



# United States Department of the Interior

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## Memorandum

To: Assistant Regional Director - Ecological Services, Regional Office, Region 6,  
Lakewood, CO

From: Field Supervisor, Ecological Services, Colorado Field Office, Lakewood, CO

Subject: Intra-Service Section 7 Consultation on Issuance of an Incidental Take Permit to  
La Plata Investments, LLC for the Briargate Development Located Along Upper  
Pine Creek, Colorado Springs, El Paso County, CO (TE-064967-0)

In accordance with section 7 of the Endangered Species Act (Act) as amended (16 U.S.C. 1531 et seq.) (Act) and the Interagency Cooperative Regulations (50 CFR 402), this is the U.S. Fish and Wildlife Service's (Service's) final Biological Opinion on impacts to federally-listed endangered and threatened species associated with issuance of an Incidental Take Permit (ITP) to La Plata Investments, LLC (the Applicant) for the federally threatened Preble's meadow jumping mouse (*Zapus hudsonius preblei*) (Preble's), pursuant to section 10(a)(1)(B) of the Act. Critical Habitat has been proposed for the Preble's. The Briargate Development will not affect any proposed Critical Habitat, as none occurs within the project development area. However, Critical Habitat does occur on the adjacent off-site mitigation lands in Kettle Creek. No other listed threatened or endangered species will be affected by this action.

This Biological Opinion is based on the project proposal as described in the "Environmental Assessment and Habitat Conservation Plan for the Briargate Development Located Along Upper Pine Creek, Colorado Springs, El Paso County, Colorado" (SWCA Environmental Consultants 2002)(EA/HCP); information contained in the final rule listing the Preble's as a threatened species (U.S. Fish and Wildlife Service 1998); and information contained in Service files. A complete administrative record of this consultation is on file in the Service's Lakewood, Colorado Field Office.

### Consultation History

In August of 1997, Robert Stoecker of Stoecker Ecological Consultants, Inc., conducted a trapping study and documented Preble's on the project site along Pine Creek in the vicinity of State Highway 83 and Briargate Parkway. On May 13, 1998, Preble's was listed as threatened under the Act. Full protection for Preble's became effective on June 12, 1998. Preble's has subsequently been found upstream and downstream from the original capture site along Pine Creek and presumably uses appropriate habitat throughout the project area.

On August 10, 2000 the Service issued a Biological Opinion addressing impacts to federally-listed endangered and threatened species associated with issuance of a U.S. Army Corps of Engineers (Corps) permit under section 404 of the Clean Water Act (33 U.S.C. 1344 et seq.) to La Plata Investments, LLC, (La Plata) for the lower reach of the Briargate Development along Pine Creek in El Paso County, Colorado (Sections 28, 32, and 33, Township 12 South, Range 67 West)(figures 1, 2, and 3). The subject EA/HCP that has subsequently been developed by La Plata Investments, LLC, does not include this lower portion of the development. The subject draft EA/HCP and associated Permit Application for the additional development was submitted to the Service in October 2002.

## **BIOLOGICAL OPINION**

This Biological Opinion is based on information regarding direct, indirect, and cumulative effects; conditions forming the environmental baseline; and the species' ecological status.

### **DESCRIPTION OF THE PROPOSED ACTION**

The proposed action is the Service's issuance of a section 10(a)(1)(B) ITP for the Briargate Development. The Briargate Development, owned by La Plata Investments, LLC involves the development of commercial/retail and residential building sites within the general vicinity of the upper Pine Creek watershed. Associated with the development would be infrastructure construction such as roads, sanitary sewer lines, storm water sewer lines, storm water detention ponds, and storm water discharge points along the creek corridor as well as a community park located along the South Fork of Pine Creek. Once completed, with an approximate 20-year build-out schedule, approximately 1,040 acres (46%) would be residential, 620 acres (28%) would be office and commercial sites, 60 acres (3%) would be schools and parks sites, and 460 acres (21%) would be left as open space including parks and the golf course, of which 178 acres will remain in a natural state.

The entire development is located east of Interstate 25, within the northeast quadrant of the City of Colorado Springs, El Paso, County, Colorado. The project boundary encompasses the upper North and South Forks of Pine Creek as well as the upper reaches of Pine Creek proper, located in portions of Township 12 South, Range 66 West, E2 of Section 25, S2 and NE 4 of Section 26, S2 of Section 27, SE 4 of Section 28, NE 4 of Section 33, N2 of Section 34, and NW4 of Section 35. The entire project area is approximately 2,180 acres in size. All of the aforementioned waterways ultimately drain into Monument Creek to the southwest of the proposed project area.

The Briargate Development is surrounded by the drainage divide between Pine Creek and Kettle Creek on the north, the drainage divide between Pine Creek and Cottonwood Creek on the south, the property boundary on the east, and by Chapel Hills Drive on the west. Currently, approximately 46% of the property is under construction or has been previously disturbed.

Portions of the Briargate Development will impact Preble's and therefore the subject EA/HCP was developed for this proposed permit issuance. The EA/HCP addresses the modification of approximately 83.93 acres of Preble's habitat, 26.38 acres of temporary impacts and 57.55 acres of permanent impacts. To address this "take", the EA/HCP proposes the long-term preservation, through deed restrictions, of 153.48 acres (211.03 acres of existing Preble's habitat minus 57.55 acres of permanently impacted area) of existing and enhanced Preble's habitat, plus the

preservation of 19.14 acres of open space adjacent to and outside of Preble's habitat throughout the project area. As a final means of protecting habitat for Preble's, and as a means to help with the long-term recovery of the species while protecting Critical Habitat, La Plata Investments, LLC is proposing to protect an additional 186 acres of mouse habitat and natural buffer along the Kettle Creek drainage, approximately 0.5 miles to the northwest of the project boundary. Previous surveys throughout the area have identified a large, distinct, healthy population of Preble's along the Kettle Creek corridor. A detailed description of the Proposed Kettle Creek Preserve, as well as the avoidance, minimization, and mitigation measures proposed can be found in the subject EA/HCP, incorporated herein by reference.

## STATUS OF THE SPECIES/PROPOSED CRITICAL HABITAT

The Preble's meadow jumping mouse was listed as a threatened species on May 13, 1998 (63 F.R. 26517). Preble's is a small rodent in the family Zapodidae and is 1 of 12 recognized subspecies of the species *Z. hudsonius*, the meadow jumping mouse. Preble's is native only to the Rocky Mountains-Great Plains interface of eastern Colorado and southeastern Wyoming. The holotype for Preble's was first collected by E. A. Preble in 1895 and taxonomically labeled as *Z. h. campestris* in 1899. Upon review by Krutzsch (1954), the Colorado and southeastern Wyoming meadow jumping mice were separated into their own distinct subspecies, *preblei*.

### Description

Preble's is 8 to 9 inches long (its tail accounts for 60 percent of its length) with hind feet adapted for jumping. *Z. hudsonius* was described by Quimby (1951) in the following manner: "A mouse-like rodent with greatly enlarged hind feet and an exceptionally long tail. The forelegs are relatively short. The ears are somewhat conspicuous. The body is clothed in moderately long, somewhat dense hair of a rather coarse texture and several colors. The dorsal portions are marked by a broad stripe of brownish hairs many of which are tipped with black giving the region a grayish-black appearance. The sides are bright yellowish-orange, whereas the underparts and feet are white. The tail is bicolor, dark above and light below, and sparsely covered with hair which is longer on the terminal part. The mammae are eight, and quite prominent in lactating females. The male genitalia are inconspicuous except during the breeding season when the scrotal sac becomes enlarged. The testes enlarge and may be either abdominal, inguinal, or scrotal during this period." The coloration of Preble's was described in more detail by Krutzsch (1954) as "color dull, back from near Clay Color to near Tawny-Olive with a mixture of black hair forming poorly defined dorsal band; sides lighter than back from near Clay Color to near Cinnamon-Buff; lateral line distinct and clear Ochraceous-Buff; belly white, sometimes faint wash of clear Ochraceous-Buff; tail bicolored, brownish to light brownish-black above, grayish-white to yellowish-white below" (capitalized color terms refer to a scientific standard, while lower case terms reflect common usage). Krutzsch (1954) differentiated Preble's from *Z. h. campestris* by the following taxonomic features: "a less distinct dorsal band with fewer black tipped hairs; smaller cranial measurements; a narrower interorbital constriction; smaller, less inflated auditory bullae; narrower incisive foramina; and a more inflated frontal region than *Z. h. campestris*." Fitzgerald et al. (1994) describes *Z. hudsonius* as having a narrower braincase, smaller molars, a less pronounced mid-dorsal band, and smaller average total length than *Z. princeps*.

Meadow jumping mice (*Zapus hudsonius*) sampled in Colorado and Wyoming range in total length 187-255 mm; tail length 108-155 mm; hindfoot length 20-35 mm (Fitzgerald et al. 1994;

data provided to Service in various survey reports 1995-1999). Quimby (1951) noted variability in body weights for different individuals and for the same individual during different levels of activity and seasons. Body weights for 65 individuals sampled in Wyoming ranged from 14 to 40 grams (data provided to the Service in various survey reports 1995-1999).

### Life History/Habitat Use

Preble's has not been studied as extensively as other subspecies of *Z. hudsonius*. Preble's is thought to be similar to other *Z. hudsonius* in patterns of diet, behavior, breeding and habitat utilization. In general, *Z. hudsonius* subsists on seeds, small fruits, fungi and insects, and hibernates from October to May (Whitaker 1972, Fitzgerald et al. 1994). It is adapted for digging; creates nests of grasses, leaves, and woody material several centimeters below the ground; and is primarily nocturnal or crepuscular, but can be observed during daylight. During the breeding season (June to mid-August), females typically have 2 to 3 litters of 5 to 6 young per litter (Quimby 1951, Fitzgerald et al. 1994). *Z. hudsonius* hibernates approximately 7 months of the year in an underground burrow that it excavates itself (Quimby 1951, Whitaker 1963).

Krutzsch (1954), Quimby (1951), and Armstrong (1972) agree that across its range, *Z. hudsonius* occurs mostly in low undergrowth consisting of grasses, forbs (herbaceous plants other than grasses), or both, in open wet meadows and riparian corridors, or where tall shrubs and low trees provide adequate cover. In addition, *Z. hudsonius* prefers lowlands with medium to high moisture over drier uplands. Whitaker (1972) concluded that *Z. hudsonius* avoids the sparse vegetation that is generally associated with low moisture habitats. Fitzgerald et al. (1994) described *Z. hudsonius* as most common in wooded areas. Tester et al. (1993) suggested that proximity to water may be the most important factor influencing habitat selection and utilization by *Z. hudsonius*.

Some aspects of Preble's meadow jumping mouse life history, behavior, and habitat utilization have been documented. Armstrong et al. (1997) and Shenk (1998) have compiled summaries of information on Preble's gleaned from recent studies. Data on the timing of the initial breeding period and time of hibernation of the Preble's meadow jumping mouse have been gathered by researchers at Rocky Flats in Colorado (PTI Environmental Services 1996a). The month of May marks the beginning of the active period for Preble's, with May 5 the earliest capture date at Rocky Flats. Breeding probably occurs soon after emergence. Adults begin hibernation in early September, while juveniles enter hibernation from mid-September to late October. The latest recorded date of capture of Preble's at Rocky Flats is October 27. Adults reach approximately 20 percent body fat before going into hibernation (U.S. Fish and Wildlife Service 1998).

It has been speculated that Preble's may need an open water source to fulfill dietary water requirements. Shenk and Sivert (1999) noted the use of both perennial and intermittent tributaries adjacent to capture sites. Armstrong et al. (1997) reported that trapping success in ephemeral drainages decreased notably in late summer after creek flow ceased.

Preble's meadow jumping mouse has been shown to move a significant distance along drainages. A male Preble's was recaptured 1.6 kilometers (km) (1 mile) (mi) upstream from a previous capture site and a female Preble's was captured 1.2 km (.75 mi) downstream from a previous capture site (U.S. Fish and Wildlife Service 1998). Shenk and Sivert (1999) found maximum movements of more than a mile.

At Rocky Flats, the Preble's meadow jumping mouse appears to be primarily dependent on riparian shrublands, and on mesic mixed grasslands that are adjacent to shrublands and in close proximity to streams (PTI Environmental Services 1996b). Field studies at Rocky Flats led to the conclusion that Preble's is typically found in or near complex riparian communities with multi-strata woodland and herbaceous species (Harrington et al. 1996). Capture locations were typically humid with high litter content. In a spring 1996 study at Rocky Flats, all captures were within 25 m (82 ft) of streams, with 48 percent of captures within 5 m (16 ft) of streams (PTI Environmental Services 1996a). In the same study, 90 percent of captures occurred within 5 m (16 ft) of the canopy edge consisting of coyote willow (*Salix exigua*), western snowberry (*Symphoricarpos occidentalis*), choke cherry (*Prunus americana*), and other species. Margins of artificial ponds at Rocky Flats are thought to be important foraging sites (Harrington et al. 1996). However, Shenk and Sivert (1999) found greater use of upland habitats than previously assumed.

Most successful capture sites at Rocky Flats were in dense vegetation that presented burrowing or nesting opportunities. Five nests were located in dense vegetation (Harrington et al. 1995). Upland habitats may be used for hibernation by Preble's (U.S. Fish and Wildlife Service 1998). Robert Schorr (1997, cited by U.S. Fish and Wildlife Service 1998) reported 4 apparent hibernacula located by telemetry from 7 m (23 ft) to 31 m (101 ft) from the creek bed of Monument Creek, U.S. Air Force Academy, El Paso County, Colorado. All four hibernacula appeared to be below *Salix exigua*. Ryon (1996) reported that four of five recent (1990 or later) Preble's meadow jumping mouse capture sites he evaluated in Colorado had five structural habitat components: trees, tall shrubs, short shrubs, herbaceous vegetation, and ground cover. The fifth site had few trees. In contrast, historical capture sites where Ryon failed to capture Preble's generally lacked one or more of these components. Preble's was captured along Monument Creek within the U.S. Air Force Academy lands primarily in densely vegetated riparian communities where willows, western snowberry, narrow-leaf cottonwood (*Populus angustifolia*), and thick grass understory were dominant (Corn et al. 1995). Garber (1995) characterized capture sites along Lodgepole Creek, Albany County, Wyoming as moist areas near beaver ponds with dense sedges and willows. Ryon (1996) suggested that where Preble's occupies habitat along intermittent streams, adjacent wet meadows and seeps may be important habitats in dry periods. Armstrong et al. (1997, p. 77) described typical Preble's meadow jumping mouse habitat as "well-developed plains riparian vegetation with relatively undisturbed grassland and a water source in close proximity." Also noted was a preference for "dense herbaceous vegetation consisting of a variety of grasses, forbs and thick shrubs."

Meaney et al. (1997) suggested that Preble's has a broader ecological tolerance than previously thought and while they require diverse vegetation and well developed cover, this can be met in a variety of circumstances. Recent captures that were exceptions to the typical habitat described include individuals found along a small irrigation ditch and in a mesic grassy field on City of Boulder Open Space land (Clint Miller, City of Boulder, in litt. 1996). Ensign Technical Services (1997) reported instances of Preble's meadow jumping mouse trapped at or near sites of human alteration including ditches along roads and driveways and wetlands adjacent to highways. Meaney et al. (1997) emphasized that vegetated ditches may be a significant habitat for Preble's and may provide dispersal routes.

## Distribution

Preble's distribution is confined to eastern Colorado and southeastern Wyoming (Kruttsch 1954, Long 1965, Armstrong 1972). Once common to the tallgrass prairie of eastern Colorado this relict of the Ice Age is now limited in its ecological and geographic distribution to scattered locations on the Colorado Piedmont (Fitzgerald et al. 1994). The known historical range of Preble's may represent a relict of a more southern range of *Z. hudsonius*, occupied when the climate was cooler and more damp (Fitzgerald et al. 1994). Preble's meadow jumping mouse may never have been widespread in the period since western settlement. Armstrong (1972) described it as poorly known in Colorado and apparently nowhere abundant. The apparent local extirpation of Preble's from historically occupied sites in Colorado and Wyoming, and the difficulty in finding it in patches of apparently adequate but fragmented habitat isolated by human land uses, suggests a decline in populations of Preble's in recent decades. Records for Preble's meadow jumping mouse and other information define a range including Adams, Arapahoe, Boulder, Denver, Douglas, El Paso, Elbert, Jefferson, Larimer, and Weld Counties in Colorado; and Albany, Laramie, Platte, Goshen, and Converse Counties in Wyoming (Kruttsch 1954, Compton and Hugie 1993). Historical sites in Colorado were further discussed by Meaney and Clippinger (1995), Ryon (1996), and Ryon and Harrington (1996). Garber (1995) discussed historical sites from Wyoming and suggested that some *Zapus* from Wyoming may have been misidentified. He indicated that based on study skins alone (without skulls) positive identification was not possible. Garber concluded that two specimens from the University of Wyoming collection listed as Preble's were probably *Z. princeps*, and that several specimens listed as *Z. princeps* are believed to be Preble's.

## Genetics/Taxonomy

Due to similarities of appearance between Preble's and other meadow jumping mice and *Z. princeps*, which also occupies portions of the same range, the U.S. Fish and Wildlife Service and Colorado Division of Wildlife entered into a cost sharing agreement to support genetic studies during the 1996 and 1997 field seasons. Three different approaches exist for quantifying variation in the DNA molecule. The first, using RAPD (randomly amplified polymorphic DNA) markers is not adequately repeatable for use in identification of Preble's. The second, using microsatellites or simple sequence repeats as markers, is not developed or validated enough for application to Zapusids at this time. The third, DNA sequencing of the mitochondrial DNA non-coding region which includes the D-loop, when used in combination with more traditional criteria, was the most appropriate and informative for determining whether populations of Preble's constitute one or more distinct evolutionary units with significance warranting protection under the Endangered Species Act (Riggs et al. 1997). During the 1996 and 1997 field seasons, samples were collected from 72 individual mice presumed to be Preble's (Shenk 1998). Tissue samples were collected and analyzed from 23 live-trapping sites in Colorado and 2 sites in Wyoming (U.S. Fish and Wildlife Service 1998). Analysis and comparison with 20 genetic samples provided by 5 museums and universities indicated that mice from the Medicine Bow National Forest in Albany County, Wyoming, south to the San Isabel National Forest in western Las Animas County, Colorado, comprise a coherent genetic group (Riggs et al. 1997). Phylogenetic analysis indicates that the group of samples referred to as Preble's cannot at this time be distinguished clearly from four reference samples of *Z. h. campestris* collected from two sites in Weston County, Wyoming, Custer County, South Dakota (two samples), one sample of *Z. h. pallidus* from Garden County, Nebraska, or from two samples of *Z. h. intermedius* from an

unspecified county in Minnesota (Shenk 1998). Riggs et al. (1997) suggests that *Z. hudsonius* from Indiana (possibly *Z. h. americanus* or *Z. h. intermedius*) could be the most ancestral of the populations and taxa sampled and may have shared a common ancestor with progenitors of forms presently known as *Z. h. luteus* and *Z. princeps*. Riggs et al. (1997) also found a reasonably strong indication that *Z. h. luteus* likely have shared a common ancestor with progenitors of *Z. princeps* and the populations sampled in the vicinity of Cheyenne, Wyoming.

Shenk (1998) believes a more complete biosystematic evaluation of jumping mice is needed to clarify and further refine relationships among populations of the group referred to as Preble's as well as to other subspecies and species of the genus *Zapus*. Such an evaluation requires detailed analyses of pelage, morphometric measurements, and genetic data from sufficient numbers of individuals to adequately represent the populations of interest. However, the mitochondrial DNA non-coding (D-loop) sequence data available at this time are consistent with the view that a geographically contiguous set of populations previously recognized as Preble's meadow jumping mouse form a homogenous group recognizably distinct from other nearby populations and from another geographically-adjacent species of the genus.

A morphological analysis of museum specimens of *Zapus princeps* and *Z. hudsonius preblei* is currently underway to evaluate the effectiveness of using various skull measurements and/or dentition to differentiate the species. The specimens being used are from the core of each species range to ensure the identity of the specimens. If certain measurements are proven to be effective in identification of specimens, all specimens from the probable area of overlap will be evaluated in an attempt to better define the range of each species.

### **Status and Threats**

Preble's has undergone a decline in range and a decline in populations within its remaining range. Habitat loss and fragmentation resulting from human land uses have adversely impacted Preble's populations. Preble's populations in Colorado and Wyoming are imperiled by ongoing and increasing urban, industrial, agricultural, ranching, and recreational development; ongoing and increasing wetland/riparian habitat destruction and/or modification; and small size of known populations (U.S. Fish and Wildlife Service 1998). Compton and Hugie (1993, 1994) cited human activities that have adversely impacted Preble's meadow jumping mouse including conversion of grasslands to farms; livestock grazing; water development and management practices; and, residential and commercial development. For example, overgrazing may result in changes in vegetative structure resulting in decreased tree, shrub, and tall grass cover (vegetation needed by Preble's for hibernation, cover, and foraging). Mowing may also limit the vegetation available for cover, as well as limiting food availability if done prior to seed set. Water diversion may alter hydrology significantly enough to no longer support adequate vegetative structure to provide needed cover, as well as hibernation sites. Shenk (1998) also linked potential threats to ecological requirements of Preble's meadow jumping mouse and suggested that factors which impacted vegetation composition and structure, riparian hydrology, habitat structure, distribution, geomorphology, and animal community composition must be addressed in any conservation strategy.

Residential and commercial development, accompanied by highway and bridge construction, and instream alterations to implement flood control, directly remove Preble's meadow jumping mouse habitat, or reduce, alter, fragment, and isolate habitat to the point where Preble's meadow

jumping mouse can no longer persist. Development also affects Preble's populations through the introduction of the house mouse and the domestic cat. Both of these species may significantly affect populations of Preble's by predation and competition (Shenk 1998). Corn et al. (1995) proposed that a 100-meter (328-foot) buffer of unaltered habitat be established to protect the floodplain of Monument Creek (Colorado) from a range of human activities that might adversely effect Preble's or its habitat. Shenk and Sivert (1999) believed the buffer did not adequately protect much of the population. Roads, trails, or other linear developments through Preble's habitat may act as barriers to movement. Shenk (1998) suggested that on a landscape scale, maintenance of acceptable dispersal corridors linking patches of Preble's habitat may be critical to its conservation.

Hydrology of a stream is integral to the structure and function of the ecosystem (Busch and Scott 1995). Flow timing, flow quantity, and water table characteristics influence riparian vegetation (Pague and Grunau 2000). Specific levels of change in hydrology and how they effect Preble's are not well understood, but Auble et al. (1994) did show significant vegetation changes after losses greater than 0.5 m in ground water.

### **Proposed Preble's Critical Habitat**

The Service proposed to designate Critical Habitat for Preble's on July 17, 2002 (67 FR 47154). The proposed designation includes 19 habitat units totaling approximately 23,248 hectares (ha) (57,446 acres (ac)) found along 1,058.1 kilometers (km) (657.5 miles (mi)) of rivers and streams in the States of Colorado and Wyoming. Within these areas, the primary constituent elements for the Preble's include those habitat components essential for the biological needs of reproducing, rearing of young, foraging, sheltering, hibernation, dispersal, and genetic exchange. The primary constituent elements are found in and near riparian areas located within grassland, shrubland, forest, and mixed vegetation types where dense herbaceous or woody vegetation occurs near the ground level, where available open water exists during their active season, and where there are ample upland habitats of sufficient width and quality for foraging, hibernation, and refugia from catastrophic flooding events. Primary constituent elements associated with the biological needs of dispersal and genetic exchange also are found in areas that provide connectivity or linkage between or within Preble's populations. The dynamic ecological processes that create and maintain Preble's habitat also are important primary constituent elements. Primary constituent elements include:

- (i) A pattern of dense riparian vegetation consisting of grasses, forbs, and shrubs in areas along rivers and streams that provide open water through the Preble's active season;
- (ii) Adjacent floodplains and vegetated uplands with limited human disturbance (including hayed fields, grazed pasture, other agricultural lands that are not plowed or disced regularly, areas that have been restored after past aggregate extraction, areas supporting recreational trails, and urban/wildland interfaces);
- (iii) Areas that provide connectivity between and within populations. These may include river and stream reaches with minimal vegetative cover or that are armored for erosion control, travel ways beneath bridges, through culverts, along canals and ditches, and other areas that have experienced substantial human alteration or disturbance; and

(iv) Dynamic geomorphological and hydrological processes typical of systems within the range of the Preble's, i.e., those processes that create and maintain river and stream channels, floodplains, and floodplain benches, and promote patterns of vegetation favorable to the Preble's.

Existing features and structures within the boundaries of the mapped units, such as buildings, roads, parking lots, other paved areas, lawns, other urban and suburban landscaped areas, regularly plowed or disced agricultural areas, and other features not containing any of the primary constituent elements are not considered Critical Habitat.

The subject property is located within El Paso County, Colorado. There is one proposed Critical Habitat unit that occurs within the Arkansas River drainage (in El Paso County):

Unit A1: Monument Creek, El Paso County, Colorado.

Unit A1 encompasses approximately 1,259 ha (3,110 ac) 56.3 km (35.0 mi) of streams within the Monument Creek watershed. It includes Monument Creek from the confluence of Cottonwood Creek upstream to the southern boundary of the Academy and from the northern boundary of the Academy upstream to the dam at Monument Lake. Major tributaries within the unit include Kettle Creek, Black Squirrel Creek, Monument Branch, Smith Creek, Jackson Creek, Beaver Creek, Teachout Creek, and Dirty Woman Creek. The unit is primarily on private lands. It includes a small portion of the Pike-San Isabel National Forest.

## **ENVIRONMENTAL BASELINE**

### **Status of the Species Within the Action Area**

In El Paso County, the Preble's meadow jumping mouse has been captured along Monument Creek and its tributaries including Pine Creek and the North and South Forks of Pine Creek. The project area represents a relatively small portion of the potential Preble's habitat present within the Monument Creek drainage but includes a substantial portion of remaining Preble's habitat on Pine Creek. Downstream from the site, a section of Pine Creek between Academy Boulevard and its confluence with Monument Creek is highly eroded forming a steep-sided channel supporting little or no potentially occupied Preble's habitat. It appears unlikely that Preble's existing along Monument Creek downstream of this eroded reach could ascend Pine Creek to the project site. Given this, the existing Preble's population on Pine Creek appears to be isolated from other known populations. Upstream of the project area, but within the Briargate Development, development activities have disturbed both the North and South branches of Pine Creek, potentially isolating Preble's on the project site from documented populations upstream of the development.

Although Pine Creek and its associated riparian corridor appear to be fragmented throughout the entire drainage, Preble's have been identified in the drainage at the following locations along Pine Creek:

- within the proposed project boundary near the downstream extent of both the North and South Forks;
- downstream of the Chapel Hills bridge within the golf course and within the detention pond located upstream of Briargate Parkway;

- between Briargate Parkway and State Highway 83;
- throughout the reach between State Highway 83 and Academy Boulevard;
- throughout the reach from Academy Boulevard to Interstate 25; and
- at the confluence with Monument Creek

In June and July 1999, Dr. Robert Stoecker conducted surveys for the Preble's throughout the proposed project area (Stoecker 1999). Results of those surveys indicated that Preble's are present in the lower portions of the North Fork and South Fork of the upper Pine Creek drainage. Five Preble's were trapped in the South Fork above the crossing at Briargate Parkway. An additional five Preble's were trapped immediately above and adjacent to areas previously impacted by residential and infrastructure development in the North Fork. Additional transects were trapped further upstream along both forks with no additional captures of Preble's. Additionally, Bakeman (2001) surveyed a stretch of the upper North Fork of Pine Creek near the proposed crossing of Powers Boulevard but did not trap any Preble's. However, reports from the trapping season for 2001 indicate that Preble's were trapped at the proposed crossing at Powers Boulevard (Plage 2001). Currently, within the project boundary, approximately 211.03 acres of available Preble's habitat exists.

### **Status of the Species Within the Proposed Kettle Creek Preserve**

A large, distinct and healthy population of Preble's exists in the proposed Kettle Creek Preserve area. In 1999, SWCA Consultants conducted Preble's surveys along portions of the proposed Kettle Creek Preserve area and its tributaries. In over 1,200 trap nights, 49 Preble's were identified with the highest capture rates found along the south tributary. Since the initial survey, Preble's have been identified both above and below the proposed preservation area (Bakeman 2001, Bonar 2001). The existing Preble's population and habitat along Kettle Creek does not connect to habitat along the Monument Creek corridor due to past activities associated with the U.S. Air Force Academy and from the construction of Interstate 25. This in turn has created a distinct isolated population of Preble's along Kettle Creek.

### **Factors Affecting Species Environment Within the Action Area**

Documented presence of Preble's along Pine Creek near Chapel Hills Drive and near State Highway 83 suggests that Preble's makes use of appropriate habitats throughout the project area. Prominent existing development and disturbance within the project area that has impacted and fragmented Preble's habitat includes Chapel Hills Drive, the golf course including related cart paths and bridges, grading of the Cascade Financial site, a hotel and related retaining wall, Briargate Parkway, and filling and grading of lands southeast of Pine Creek and south of Briargate Parkway.

### **Factors Affecting the Species Environment Within the Proposed Kettle Creek Preserve**

Currently, the Kettle Creek property is used as grazing and trail-riding pasture for a horse boarding operation and the property has been severely impacted by those operations. Many upland areas have been grazed to the point where virtually no vegetation remains. Numerous horse trails are evident across the property and these traverse the riparian bottoms. These horse trails are typically bare and devoid of vegetation. Many areas of the property are also experiencing high levels of erosion, due to the soils and geology, but also due in part to the heavy horse use.

## **EFFECTS OF THE ACTION**

The Briargate Development will modify approximately 83.93 acres of Preble's habitat, 26.38 acres of temporary impacts and 57.55 acres of permanent impacts. Of the 211.03 acres of habitat currently available to Preble's within the project boundary, this equates to 12.5% being temporarily impacted and 27.3% being permanently impacted for a total impact of 38.8% of the available Preble's habitat. However, the areas temporarily impacted will be immediately reclaimed onsite, thus the total loss of Preble's habitat would ultimately be equal to the permanently impacted acreage, 57.55%. Loss of this habitat will result in a corresponding similar loss of Preble's mice. To address these adverse affects, the HCP proposes the long-term preservation, through deed restrictions, of 153.48 acres (211.03 acres of existing Preble's habitat minus 57.55 acres of permanently impacted area) of existing and enhanced Preble's habitat, plus the preservation of 19.14 acres of open space adjacent to and outside of Preble's habitat throughout the project area. The HCP will provide for the following: (1) enhancement and restoration of existing PMJM habitat along the North Fork of Pine Creek; (2) protection of the existing habitat found within all three areas in the Pine Creek drainage by placing deed restrictions on the remaining PMJM habitat; (3) enhancement/restoration, enhancement, preservation, and long-term protection of the occupied PMJM habitat identified on Kettle Creek; and (4) an endowment to the Trust for Public Lands to provide for the long-term management of the Kettle Creek Preserve. The net result of HCP implementation will be the long-term conservation of the PMJM on Pine and Kettle Creeks while allowing the Applicant to carry out otherwise lawful activities on private property.

### **Critical Habitat**

As mentioned in the opening paragraph of this Biological Opinion, while Critical Habitat has been proposed, none has been proposed within the proposed Briargate Development. However, Critical Habitat does occur on the adjacent off-site mitigation lands in Kettle Creek.. As part of the proposed mitigation for the HCP, the applicant has proposed to set aside a 186 acre preserve along Kettle Creek. The mitigation includes immediately ceasing all horse use, including grazing and trail-riding within the preserve. By removing this pressure we expect the entire site to be enhanced by allowing the existing vegetation to recover and by decreasing the amount of erosion caused by trail-riding through the area.

Grazing will also be eliminated from the preserve area. Following the elimination of grazing all interior fences used for the horse boarding operation will be removed and the perimeter fencing repaired and/or replaced. Signs will be placed along the perimeter fencing explaining the reasons for closure to human access and the need to protect wildlife habitat behind the signs. Within the preserve, noxious weeds would be controlled with herbicide applications and seeding with native grass species will occur. Approximately 0.50 acres of trail will be restored by stabilizing the soils and reducing storm water erosions by using straw bales, seeding and possibly stabilizing the seeded areas with a biodegradable matting. The preserve will be protected initially by a deed restriction and will eventually be turned over, along with a monetary endowment, to a long-term management entity for the sole purpose of protecting and managing Preble's habitat.

The Applicant's proposal to permanently preserve, enhance and restore 186 acres along Kettle Creek will provide a benefit to Preble's and its Critical Habitat. The preservation removes the possibility of future development, while the enhancement and restoration will reduce long-term erosion and increase native grasses, providing higher quality habitat for Preble's.

## **CUMULATIVE EFFECTS**

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this Biological Opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

A large amount of development is occurring throughout the Front Range of Colorado and, to a lesser extent, in Wyoming. While some future development and construction will likely be subject to section 7 consultation, other future direct and secondary impacts to Preble's and their habitat can be anticipated as a result of development. Secondary effects may include those associated with storm water discharge from developed areas, increases in noise, pollution, human activity, and domestic animals including cats and dogs. Farming and ranching operations may also expand into areas not currently impacted by these activities. Expanded haying of meadows in areas closer to streams or increased intensity of grazing during certain seasons may adversely affect Preble's. Some of these adverse effects will be addressed through the development of HCPs and section 10 permits, while others may not be thoroughly addressed, if at all. Additionally, pending approval of HCPs which will incorporate substantive impact avoidance and compensation measures, habitat destruction and indirect impacts resulting from a variety of individual projects will further fragment the distribution of Preble's throughout their historic range.

## **CONCLUSION**

After reviewing the current status of the Preble's meadow jumping mouse, the environmental baseline for the species in the action area; the effects of the proposed HCP incidental take permit issuance, and the cumulative effects, it is the Service's Biological Opinion that the action, as proposed, is not likely to jeopardize the continued existence of the Preble's meadow jumping mouse. Critical Habitat has been proposed for the Preble's, but will not be adversely modified or destroyed with implementation of the proposed action. Because the Service has made this determination concerning the proposed Critical Habitat, no further consultation will be required once a final Critical Habitat designation occurs.

## **INCIDENTAL TAKE STATEMENT**

Section 9 of the Act and Federal regulation pursuant to 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The proposed Briargate Development EA/HCP, and its associated documents, clearly identify anticipated impacts to the affected species likely to result from the proposed taking and the measures that are necessary and appropriate to minimize those impacts. All conservation measures described in the proposed HCP, together with the terms and conditions described in the associated Section 10(a)(1)(B) permit issued with respect to the proposed HCP, are hereby incorporated by reference as reasonable and prudent measures and terms and conditions within this Incidental Take Statement pursuant to 50 CFR 402.14(i). Such terms and conditions are non-discretionary and must be undertaken for the exemptions under section 10(a)(1)(B) and 7(o)(2) of the Act to apply. If the permittee fails to adhere to these terms and conditions, the protective coverage of the Section 10(a)(1)(B) permit and Section 7(o)(2) may lapse. The amount or extent of incidental take anticipated under the proposed Briargate Development HCP, associated reporting requirements, and provisions for disposition of dead or injured animals are as described in the HCP and its accompanying section 10(a)(1)(B) permit.

### **REINITIATION - CLOSING STATEMENT**

This concludes formal consultation on the proposed Service action of issuing a section 10(a)(1)(B) incidental take permit to La Plata Investments, LLC regarding their EA/HCP for the Briargate Development. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement, or control over the action, has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or Critical Habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or Critical Habitat that was not considered in this opinion; or (4) a new species is listed or Critical Habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must immediately cease pending reinitiation.

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