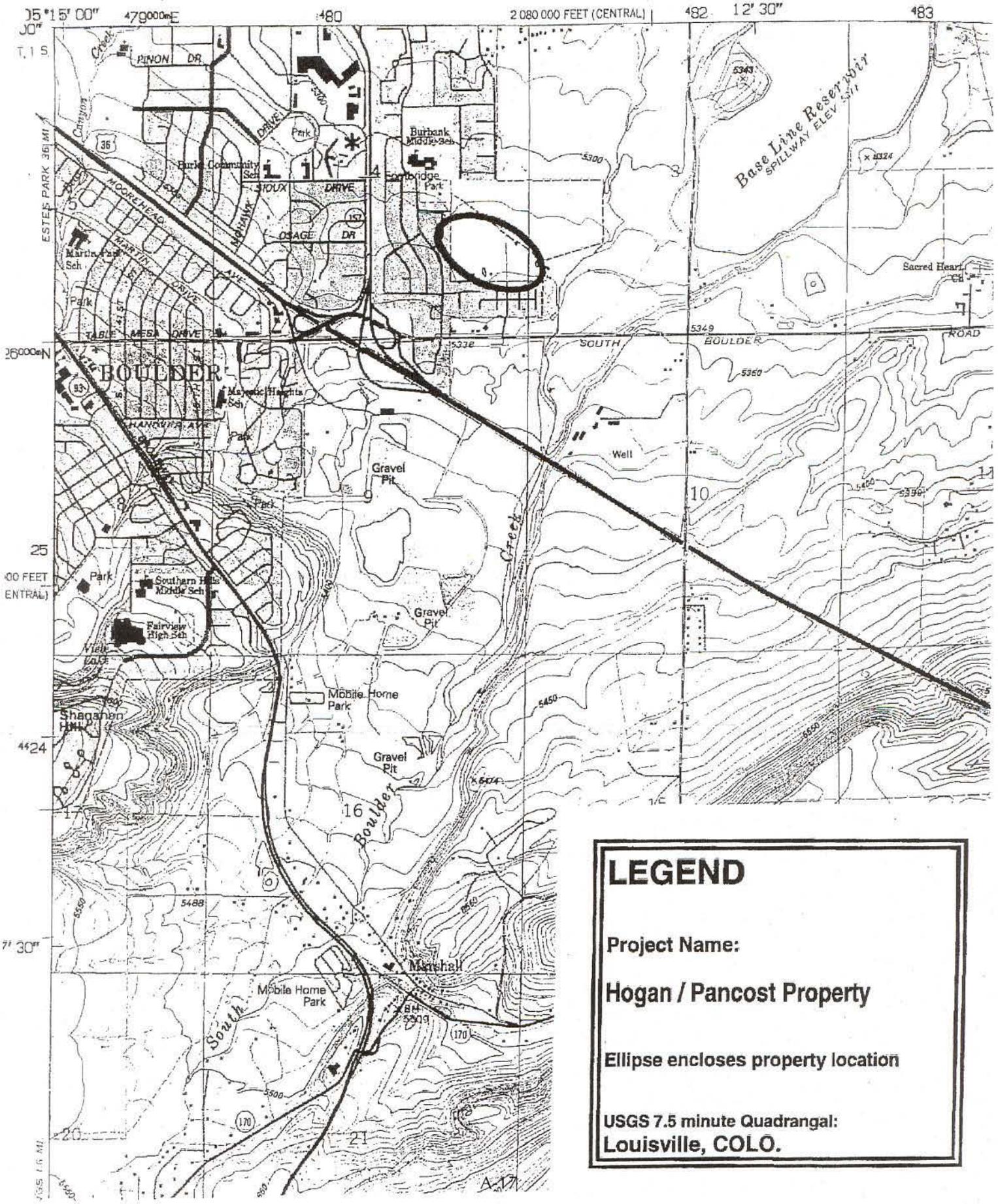
Figure 2.

Photographs taken in 2003

A-16

B-29

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



LEGEND

Project Name:
Hogan / Pancost Property

Ellipse encloses property location

USGS 7.5 minute Quadrangal:
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Zapus hudsonius preblei, Preble's Meadow Jumping Mouse

Survey Field Data Compilation Form

TRAPPING SURVEY

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Fill out both sections 1 and 2 if trapping survey, fill out only section 1 if habitat evaluation (ie. not trapped).

SECTION 1

Surveyor:

Organization/Company Stoecker Ecological Consultants
Full Name(s) Robert E. Stoecker

Location:

Descriptive Site Name (creek, nearby road intersection, etc.)

Hogan / Pancast Property
U.S.G.S. Quad Name _____ County _____ Elevation 5250 ft
Township(s) T1S Range(s) R20W Section(s) 4

¼ Section(s) SE¼ & SSW¼
UTM Coordinates, Zone 13 Northing 4,426,400 Easting 480,900
Directions to Location ¼ mile north of South Boulder Road
on 55th St.

Land Ownership private

Habitat:

General Habitat Description

Dense grassy meadow

Dominant Plant Community Native and introduced grasses

Drainage Type: Perennial Stream _____ Ephemeral Stream _____ Pond/Lake _____

Ditch _____ Other no on-site stream or lake

SECTION 2:

Z. h. preblei found? Yes No Dates of Survey _____

Trapping Information:

Type of Traps _____ Type of Bait _____

% Available (unsprung) _____ Number of Nights Trapped _____

Total Trapnights _____

Weather conditions prior to and during survey _____

Associated Animal Species (especially urban predators, rats, house mice)



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Colorado Field Office
755 Parfet Street, Suite 361
Lakewood, Colorado 80215

IN REPLY REFER TO:
ES/CO: T&E/PMJM/Other
Mail Stop 65412

AUG 25 2003

Robert Stoecker
Stoecker Ecological Consultants, Inc.
279 Forest Lane
Boulder, Colorado 80302

Dear Mr. Stoecker:

Based on the authority conferred to the U.S. Fish and Wildlife Service (Service) by the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 *et seq.*), the Service reviewed the Preble's meadow jumping mouse, *Zapus hudsonius preblei* (Preble's), habitat assessment report submitted with your letter of August 8, 2003. This report regards the proposed site plan review for the **Hogan/Pancost Property** on 55th Street in Boulder County, Colorado.

Based on the information provided, and given your compliance with the Preble's survey guidelines, the Service finds the report acceptable and agrees that a population of Preble's is not likely to be present within the subject area, therefore, a Preble's trapping survey is not needed at this time. Thus, the Service concludes that the proposed project on this site should not have direct adverse affects to Preble's. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered under the ESA.

If the Service can be of further assistance, please contact Barbara Spagnuolo of my staff at (303) 275-2370.

Sincerely,

Susan C. Linner
Colorado Field Supervisor

cc: Michael Boyers, Del Mar Interests
Spagnuolo

Reference: BJS\Boulder\Hogan.wpd

December 17, 2008

Mr. Charles Gee
MH-BCC, LLC
2020 Nineteenth Street
Boulder, CO 80302

Dear Mr. Gee:

I recently reviewed the status of the Preble's meadow jumping mouse (PMJM) on the Hogan Pancost property in Boulder County, at the request of David Johnson with Western Ecological Resource.

David and I visited the property on December 15, 2008. He showed me the vegetation features on-site and discussed past and current management operations, with particular attention to irrigation and ditch management. He has also asked me to review past PMJM Hogan Pancost site reports by Dr. Robert Stoecker, and provide any additional information on PMJM that may be pertinent to your project.

Preble's are found within heavily vegetated riparian corridors and associated upland habitats in the Front Range of Colorado and Southeastern Wyoming. PMJM have also been found on ditch habitat in Boulder County, generally within a mile of the source stream (primarily South Boulder and St. Vrain Creeks). These ditches usually have heavy herbaceous or shrub cover. The moist, shaded, and cooler environments associated with streams and ditches provide the core habitat that is required by PMJM; upland habitat coupled with riparian/ditch areas are used for feeding and hibernation sites. PMJM are occasionally found where there is adequate riparian but little upland habitat, but they are never found where there is adequate upland habitat and no riparian habitat.

The Hogan Pancost property falls into the latter category, where there is upland habitat but no suitable riparian/ditch habitat. The ditches on the property do not have the shrub cover that is typically present on PMJM-occupied ditches, and vegetation cover is low. The few, scattered wetland areas on the property also do not provide the necessary cover that PMJM require.

Based on site habitat features, I concur with Dr. Stoecker's assessment that the site would not support a PMJM population, and a live-trapping survey is not needed. I would further add that the U.S. Fish and Wildlife Service (Service) generally provides live-trapping exclusions based on past agricultural and landscaping use of a property, and this

property would qualify for those exclusions. The Service also concurred with Dr. Stoecker's assessment.

You should also be aware of another issue related to PMJM that might affect your property. PMJM are known from many locations on South Boulder Creek; the stretch from El Dorado Canyon to Baseline Road has many positive PMJM surveys, with most of the property owned and managed by the City of Boulder. Meaney et al. (2001) conducted a long-term study on trail impacts on small mammals on South Boulder Creek on City of Boulder Open Space, including the area just east of your eastern parcel. This was a high-profile study and is well known in Boulder County.

Because some of the positive capture locations are in close proximity to your eastern parcel, the Service would generally take a close look at any potential habitat near such sites. Another consideration that might emerge is the possibility that PMJM might use potential habitat on your property to travel, or emigrate to new habitats. Although Dr. Stoecker mentioned this in his report, I want to provide a few details on this issue because it is the primary biological concern related to PMJM and your property.

The issue that might surface in future discussions is: "Although the property does not support the habitat needed by a PMJM population, would PMJM use the Hogan Pancost property to move into other adjacent habitats?" Since such movement is usually along riparian corridors or ditches, the question would be refined by asking "do PMJM use the ditches on Hogan Pancost to move to adjacent habitats?"

In this case, the only source population is from South Boulder Creek east of the property. If PMJM entered the Hogan Pancost property and traveled along a ditch, could this pathway be a viable corridor to suitable habitat? I do not believe so for the following reasons:

- The sparse vegetation on the ditches and laterals would not favor PMJM use; and
- There is no viable PMJM habitat to the west, south and north of the Hogan Pancost property. There is established residential development to the south and west of the property (obviously non-habitat). The East Boulder Recreation Center lies to the north, with maintained playing fields, dog walking areas, and the main building and associated structures, none of which are suitable habitat.

Thus, any potential travel by PMJM from the eastern source across the Hogan Pancost property (which is unlikely to begin with) would lead to a "dead end," and the animal would be unsuccessful in the attempt to move to new habitat.

Although the Service did not mention this directly in their concurrence letter, it is likely they took this into consideration when they made their decision.

Please call if you have any further questions on these issues.

Regards,

A handwritten signature in blue ink that reads "Mark Bakeman". The signature is fluid and cursive, with a long horizontal flourish extending to the right.

Mark Bakeman, Ph.D.
President, Ensign Technical Services, Inc.

cc:
David Johnson, Western Ecological Resource
file: 2008-12-01M

References

Meaney, C.A., A.K. Ruggles, N.W. Clippinger, and B.C. Lubow. 2001. The impact of recreational trails and grazing on small mammals in the Colorado piedmont. Submitted to The Prairie Naturalist, February 2001.

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Appendix B 2004 Survey Field Data Compilation Form

Preble's Meadow Jumping Mouse, *Zapus hudsonius preblei*
2004 Survey Field Data Compilation Form

TRAPPING SURVEY EVALUATED, NOT TRAPPED

Fill out both sections 1 and 2 if trapping survey, fill out section 1 only if habitat evaluation (ie. not trapped). Compilation forms needed for updated habitat evaluations and site disqualification requests.

SECTION 1

Surveyor: Jerald M. Powell
Date of Site/Habitat Assessment Trapping completed nights of Aug 21-24 2016.
Organization/Company Wildlife Specialties
Full Name(s) Jerald M. Powell

Location:

Project Name (if applicable) Hogan Parcourt
Project Description (nearby road intersection, type of impact, etc.) Project site located in SE Boulder Co. South of East Boulder Commun. Center. 55th Street bisects project
U.S.G.S. Quad Name Boulder County Boulder Elevation _____
Township(s) 1 North Range(s) 70 West Section(s) 3+4
¼ Section(s) _____
UTM Coordinates, Zone 13 Northing 480757 Easting 4426740
UTM Coordinate Datum NAD27 NAD83
Directions to Location Take 55th Street North From Arapahoe Road. Project area is due south of East Boulder Comm. Center
Land Ownership Private

Habitat:

General Habitat Description Highly degraded non-native invasive species dominated pasture (West Parcel). East Parcel is wet meadow.
Dominant Overstory Plant Community Creek willow, Russian Olive
Dominant Understory Plant Community weeds
Current Land Use West Parcel - horse pasture East Parcel - not used
Drainage Name: _____ Type: Perennial Stream _____
Ephemeral Stream _____ Pond/Lake _____ Ditch Other _____

SECTION 2:

Z. h. preblei found? Yes No Dates of Survey Nights of 8/21-24/2016

Trapping Information:

Type of Traps Shermand Type of Bait Sweetened rolled oats/corn
% Available (unsprung) 91 Number of Nights Trapped 7204
Total Trapnights 720
Weather conditions prior to and during survey Warm and seasonal, night of 24th rain and cool.

Associated Animal Species (especially urban predators, rats, house mice)

Dog parks to the N. Captured Mus Musculus, Raccoons, cats likely