United States Department of the Interior

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IN REPLY REFER TO:
ES/CO: ES/LK-6-CO-12-F-014
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MAR - 5 2012

Timothy Carey
Chief, Denver Regulatory Office
Department of the Army
Corps of Engineers, Omaha District
9307 South Wadsworth Boulevard
Littleton, Colorado 80128-6901

Application Number: No. 200380399
Applicant: City of Greeley

Dear Mr. Carey:

This document transmits the U.S. Fish and Wildlife Service's (Service's) biological opinion on the City of Greeley's (City's) Bellvue Pipeline, Northern Segment Project in Larimer County, Colorado (Sections 25, 29, and 30, Township 8 North, Range 70 West and Sections 32 and 33, Township 8 North, Range 69 West), and its effects on the federally-threatened Preble's meadow jumping mouse (*Zapus hudsonius preblei*) (Preble's). The Service received your request for formal consultation on January 31, 2012. Included with the request was a Biological Assessment Addendum and Habitat Management Plan (BAA) prepared for the City by Ecosystem Services, LLC (ECOS). The Service provides this biological opinion in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*) and the Interagency Cooperative Regulations (50 CFR 402).

The Service bases this biological opinion on the information that accompanied your January 31, 2012, request for formal consultation and project-related materials that we previously received, including your July 12, 2011, letter and the June 2011, Revised Biological Assessment (RBA) by AECOM. An October 14, 2011, site visit attended by representatives from the Service, ECOS, and the City also provided information for this biological opinion.

We concur with your determination that the proposed project may affect, and is likely to adversely affect, the Preble's. Previously, we addressed project impacts to federally-listed species and critical habitat in the central Platte River in Nebraska in our biological opinion dated February 25, 2008. You concluded that other than the Preble's and Platte River species, the proposed project will have no effect on species proposed or listed under the ESA, or on their critical habitat.

CONSULTATION HISTORY

The Service listed the Preble's as a threatened species under the ESA on May 13, 1998. The Service designated critical habitat for the Preble's on June 23, 2003, and revised critical habitat for the Preble's on December 15, 2010. A 1998 trapping survey documented the presence of the Preble's at the Watson State Wildlife Area near the Cache la Poudre River in proximity to the proposed pipeline route, approximately 2 miles downstream from Bellvue Water Treatment Plant. Other trapping efforts near the proposed pipeline route, all downstream of the Watson State Wildlife Area, failed to document the presence of the Preble's. The Preble's has been documented at many sites along the Cache la Poudre and its tributaries upstream of the project area, but has not been documented downstream. The proximity of the captures at the Watson State Wildlife Area to the proposed pipeline alignment and the relatively contiguous riparian habitat present along the Cache la Poudre River, suggest that the Preble's is present within appropriate habitat along the pipeline route and may use less than optimal habitat along the route as part of a travel corridor along the Cache la Poudre River. No critical habitat for the Preble's has been designated within or downstream of the project area

In a letter to the Service dated October 23, 2009, EDAW, Inc., concluded that the right-of-way for proposed pipeline construction would intercept Preble's habitat in four areas and that an incidental take permit for the Preble's would likely be required. Your December 23, 2010, letter to the Service and an accompanying December 2010 biological assessment by AECOM concluded that the proposed project may affect, by is not likely to adversely affect, the Preble's. However, the letter also requested initiation of formal consultation under section 7 of the ESA. Discussion between our staffs regarding the intent of your letter and the inconsistency of conclusions reached by EDAW and AECOM followed. AECOM produced the RBA in June 2011. Your letter of July 13, 2011, transmitted the RBA to the Service and requested concurrence with the RBA's conclusion that the proposed project was not likely to adversely affect the Preble's. In a letter to you dated August 15, 2011, we provided reasons why we believed that the proposed project would adversely affect the Preble's and we provided a number of comments on the contents of the RBA. Among our comments, and the subject of follow-up discussion with the Corps, was the suggestion that proposed pipeline operation could affect flows within the Cache la Poudre River and, in turn, might affect riparian habitats supporting the Preble's. Analysis is ongoing as to whether this outcome is likely; however, this biological opinion does not address any adverse impacts that may accrue through changes in flow resulting from implementation of the proposed project. On October 14, 2011, Peter Plage of my staff met with Grant Gurnee of ECOS and Dan More of the City to view segments of the proposed pipeline alignment and sites of potential compensatory mitigation to offset project impacts to the Preble's and its habitat. Following further coordination between Mr. Plage and Mr. Gurnee, ECOS developed the BAA dated January 2012, which was forwarded to the Service with a letter from the City. We received your January 31, 2012, letter requesting formal consultation on the Bellvue Pipeline, Northern Segment project, via email, that same date.

BIOLOGICAL OPINION

This biological opinion is based on information regarding the status of the Preble's, project effects, cumulative effects, conditions forming the environmental baseline, the importance of the

project area to the survival and recovery of the species, and other sources of information as described below. The data used in this biological opinion constitutes the best scientific and commercial information currently available.

DESCRIPTION OF THE PROPOSED ACTION

The proposed Bellvue Pipeline, Northern Segment project would entail installation of a new, 60-inch water pipeline over a distance of 6.5 miles from the City's Bellvue Water Treatment Plant to Shields Street, where it would connect with the Bellvue Pipeline, Fort Collins Segment, which was permitted by the Corps in 2008 (Corps File No. 200620496). The pipeline would expand the City's capacity to convey treated water from the Bellvue facility to the City's water distribution system. A permanent easement averaging 50 feet in width would be purchased to provide a corridor to accommodate operation and maintenance activities. An additional 75-foot temporary construction easement would be acquired to accommodate construction activities. Construction practices are described in the RBA as including common open-trench installation techniques, with trench width of approximately 12 feet. The corridor, during construction, would typically include the trench; haul roads; a two track excavator; water pipe; and windrows of stockpiled topsoil, subsoil, and gravel bedding adjacent to the trench. In areas where sensitive resources are present, width of construction disturbance would be reduced or trenchless tunneling installation would be employed. In the BAA, ECOS provided responses to the Service comments included in our August 15, 2011, letter to the Corps. Included in the BAA are some details of proposed impacts, as well as habitat restoration and enhancement commitments, not specified in the RBA. A proposed construction timetable is not currently available, but the RBA suggested that construction would take place over a period of three calendar years.

Conservation Measures

Conservation measures are provisions outlined in the project description that project proponents will implement in order to reduce the environmental impacts of the action or promote the recovery of threatened and endangered species. As part of the proposed action, the Service considers the beneficial effects of these conservation measures during the jeopardy analyses. Conservation measures are part of the proposed action and their implementation is required under the terms of this consultation.

Areas of high wildlife habitat value (large willow patches or prime hibernation areas, wetlands, large mature trees) were identified by the City and its representatives during project planning, and construction activities have been designed to avoid these areas whenever possible. These measures are outlined in the RBA and include narrowing the temporary construction easement width, seasonal avoidance, preconstruction clearance surveys, trenchless/tunneled installation, impact avoidance via fencing of Preble's habitat boundaries, and informational meetings with construction crews. Conservation measures proposed in the BAA that would benefit the Preble's include the following:

1. The City will have a project ecologist onsite during the early phase of site preparation, staging, and construction, and then on-call as appropriate thereafter to monitor activities and ensure impact avoidance and minimization measures are properly implemented.

2. During the pre-construction kick-off meeting, construction workers will be informed by the city and/or the project ecologist as to the reason for, and importance of, limiting impacts to only those areas within the construction footprint. Workers will specifically be briefed on the Clean Water Act section 404 permit and ESA section 7 biological opinion conditions

3. Prior to the mobilization of machinery and staging of materials, construction fencing will be installed along the outer limits of the impact/work areas. Machinery and workers will be restricted to the area between/within the construction fencing.

4. Construction staging, including construction and waste material, fill material, equipment, fuel, etc. areas will be located in upland areas outside of Preble's and wetland habitat, or as determined by the project ecologist.

5. For short-term disturbances (i.e., barren ground for 30 days or less) best management practices will be implemented to stabilize disturbed areas and to minimize erosion and runoff, including the use of mulch and tackifier, erosion control blankets, hay bales, biologs, silt fence, and similar approved methods. Areas that will remain disturbed longer than 30 days will be temporarily seeded, mulched, and tacked.

6. Reasonable efforts will be made to avoid scheduling construction, planting, and seeding operations during the Preble's active season (May 1 through October 31). Activities within Preble's habitat will be restricted to November 1 through April 30 to avoid impacts during the active season, unless otherwise authorized by Service on a site/area specific basis.

7. If construction cannot be avoided during the Preble's active season, a "spotter" will clear the project easement and mitigation areas to minimize potential harm to the Preble's (see section 9.9.1 of the BAA).

8. In the unlikely event that a Preble's is encountered (dead or injured) during construction activities, the Colorado Field Office of the Service will be contacted immediately to discuss and implement appropriate actions.

9. The City will contractually mandate the selected project contractor to adhere to the well-established best management practices that focus on methods to minimize short- and long-term disturbance to affected lands. The City will also contractually mandate the selected project contractor to prepare a Soil Erosion and Sediment Control Plan pursuant to Larimer County requirements, and all other construction-related plans, such as a Stormwater Pollution Prevention Plan.

10. Mitigation for Preble's habitat impacts will include the restoration of all temporary disturbance areas within the project easement (39.84 acres) and the enhancement of Preble's habitat at the Lions Park mitigation site (3.16 acre). Unless otherwise approved by the Corps, all temporarily disturbed Preble's habitat will be stabilized, restored, and replanted, and all enhancement plantings initiated at the latest during the fall of the growing season following completion of construction.

11. Implementation of Preble's habitat restoration and enhancement will be supervised by a qualified ecologist experienced in habitat restoration.

12. Within 30 days of the completion of each phase of the mitigation, as-built plans, including a baseline survey of all the monitoring parameters, will be prepared. The as-built plans will be assimilated and compiled to include final, updated (i.e., red-lined) Detailed Planting Plans.

13. As-built mitigation planting and seeding plans and/or a mitigation status update letter will be provided to the Service and Corps annually until project completion.

14. Photographic points will be located at strategic overview locations prior to construction and will be utilized to document Preble's habitat along the project easement prior to and after completion of construction. If applicable, updated project figures and calculations will also be provided to the Corps and Service for areas where Preble's impact was avoided, minimized, or otherwise modified.

15. Seeded enhancement areas will be considered successful when at least 70 percent coverage of the planted or other desirable species (i.e., natural colonizers) has been achieved and maintained for at least two growing seasons.

16. Seeded restoration areas will be considered successful when pre-construction coverage of the planted or other desirable species (i.e., as specified by the landowner) has been achieved.

17. Tree and shrub plantings (including transplants) in the Lions Park Preble's habitat enhancement area and Lions Park - Poudre Crossing restoration area will be considered successful when at least 80 percent of the planted/transplanted plants are established and growing without showing signs of stress or continued need for irrigation or fertilization.

18. Noxious weeds listed in the Colorado Noxious Weed Act will be controlled in the Lions Park Preble's habitat enhancement area. Weed control will be considered successful when List A species do not exceed a mean foliar cover of 5 percent and Category B or C species do not exceed a mean foliar cover of 10 percent.

19. Annual monitoring will be conducted for a period of five full growing seasons following construction, or until such time as success of the mitigation efforts have been demonstrated to the satisfaction of the Corps (see section 12.2 of the BAA for monitoring parameters). The annual reports will describe site conditions, assess the progress toward establishment of the habitat mitigation, and document any unforeseen problems. An annual monitoring report will be submitted to the Corps and Service by December 1 of each year.

20. A maintenance plan will employ all means to preserve the plants and seeding areas in a healthy growing condition, including watering, weed control, periodic removal of litter and debris, and implementation of measures to prevent wildlife depredation.

21. Deficiencies identified during the monitoring and maintenance period will be remedied pursuant to the Contingency Plan (see section 14.0 of the BAA).

The BAA, and to a lesser extent the RBA, provide additional details of conservation measures associated with proposed habitat mitigation; performance criteria; maintenance, monitoring, and reporting; and contingency planning.

ACTION AREA

Service regulations define the action area as all areas directly or indirectly affected by the Federal action, not merely the immediate area involved in the action (50 CFR § 402.02). It is the area containing the most far-reaching potential effects of the federal and non-federal actions on the species being discussed. The action area is defined by measurable or detectable changes in land, air, and water or to other measurable factors that will result from the proposed action. The action area is not limited to the "footprint" of the action, but rather encompasses the biotic, chemical, and physical impacts to the environment resulting directly or indirectly from the action. We determined that the action area for this consultation consists of the permanent and temporary easement areas for the proposed water pipeline from the Bellvue Water Treatment Plant to Shields Street, and the adjacent riparian and upland habitat, including all construction, cleanup, and habitat enhancement areas along this reach of the Cache la Poudre River.

STATUS OF THE SPECIES/CRITICAL HABITAT DESCRIPTION

The Preble's is a member of the family Dipodidae (jumping mice) with four living genera, two of which, *Zapus* and *Napaeozapus* are found in North America (Hall 1981). The three living species within the genus *Zapus* are *Z. hudsonius* (the meadow jumping mouse), *Z. princeps* (the western jumping mouse), and *Z. trinotatus* (the Pacific jumping mouse). Edward A. Preble (1899) first documented the meadow jumping mouse from Colorado. Krutzch (1954) described the Preble's as a separate subspecies of meadow jumping mouse limited to Colorado and Wyoming. The Preble's is now recognized as one of twelve subspecies of meadow jumping mouse (Hafner et al. 1981).

The Preble's is a small rodent with an extremely long tail, large hind feet, and long hind legs. The tail is bicolored, lightly-furred, and typically twice as long as the body. The large hind feet can be one-third again as large as those of other mice of similar size. The Preble's has a distinct, dark, broad stripe on its back that runs from head to tail and is bordered on either side by grey to orange-brown fur. The hair on the back of all jumping mice appears coarse compared to most other mice. The underside hair is white and much finer in texture. Total length of adult Preble's is approximately 7 to 10 inches and tail length is 4 to 6 inches (Krutzsch 1954; Fitzgerald et al. 1994). The average weight of 120 adult Preble's captured early in their active season (prior to June 18) was 0.6 ounces; included were 10 pregnant females weighing more than 0.8 ounces (Meaney et al. 2002).

The Service added the Preble's meadow jumping mouse to the List of Endangered and Threatened Wildlife in 50 CFR 17.11 as a threatened species on May 13, 1998 (63 FR 26517). The Service designated critical habitat for Preble's in 50 CFR 17.68 on June 23, 2003, (68 FR 37275) and revised critical habitat for the Preble's on December 15, 2010 (74 FR 52066). Critical habitat for Preble's includes approximately 411 miles of rivers and streams and 34,935 acres of lands in Colorado. Lands designated as critical habitat are under Federal, State, local government, and private ownership. No lands designated as critical habitat are under Tribal ownership.

This biological opinion does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 CFR 402.02. Instead, we have relied upon the statute and the August 6, 2004, Ninth Circuit Court of Appeals decision in *Gifford Pinchot Task Force v. U.S. Fish and Wildlife Service* (No. 03-35279) to complete our analysis with respect to critical habitat.

Primary constituent elements are physical and biological features essential to the conservation of the species and that may require special management considerations and protection. For Preble's, primary constituent elements include those habitat components essential for the biological needs of reproducing, rearing of young, foraging, sheltering, hibernation, dispersal, and genetic exchange are: (1) Riparian corridors: formed and maintained by normal, dynamic, geomorphological, and hydrological processes that create and maintain river and stream channels, floodplains, and floodplain benches and that promote patterns of vegetation favorable to the Preble's; containing dense, riparian vegetation consisting of grasses, forbs, or shrubs, or any combination thereof, in areas along rivers and streams that normally provide open water through the Preble's active season; and including specific movement corridors that provide connectivity between and within populations. This 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. (2) Additional adjacent floodplain and upland habitat with limited human disturbance (including hayed fields, grazed pasture, other agricultural lands that are not plowed or disked regularly, areas that have been restored after past aggregate extraction, areas supporting recreational trails, and urban-wildland interfaces).

Existing human-created features and structures within the boundaries of the mapped critical habitat units, such as buildings, roads, parking lots, other paved areas, manicured lawns, other urban and suburban landscaped areas, regularly plowed or disked agricultural areas, and other features not containing any of the PCEs that support the Preble's, are not considered critical habitat.

Designated critical habitat units include only river and stream reaches, and adjacent floodplains and uplands, that are within the known geographic and elevational range of the Preble's, have the primary constituent elements present, and, based on the best scientific data available, are believed to currently support the Preble's.

We considered several qualitative criteria to judge the current status and probable persistence of Preble's populations in the selection and designation of specific areas as critical habitat. These include: the quality, continuity, and extent of habitat components present; the state of natural hydrological processes that maintain and rejuvenate suitable habitat components; the presence of lands devoted to conservation, either public lands such as parks, wildlife management areas, and dedicated open space, or private lands under conservation easements; and the landscape context of the site, including the overall degree of current human disturbance and presence, and likelihood of future development based on local planning and zoning.

Activities with the potential for altering the primary constituent elements are those that result in development or alteration of the landscape within a unit, including land clearing activities associated with construction for urban and industrial development; some agricultural activities; activities resulting in changes in the hydrology of a unit; activities that detrimentally alter natural

processes in a unit, and; activities that could lead to the introduction, expansion, or increased density of exotic plant or animal species detrimental to Preble's and its habitat.

We used the Preliminary Draft Recovery Plan (Draft Plan) for the Preble's (Service 2003a) and the concepts described within it as a source of the best scientific and commercial data available on the Preble's and also used it as a starting point for identifying areas that are essential for the conservation of Preble's. To recover Preble's to the point where it can be delisted, the Draft Plan identifies the need for a specified number, size, and distribution of wild, self-sustaining Preble's populations across its known range.

The Draft Plan identifies recovery criteria for each of the three major river drainages where Preble's occurs (the North Platte River drainage in Wyoming, the South Platte River drainage in Wyoming and Colorado, and the Arkansas River drainage in Colorado) and for each subdrainage judged likely to support the Preble's. The Draft Plan uses U.S. Geological Survey 8-diget hydrological unit (HUC) boundaries to define subdrainages, and identifies 19 HUCs as occupied or potentially occupied. Of these, 5 are located in the North Platte River drainage, 11 in the South Platte River drainage, and 3 in the Arkansas River drainage. Further, the Draft Plan defines large populations as maintaining 2,500 mice and usually including at least 50 miles of rivers and streams. Medium populations maintain 500 mice over at least 10 miles of rivers and streams, and small populations maintain 150 mice over 3 miles of stream. In addition, the Draft Plan calls for two large and three medium populations in the South Platte River drainage, one large and two medium populations in the North Platte River drainage, and one large population in the Arkansas River drainage. In each of the remaining 10 HUCs, 3 small populations are called for. Three large Preble's populations in Colorado (North Fork of the Cache La Poudre River, Larimer County; Plum Creek, Douglas County; and Monument Creek, El Paso County) that are designated in the Draft Plan as recovery populations, have been designated, at least in part, as critical habitat.

Life History

Habitat

Typical habitat for the Preble's is comprised of well-developed plains riparian vegetation with adjacent, relatively undisturbed grassland communities and a nearby water source. Well-developed plains riparian vegetation typically includes a dense combination of grasses, forbs, and shrubs; a taller shrub and tree canopy may be present (Bakeman 1997). When present, the shrub canopy is often willow, although other shrub species, including snowberry (*Symphoricarpos* spp.), chokecherry (*Prunus virginiana*), hawthorn (*Crataegus* spp.), Gambel's oak (*Quercus gambelli*), alder (*Alnus incana*), river birch (*Betula fontinalis*), skunkbrush (*Rhus trilobata*), wild plum (*Prunus americana*), lead plant (*Amorpha fruticosa*), dogwood (*Cornus sericea*) and others may also occur (Bakeman 1997; Shenk and Eussen 1998). The Preble's has rarely been trapped in uplands adjacent to riparian areas (Dharman 2001). However, the Preble's has been found feeding and resting in adjacent uplands (Shenk and Sivert 1999, Schorr 2001) as far out as 328 feet beyond the 100-year floodplain (Ryon 1999; Tanya Shenk, Colorado Division of Wildlife, in litt., 2002). The Preble's can also move considerable distances along streams, as far as 1 mile in one evening (Ryon 1999; Shenk and Sivert 1999a). Adjacent uplands used by the Preble's are extremely variable ranging from open grasslands to ponderosa pine (*Pinus ponderosa*) woodlands (Corn et al. 1995; Pague and Gruneau 2000).

Riparian shrub cover, tree cover, and the amount of open water nearby are good predictors of Preble's densities (White and Shenk 2000). Estimates of abundance ranged from 6 to 110 mice per mile and averaged 53 mice per mile of stream. A comparison of habitats at capture locations on the Department of Energy's Rocky Flats Environmental Technology Site in Jefferson County, Colorado, and the U.S. Air Force Academy (Academy) in El Paso County, Colorado revealed that Academy sites had lower plant species richness at capture locations but considerably greater numbers of the Preble's (Schorr 2001). However, the Academy sites also had higher densities of both grasses and shrubs. The Preble's abundance appears linked to the density of riparian vegetation rather than the diversity of plant species.

The Preble's is a true hibernator, usually entering hibernation in September or October and emerging the following May, after a potential hibernation period of seven or eight months. Adults enter hibernation earliest because they accumulate the necessary fat stores sooner than young of the year. Similar to other subspecies of meadow jumping mouse, the Preble's does not store food, but survives on fat stores accumulated prior to hibernation (Whitaker 1963). Apparent hibernacula (hibernation nests) of the Preble's have been located both within and outside of the 100-year floodplain of streams (Shenk and Sivert 1999a; Ryon 2001; Schorr 2001). Those hibernating outside of the 100-year floodplain would likely be less vulnerable to flood-related mortality. Fifteen apparent Preble's hibernacula have been located through radio telemetry, all within 260 feet of a perennial streambed or intermittent tributary (Bakeman and Deans 1997; Shenk and Sivert 1999a; Schorr 2001).

Hibernacula have been located under willow, chokecherry, snowberry, skunkbrush, sumac (*Rhus* spp.), clematis (*Clematis* spp.), cottonwoods (*Populus* spp.), Gambel's oak, thistle (*Cirsium* spp.), and alyssum (*Alyssum* spp.) (Shenk and Sivert 1999a). At the Academy, four of six likely hibernacula found by radio-telemetry were located in close proximity to coyote willow (*Salix exigua*) (Schorr 2001). The one excavated hibernaculum at Rocky Flats was found 30 feet above the streambed, in a dense patch of chokecherry and snowberry (Bakeman and Deans 1997). The nest was constructed of leaf litter 12 inches below the surface in coarse textured soil.

The Preble's constructs day nests composed of grasses, forbs, sedges, rushes, and other available plant material. They may be globular in shape or simply raised mats of litter, and are most commonly above ground but can also be below ground. They are typically found under debris at the base of shrubs and trees, or in open grasslands (Ryon 2001). An individual mouse can have multiple day nests in both riparian and grassland communities (Shenk and Sivert 1999a), and may abandon a nest after approximately a week of use (Ryon 2001).

Hydrologic regimes that support Preble's habitat range from large perennial rivers such as the South Platte River to small or ephemeral drainages only 3 to 10 feet in width, as at Rocky Flats and in montane habitats. Flooding is a common and natural event in the riparian systems along the Front Range of Colorado. This periodic flooding helps create a dense vegetative community by stimulating resprouting from willow shrubs and allows herbs and grasses to take advantage of newly-deposited soil.

Reproduction/Life Span

Meadow jumping mice usually have two litters per year, but there are records of three litters per year. An average of five young are born, but the size of a litter can range from two to eight young (Quimby 1951, Whitaker 1963). The Preble's is long-lived for a small mammal, in comparison with many species of mice and voles that seldom live a full year. Along South Boulder Creek, Boulder County, Colorado, seven individuals originally captured as adults were still alive two years later, having attained at least three years of age (Meaney et al., 2002).

Predation

The Preble's has a host of known predators including garter snakes (*Thamnophis* spp.), prairie rattlesnake (*Crotalus viridus*), bullfrog (*Rana catesbiana*), foxes (*Vulpes vulpes* and *Urocyon cinereoargenteus*), house cat (*Felis catus*), long-tailed weasel (*Mustela frenata*), and red-tailed hawk (*Buteo jamaicensis*) (Shenk and Sivert 1999a; Schorr 2001). Other documented mortality factors include drowning and vehicle collision (Schorr 2001; Shenk and Sivert 1999a). Mortality factors known for the meadow jumping mouse, such as starvation, exposure, disease, and insufficient fat stores for hibernation (Whitaker 1963) are also likely causes of death for the Preble's.

Diet

While fecal analyses have provided the best data on the Preble's diet to date, they overestimate the components of the diet that are less digestible. The diet shifts seasonally; it consists primarily of insects and fungus after emerging from hibernation, shifts to fungus, moss, and pollen during mid-summer (July-August), with insects again added in September (Shenk and Sivert 1999a). The shift in diet along with shifts in mouse movements suggests that the Preble's may require specific seasonal diets, perhaps related to the physiological constraints imposed by hibernation (Shenk and Sivert 1999a).

Population Dynamics

The Preble's annual survival rate is relatively low. Preble's survival rates appear to be lower over the summer than over the winter. Over-summer survival rates ranged from 22 to 78 percent and over-winter survival rates ranged from 56 to 97 percent (Shenk and Sivert 1999b; Schorr 2001; Meaney et al. 2002). Fire is a natural component of the Colorado Front Range and Wyoming foothills and Preble's habitat naturally fluctuates with fire events. Within shrubland and forest, intensive fire may result in adverse impacts to Preble's populations. However, in a review of the effects of grassland fires on small mammals, Kaufman et al. (1990) found a positive effect of fire on the meadow jumping mouse in one study and no effect of fire on the species in another study.

Status and Distribution

The Preble's is found along the foothills in southeastern Wyoming, southward along the eastern edge of the Front Range of Colorado to Colorado Springs, El Paso County (Hall 1981, Clark and Stromberg 1987, Fitzgerald et al. 1994). Knowledge about the current distribution of the

Preble's comes from collected specimens, and live-trapping locations from both range-wide survey efforts and numerous site-specific survey efforts conducted in Wyoming and Colorado since the mid-1990s. Recently collected specimens are housed at the Denver Museum of Nature and Science and survey reports are filed with the Service's Field Offices in Colorado and Wyoming.

In Wyoming, capture locations of mice confirmed as the Preble's, and locations of mice identified in the field as the Preble's and released, extend in a band from the town of Douglas, Converse County, southward along the Laramie Range to the Colorado border, with captures east to eastern Platte County and central Laramie County. The Preble's range also extends west into the Laramie Basin in Albany County. In a modeling study of habitat associations in Wyoming, Keinath (2001) found suitable habitat predicted in the Laramie Basin and Snowy Range Mountains west of known Preble's occurrence, but very little suitable habitat predicted on the plains of Goshen, Niobrara, and eastern Laramie counties (east of known Preble's occurrence). In Colorado, the distribution of the Preble's forms a band along the Front Range from Wyoming southward to Colorado Springs, El Paso County with eastern marginal captures in western Weld County, western Elbert County and north-central El Paso County.

The Preble's is likely an Ice Age relict (Hafner et al. 1981, Fitzgerald et al. 1994). Once the glaciers receded from the Front Range of Colorado and the foothills of Wyoming and the climate became drier, the Preble's was confined to the riparian systems where moisture was more plentiful. The semi-arid climate in southeastern Wyoming and eastern Colorado limits the extent of riparian corridors and restricts the range of the Preble's in this region. The Preble's has not been found east of Cheyenne in Wyoming or on the extreme eastern plains in Colorado. The eastern boundary for the subspecies is likely defined by the dry shortgrass prairie, which may present a barrier to eastward expansion (Beauvais 2001).

The western boundary of Preble's range in both States appears related to elevations along the Laramie Range and Front Range. The Service has used 7,600 feet (2,300 meters) in elevation as the general upward limit of Preble's habitat in Colorado (Service 1998). Recent morphological examination of specimens has confirmed the Preble's to an elevation of approximately 7,600 feet in Colorado (Meaney et al. 2001) and to 7,750 feet in southeastern Wyoming (Cheri Jones, DMNS, in litt., 2001).

The Preble's is closely associated with riparian ecosystems that are linear in nature and represent a small percentage of the landscape. If Preble's habitat is destroyed or modified, populations in those areas may decline or be extirpated. The decline in the extent and quality of Preble's habitat is considered the main factor threatening the subspecies (Service 1998; Hafner et al. 1998; Shenk 1998). Habitat alteration, degradation, loss, and fragmentation resulting from urban development, flood control, water development, intensive agricultural activities, and other human land uses have adversely affected Preble's populations. Habitat destruction may impact individual Preble's directly or by destroying nest sites, food resources, and hibernation sites, by disrupting behavior, or by forming a barrier to movement.

Although there is little information on past distribution or abundance of the Preble's, surveys have identified various locations where the subspecies was historically present but is now absent (Ryon 1996). Despite numerous surveys, the Preble's has not recently been found in the Denver

and Colorado Springs metropolitan areas and is believed to be extirpated from these areas as a result of extensive urban development. Since at least 1991, the Preble's has not been found in Denver, Adams, and Arapahoe counties in Colorado. Its absence in these counties is likely due to urban development, which has altered, reduced, or eliminated riparian habitat (Compton and Hugie 1993; Ryon 1996).

The increasing presence of humans near Preble's habitats may result in increased level of predation that may pose a threat to the Preble's. The striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), red fox, and the domestic and feral cat are found in greater densities in and around areas of human activity; all four of these species feed opportunistically on small mammals. Introduction of species such as the bullfrog into waters within Preble's range may result in additional predation. The fact that summer mortality is higher than overwinter mortality underscores the impact that predators can have on the Preble's.

Threats

Conversion of native riparian ecosystems to commercial croplands and grazed rangelands was identified as the major threat to Preble's persistence in Wyoming (Clark and Stromberg 1987; Compton and Hugie 1993). Certain grazing and haying management scenarios maintain what appears to be good habitat for the Preble's. However, intensive grazing and haying operations may negatively impact the Preble's by removing food and shelter. While some Preble's populations coexist with livestock operations, overgrazing can decimate riparian communities on which the Preble's depends. Similarly, haying operations (and the associated water development) that allow significant riparian vegetation to remain in place appear to be compatible with persistence of Preble's populations. In fact, apparently substantial populations of the Preble's occur in grazed and hayed areas along Cottonwood Creek, Chugwater Creek, and Horse Creek in Wyoming.

Recreational trail systems frequently parallel or intersect riparian communities and thus are common throughout Preble's range. Trail development can alter natural communities and may impact the Preble's by modifying nest sites, food resources, and hibernation sites; fragmenting its habitat; and increasing predation. Humans and pets using these trails may alter behavior patterns of the Preble's and cause a decrease in survival and reproductive success.

Habitat fragmentation limits the extent and abundance of the Preble's. In general, as animal populations become fragmented and isolated, it becomes more difficult for them to persist. Small, isolated patches of habitat are unable to support as many Preble's as larger patches of habitat. When threats to persistence are similar, larger populations are more secure from extirpation than smaller ones.

The structure and function of riparian ecosystems are determined by the hydrology of the waterway. Water development and management may facilitate development of lush riparian vegetation by maintaining more moisture in the riparian areas for longer periods of time, particularly in times of drought. However, changes in timing and abundance of water may also alter the channel structure, riparian vegetation, and the adjacent floodplain, in a manner that results in changes that are detrimental to the persistence of the Preble's. Increased development and impervious surface within a drainage can result in more frequent and severe flood events and

prevent the maintenance of riparian communities. Bank stabilization, channelization, and other measures to address flooding and storm water runoff have increased the rate of stream flow, straightened riparian channels, and narrowed riparian areas (Pague and Grunau 2000). Using riprap and other structural stabilization options to reduce erosion can destroy riparian vegetation, and prevent or prolong its reestablishment. These measures can alter the hydrologic processes and plant communities present to the point where Preble's populations can no longer persist.

Alluvial aggregate extraction may produce long-term changes to the Preble's habitat by altering hydrology and removing riparian vegetation. In particular, such extraction removes and often precludes reestablishment of habitat components required by Preble's. Such mining impacts the deposits of alluvial sands and gravels that may be important hibernation locations for the Preble's.

Transportation and utility corridors frequently cross Preble's habitat and may negatively affect populations. As new roads are built and old roads are maintained, habitat can be destroyed or fragmented. Roads and bridges also may act as barriers to dispersal. Train and truck accidents within riparian areas may release spills of chemicals, fuels and other substances that may impact the mouse or its habitat. Sewer, water, communications, gas, and electric lines cross Preble's habitat. Their right-of-ways can contribute to habitat disturbance and fragmentation through new construction and periodic maintenance. However, construction-related impacts are often short term when adequate rehabilitation and reclamation actions are implemented.

Invasive, noxious plants can encroach upon a landscape and displace native plant species. This change reduces the abundance and diversity of native plants, and may negatively impact cover and food sources for the Preble's. The control of noxious weeds may also impact the Preble's where large-scale removal of vegetation occurs through chemical treatments and mechanical mowing operations.

Pesticides and herbicides are used within the range of the Preble's. Inappropriate use of these chemicals may harm Preble's directly or when ingested by the Preble's with food or water. Overall, an integrated pest management approach (use of biological, chemical, and mechanical control) may help reduce the threat of chemicals, but allow for the control of target species. Fire, particularly catastrophic fires, can alter habitat dramatically and change the structure and composition of the vegetation communities so that the Preble's may no longer persist. In addition, precipitation falling in a burned area may degrade Preble's habitat by causing greater levels of erosion and sedimentation along creeks. Controlled use of fire may be one method to maintain appropriate riparian, floodplain, and upland vegetation within Preble's habitat. However, over the past several decades, as human presence has increased through Preble's range, significant effort has been made to suppress fires. Long periods of fire suppression may result in a build-up of fuel and result in a catastrophic fire.

ENVIRONMENTAL BASELINE

The environmental baseline is defined as the past and present effects of all Federal, State, or private actions and other human activities in the action area, the anticipated effects of all proposed Federal actions in the action area that have already undergone formal or early section 7

consultation, and the effects of State or private actions that are contemporaneous with the consultation in progress.

The proposed project site is located in a portion of the Cache la Poudre River drainage that has been significantly impacted by human development and land uses. Land along the proposed pipeline route includes suburban homes and yards, rural homes with adjacent grazed lands and agricultural fields, gravel pits, a fish hatchery, irrigation canals, and riparian forest. The Cache la Poudre River within the proposed project area has a history of human-modified flows due to diversion ditches and reservoir releases upstream. The riparian community along the proposed pipeline route is dominated by mature cottonwoods (*Populus* spp.) and non-native crack willow (*Salix fragilis*) with an understory generally dominated by non-native grasses. As described above, the Preble's has been documented to occur along the Cache la Poudre River adjacent to the proposed project alignment at the Watson State Wildlife Area, as well as at numerous locations upstream of the project area, but at no locations downstream of the project area. No trapping efforts have specifically targeted the proposed pipeline alignment. No designated Preble's critical habitat exists on the Cache la Poudre River near the project area or downstream. The nearest designated Preble's critical habitat occurs approximately 6 miles upstream of the project area.

While little information is known about the Preble's population along the Cache la Poudre River in and near the project area, the Cache la Poudre drainage upstream of the site likely supports a large Preble's population (a minimum of 2,500 adult mice, as defined in the Draft Plan). Preble's habitat quality along the Cache la Poudre River corridor in the project area varies from poor to fair with some pockets of good to excellent habitat. Habitat along the river corridor is limited in some areas. The most eastern mile of the proposed pipeline corridor departs from the river corridor and does not support potential Preble's habitat. Overall, the population of Preble's in the project area is likely limited by habitat quality and connectivity, though we conclude that the Preble's is likely present where appropriate habitat exists.

In the time from the May 1998 listing of the Preble's through February 2012 we have conducted 150 formal consultations pursuant to section 7 of the ESA and issued 21 incidental take permits pursuant to section 10(a)(1)(B) of the ESA regarding Preble's in Colorado. Through these actions, we have exempted or permitted incidental take of Preble's through nearly 800 acres of permanent habitat loss and about 1,400 acres of temporary habitat loss.[1] These totals likely exceed the amount of habitat impact that has occurred under the permits, since authorized take represents a maximum allowable. In addition, much of the temporarily impacted habitat has been restored. Within the Cache la Poudre River drainage, we have previously authorized 3 acres of permanent habitat loss and 206 acres of temporary habitat loss (all but 8 acres of the temporary habitat loss from prescribed burns on U.S. Forest Service lands). No previous take has been authorized downstream of the Bellvue Water Treatment Plant.

[1] The total acres of permanent and temporary take exempted under section 10 do not include the Livermore Habitat Conservation Plan (HCP) in Larimer County, Colorado, completed in January 2004. As of September 2011, there are no enrollments in the Livermore HCP.

EFFECTS OF THE ACTION

The Bellvue Pipeline, Northern Segment project would temporarily impact 39.84 acres of Preble's habitat and permanently impact 0.03 acre associated with above ground components of the pipeline. ECOS further categorized impacted Preble's habitat as to "primary" and "secondary" habitat based on vegetation present. Proposed impacts to primary habitat (riparian habitat with a well-developed shrub or herbaceous component) total 3.32 acres, all temporary. The remainder of impacts would occur in secondary habitats comprised of upland grasslands, hayfields, pastures, and shrublands.

Overall, the quality of Preble's habitat along the proposed pipeline easement is generally low due to the lack of favored habitat components such as dense shrub or herbaceous cover. Although mice may occasionally use less than optimal habitat in the area of proposed impact for foraging, it is unlikely that they would use it regularly or for prolonged periods, because of the lack of protective cover. Disturbance to habitat along the proposed pipeline easement would temporarily limit the Preble's use of these areas, but aside from one location where the pipeline alignment would cross the river (at Lions Park) the Preble's use of the Cache la Poudre River corridor for travel or dispersal would be largely unaffected.

Since activities within Preble's habitat would generally be conducted outside of the Preble's active season, direct effects to the Preble's would likely be limited to any mice hibernating in the area disturbed. Direct effects of proposed project that could occur during construction include injury or mortality to individuals due to crushing by construction equipment or by workers. In addition, noise, and vibration from machinery, vehicles, and increased human activity could affect hibernating Preble's. We don't expect these effects to be likely however, because of the low likelihood of Preble's meadow jumping mouse hibernating in areas that lack trees or shrubs, and an herbaceous understory. Even where appropriate habitat occurs, the Preble's may not be present due to the fragmented nature of Preble's habitat in the project area.

The proposed project would impact Preble's habitat in the pipeline easement over portions of about 5 miles of the river corridor. Preble's habitat along the river, as mapped in the RBA, averages approximately 1,800 feet in width, resulting in an estimated 1,000 acres of Preble's habitat present over 5 miles of river corridor. Assuming an average of 20 mice per river mile (which we deem unlikely given the relatively poor habitat quality present) an estimated 100 Preble's, on average, may reside in the 1,000 acres. The approximately 40 acres of Preble's habitat that would be impacted by the proposed project represents 4 percent of 1,000 acres. If the 100 Preble's were proportionately distributed across the habitat present, and the proposed project caused take of all the Preble's present in the 40 acres, the project could result in take of 4 percent of the 100 Preble's or 4 mice. Since the pipeline alignment avoids much of the better quality Preble's habitat present along the Cache la Poudre River, the Preble's is unlikely to be proportionally present within the pipeline easement. Therefore, we conclude that the potential take of four Preble's represents a conservative number and a maximum direct mortality that may result from proposed project construction.

Following construction, all temporarily disturbed areas within the project easement would be restored. Temporarily disturbed areas would be replanted to the same habitat type present prior to construction (pasture, cropland, or native species) unless changes are agreed to in coordination

with property owners. At the Lions Park and the Fisher property tunneling areas, trees and shrubs to be cleared would be inventoried, salvaged and re-used to the extent feasible, and replaced with transplanted or potted trees and shrubs as appropriate. At the Fisher tunneling area, removal of trees and shrubs may be minimal, but creation of canopy openings from any tree removal in this heavily forested area might ultimately benefit growth of understory vegetation, which in turn could improve habitat for the Preble's.

Reseeding and planting of temporarily disturbed habitat would likely restore herbaceous vegetation within one to two growing seasons and shrubs and trees over time. Until planted vegetation becomes established, the proposed project would temporarily reduce available Preble's habitat in areas impacted. Opportunistic weeds may colonize disturbed soils, but revegetation efforts and weed management should help alleviate any habitat impacts associated with invasive weeds.

Compensatory mitigation through Preble's habitat enhancement would take place in the Lions Park area. At Lions Park, 3.16 acres of habitat would be enhanced by the City in coordination with the Colorado Department of Parks and Wildlife, and Larimer County. Stated goals of the proposed enhancement effort are: 1) to improve cover and vegetative diversity to support Preble's reproduction, rearing of young, foraging, shelter, and hibernation; and, 2) to enhance habitat connectivity within the site and along the Cache la Poudre River riparian corridor in order to facilitate Preble's dispersal and genetic exchange.

Although the proposed project would result in 39.84 acres of Preble's habitat temporarily impacted and 0.03 acre of Preble's habitat permanently lost, restoration and compensatory mitigation through habitat enhancement of 3.16 acres would largely negate these impacts over time. We estimate a maximum of 4 Preble's mice may be taken by proposed construction. Short-term disturbance of the Preble's movement corridor along the Cache la Poudre River would occur at the Lions Park site, but proposed restoration would minimize the duration of this disturbance and proposed enhancement at this site would eventually improve connectivity.

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 by 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 ESA.

Increased residential and commercial development of lands surrounding the project area appears likely given the human population growth predicted for the northern Front Range of Colorado. Increased human development may result in Preble's habitat being lost, degraded or fragmented. Increased vehicular traffic, noise and air pollution, increased human presence including recreational use of the river corridor, and increase in domestic pets may accompany development. Impacts from possible future upstream development, water diversion, or augmentation within or outside of Preble's habitat could affect Preble's on the project site by altering flow regimes in the Cache la Poudre River. Some future projects that adversely affect Preble's and its habitat will have a Federal nexus, including those that require a section 10 permit

under the ESA, and section 7 regulations would apply. At this time, the Service has not identified any specific project that meets the "cumulative effects" criteria as described above.

Climate Change

According to the Intergovernmental Panel on Climate Change (IPCC 2007b), "Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level." Average Northern Hemisphere temperatures during the second half of the 20th century were very likely higher than during any other 50-year period in the last 500 years and likely the highest in at least the past 1,300 years (IPCC 2007b). It is very likely that over the past 50 years, cold days, cold nights, and frosts have become less frequent over most land areas, and hot days and hot nights have become more frequent (IPCC 2007b). It is likely that heat waves have become more frequent over most land areas, and the frequency of heavy precipitation events has increased over most areas (IPCC 2007b).

The IPCC (2007b) predicts that changes in the global climate system during the 21st century are very likely to be larger than those observed during the 20th century. For the next two decades, a warming of about 0.2 °C per decade is projected (IPCC 2007b). Afterwards, temperature projections increasingly depend on specific emission scenarios (IPCC 2007b). Various emissions scenarios suggest that by the end of the 21st century, average global temperatures are expected to increase 0.6 to 4.0 °C with the greatest warming expected over land (IPCC 2007b). Localized projections suggest the southwest may experience the greatest temperature increase of any area in the lower 48 States (IPCC 2007b). The IPCC predicts that it is very likely hot extremes, heat waves, and heavy precipitation will increase in frequency (IPCC 2007c). There also is high confidence that many semi-arid areas like the western United States will suffer a decrease in water resources due to climate change (IPCC 2007b). Milly et al. (2005) project a 10 to 30 percent decrease in precipitation in mid-latitude western North America by the year 2050 based on an ensemble of 12 climate models.

Potential impacts to the Preble's from predicted future climate changes are somewhat uncertain. A trend of warming in the mountains of North America is expected to decrease snowpack, hasten spring runoff, and reduce summer flows (IPCC 2007a). Stream-flow reductions or seasonal changes in flow due to climate change will probably cause a greater disruption in those watersheds with a high level of human development (Hurd et al. 1999). The two major river basins that support the Preble's in Colorado have heightened vulnerability to the effects of climate change due to the degree of human development, natural variability in stream-flow, ratio of precipitation lost to evapotranspiration, and groundwater depletion (Hurd et al. 1999). Conflicts between human needs for water and maintenance of existing wetland and riparian habitats could be heightened. While fewer cold days and nights could result in increased plant biomass yield in colder environments, increased summer heat may increase the frequency and intensity of wildfires, and areas affected by drought may increase (IPCC 2007a). Overall, it appears reasonable to assume that the Preble's will be affected negatively by climate change, and that changes in stream flows and resultant effects on riparian habitats may be a key factor. Adverse impacts seem more likely in drainages where human demand for water resources is greatest; however, we lack sufficient certainty to predict more specifically how climate change will affect Preble's populations.

Summary of Effects

The Bellvue Pipeline, Northern Segment project would have temporary and limited permanent adverse effects on the Preble's and its habitat. No critical habitat will be affected since none is designated on or near the project area. The area of adverse impact to Preble's habitat from the proposed project (39.87 acres) represents a small portion of the Preble's habitat along the Cache la Poudre River and its tributaries (nearly 6,000 acres of Preble's critical habitat have been designated upstream). Over time, the proposed restoration of virtually all the impacted area and enhancement of 3.16 acres of existing Preble's habitat at Lions Park would offset the temporary adverse effects to habitat. At maximum we anticipate that four Preble's mice may be killed by project construction. The loss of up to four mice will not result in an appreciable reduction of the ability of a Preble's population to survive in the project area.

CONCLUSION

Jeopardize the continued existence of, is defined as, to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR § 402.02). Recovery calls for improvement in the status of listed species to the point at which listing is no longer appropriate under the criteria set out in section 4(a)(1) of the Act (50 CFR § 402.02).

After reviewing the current status of Preble's, the environmental baseline for the action area, the effects of the proposed construction, and the cumulative effects, it is the Service's biological opinion that proposed Federal action is not likely to jeopardize the continued existence of the Preble's or destroy or adversely modify its critical habitat. We base our conclusion on the following:
1) proposed impacts to existing Preble's habitat in the Cache la Poudre River drainage are modest (far less than 1 percent of Preble's habitat present in the drainage), limited mostly to areas of relatively poor habitat, and would not preclude the survival and recovery of the species;
2) proposed restoration, and enhancement efforts will offset impacts to Preble's habitat over time; and,
3) potential take of up to 4 Preble's mice (an estimated 4 percent of the population present in the project area and far less than 1 percent in the Cache la Poudre River drainage) and would not significantly impact the population present or preclude the survival and recovery of the species.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, would, kill, trap, capture, or collect, or to 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 act or omission that creates the likelihood of injury to listed wildlife by annoying it to such an extent as to significantly disrupt normal

behavior 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 an 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 ESA provided that such taking is in compliance with the terms and conditions of the Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the Corps so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption in section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps (1) fails to assume and implement the terms and conditions, or (2) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the applicant must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement. [50 CFR § 402.14(i)(3)]

Amount or Extent of Take Anticipated

The Service anticipates that the proposed action may result in incidental take of the Preble's through direct take (through direct killing during construction) or through temporary loss of habitat that supports the Preble's life functions. Take of Preble's mice will be difficult to detect because of their small size and hibernation underground. In addition, take could occur, though we believe that it is unlikely, through the loss of food, cover, and other essential habitat elements associated with a maximum temporary loss of 39.84 acres and a maximum permanent loss of 0.03 acre of Preble's habitat. We estimate a maximum take of four Preble's mice.

In the above biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the species.

Reasonable and Prudent Measures

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize impacts of incidental take of the Preble's:

1. The Corps will monitor the extent of habitat impacted to assure that it does not exceed the authorized area.

2. The Corps will monitor all aspects of proposed onsite restoration and enhancement to assure project completion and success.

3. The Corps will ensure that Best Management Practices designed to minimize take are implemented and successful.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the U.S. Army Corps of Engineers must comply with the following terms and conditions, which implement the reasonable and prudent measures, described above, and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

1. The Corps shall ensure that the proposed conservation measures (outlined above and detailed in the 2011 RBA and 2012 BBA), as further refined by these terms and conditions, are formally adopted and implemented.

2. The applicant or his agent will designate a qualified environmental manager to be onsite during the early phase of the proposed work and periodically thereafter to inform workers of permit conditions, monitor construction, and assure that habitat avoidance and conservation measures are implemented.

3. The Corps shall require that temporarily disturbed areas and compensatory mitigation areas are revegetated with native vegetation to the following specifications (in a modification of conservation measures proposed):
    a. At least 80 percent of planted trees and shrubs are established and growing without showing signs of stress or continued need for irrigation or fertilization.
    b. Desirable herbaceous cover on seeded areas will equal to at least 80 percent of that in undisturbed control areas nearby.
    c. Weeds will be controlled in restored areas and weed control will be considered successful if 0 percent of Colorado Noxious Weed Act (C.R.S. §§ 35-5.5-101 through 119) List A species and less than 10 percent of Category B or C species are found in overall plant cover from transects and plot data.

4. The Corps shall include as a binding condition of project approval that annual monitoring of habitat restoration and enhancement areas will occur. Monitoring will extend for at least five years following planting, or until such time as the Corps and Service determine that proposed revegetation has been successfully completed. Monitoring reports will be due to the Service by December 1 of each year.

Reporting Requirement

The Corps or the applicant shall provide a written report within 60 days of the completion of construction activities. This report shall contain a discussion of the activities conducted; the approximate acreage of Preble's habitat permanently and temporarily affected; any problems encountered in implementing the terms and conditions; recommendations for modifying the stipulations to enhance the conservation of the Preble's; results of biological surveys and sighting records; and other pertinent information. In addition, the Service will be provided an annual report on the revegetation efforts after each growing season and prior to December 1 until success criteria have been met.

The Service believes that take of no more than 4 Preble's mice will occur and loss of no more than 39.87 acres of Preble's habitat will be adversely affected as a result of the proposed action.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The Corps must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of the proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

The Service has no conservation recommendations at this time.

REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the action(s) outlined in the request. 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 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 cease pending reinitiation.

If we can be of any additional assistance, please contact Peter Plage of my staff at (303) 236-4750.

Sincerely,

Susan C. Linner
Colorado Field Supervisor

ec: Plage

PPlage/PreblesCons./BellvueBO:030312

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