



United States Department of the Interior

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IN REPLY REFER TO:

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Permit Number: TE-068418-0
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Memorandum

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

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

Subject: Intra-Service section 7 consultation and Biological Opinion on Issuance of an
Incidental Take Permit to the City and County of Denver, acting by and through its
Board of Commissioners for Denver Water Properties, Colorado (TE-068418-0).

This document constitutes the Biological Opinion (BO) prepared pursuant to section 7 of the Endangered Species Act of 1973, as amended (Act), on the effects of issuing an Incidental Take Permit (ITP) to the City and County of Denver, acting by and through its Board of Commissioners (Denver Water)(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. The proposed action involves activities necessary to operate and maintain the Applicant's water system while meeting its mission (see section 1.3 of the Environmental Assessment [EA]). Denver Water Properties within the Permit Boundary total 6,143 acres in Boulder, Jefferson, and Douglas Counties, extending from an upper elevation of 7,600 feet in mountainous terrain, through lands in the Colorado piedmont at mid-elevations, to lower elevations on the plains near Denver designated as the location of mitigation activities pursuant to the Environmental Assessment/Habitat Conservation Plan. The incidental take would be in the form of potential disturbance to, and loss of, habitat used by Preble's.

This BO is based on the project proposal as described in the Applicant's "Final Environmental Assessment/Habitat Conservation Plan for Issuance of an Endangered Species Section 10(a)(1)(B) Permit for the Incidental Take of the Preble's Meadow Jumping Mouse (*Zapus hudsonius preblei*) for the City and County of Denver's Board of Water Commissioner's" (EA/HCP) of April, 2003. The Service has determined that the proposed project may adversely affect the Preble's.

CONFERENCE/CONSULTATION HISTORY

On May 13, 1998, Preble's was listed as threatened under the Act. Full protection for Preble's became effective on June 12, 1998. The Service began discussions with the Applicant regarding the proposed action in August, 2001 and has since had various communications and meetings with the Applicant and associated representatives. The subject EA/HCP and permit application was submitted to the Service in February, 2003.

BIOLOGICAL AND CONFERENCE OPINIONS

This BO is based on information regarding cumulative effects, conditions forming the environmental baseline, the status of the Preble's, and the importance of the project area to the survival and recovery of the species. The data used in this BO constitutes the best scientific and commercial information currently available.

Description of the Proposed Action

The proposed action involves issuance of an ITP for activities necessary to operate and maintain Denver Water's water system while meeting its mission of providing a safe and high quality water supply to its customers on approximately 6,143 acres in Boulder, Jefferson, and Douglas Counties (201 acres of known occupied Preble's habitat and 5,942 acres of suitable and potential habitat).

The incidental take would be in the form of potential disturbance to, and loss of, habitat used by Preble's. The principal actions likely to result in possible incidental take include repair and maintenance of infrastructures and facilities (e.g., conduits, siphons), ditch/canal maintenance, road repair and maintenance, construction of new conduits, burial of pipeline, and other activities within the Permit Boundary, necessary for municipal water supply.

Operation and Maintenance (O&M) activities could permanently alter no more than 10 acres of occupied or potential habitat in the worst-case scenario, but are estimated in the best-case scenario to only permanently impact 1 acre. Additionally, up to 74 acres of potential Preble's habitat could be temporarily impacted, with total impacts not to exceed 75 acres (either 1 acre permanent and 74 acres temporary or ranging up to no more than 10 acres permanent and 65 acres of temporary disturbance). No more than 25 acres of temporary take may occur at any one time during the term of the Permit.

As part of this project, the Applicant will carry out conservation measures described in the Mitigation Plan section of their EA/HCP (incorporated herein by reference), to reduce and offset impacts to Preble's. The proposed mitigation will include restoration of temporary disturbance to a specified level of success, creation of riparian shrub and upland habitat, revegetation of social trails no longer in use, and weed management. Mitigation will also include education to Denver Water employees conducting O&M activities, maintenance and management of a potential Preble's habitat linkage corridor, population monitoring, and conducting Preble's trapping to assess status.

Status of the Preble's meadow jumping mouse

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. This shy, largely nocturnal mouse lives in moist lowlands with dense vegetation. It is 8 to 9 inches long (its tail accounts for 60 percent of its length) with hind feet adapted for jumping. Preble's hibernates underground from September to May.

Records for Preble's 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). 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." Shenk (2000) conducted radio tracking at three sites and documented greater use of upland habitats than previously assumed.

Preble's has undergone a decline in range and populations within its remaining range have been lost. Habitat loss and fragmentation resulting from human land uses have adversely impacted Preble's populations. David Armstrong (University of Colorado, pers. com. 1998) concluded that the meadow jumping mouse, in this region as elsewhere, is a habitat specialist, and that the specific habitat on which it depends is declining.

Compton and Hugie (1993, 1994) cited human activities that have adversely impacted Preble's including: conversion of grasslands to farms; livestock grazing; water development and management practices; and, residential and commercial development. Shenk (1998) 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 reduces, alters, fragments, and isolates habitat to the point where Preble's can no longer persist. Corn et al. (1995) proposed that a 100 meter (328 foot) buffer of unaltered habitat be established to protect the floodplain of Monument Creek from a range of human activities that might adversely effect Preble's or its habitat. Roads, trails, or other linear development 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.

Further information about the biology and status of the Preble's can be found in the "Conservation Assessment and Preliminary Conservation Strategy for Preble's Meadow Jumping Mouse (*Zapus hudsonius preblei*)" (Shenk, 1998, available upon request).

Status of the Proposed Critical Habitat

Critical habitat was proposed for this species in the Federal Register on July 17, 2002 (Vol. 67 No. 137 FR 47154). The proposed action area overlaps proposed critical habitat at units SP8, SP10, SP12 and SP13: Oxyoke, High Line Canal at Plum Creek, Ralston Creek above Ralston Reservoir, South Boulder Diversion Property near Spring Brook, and the Upper South Platte River. The total amount of proposed critical habitat within these four units is 14,005 acres (of which, 250 acres is owned or maintained by the Applicant). Anticipated projects within this EA/HCP within proposed critical habitat would result in less than 2 acres of temporary impact to the above-mentioned units. However, in the worst-case scenario, activities could permanently alter no more than 10 acres of occupied or potential habitat (but are estimated to only permanently impact 1 acre). Additionally, up to 74 acres of potential Preble's habitat could be temporarily impacted, with total impacts not to exceed 75 acres (either 1 acre permanent and 74 acres temporary or ranging up to no more than 10 acres permanent and 65 acres of temporary disturbance). No more than 25 acres of temporary take may occur at any one time during the term of the Permit. If all of the permitted impacts were to occur within the proposed critical habitat units, it would still represent less than two percent of the available proposed 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. The primary constituent elements for Preble's are a pattern of dense riparian vegetation consisting of grasses, forbs, and shrubs, and open water; adjacent floodplains and vegetated uplands with limited human disturbance; areas that provide connectivity between and within populations, and; dynamic geomorphological and hydrological processes that create and maintain river and stream channels, floodplains, and floodplain benches, and promote patterns of vegetation favorable to Preble's.

Activities with the potential for altering the above 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; activities that could lead to the introduction, expansion, or increased density of exotic plant or animal species detrimental to Preble's and its habitat.

Environmental Baseline

In Boulder County, the Preble's has been captured or has suitable habitat along portions of Coal Creek, South Boulder Creek, and Saint Vrain Creek. Preble's habitat is also found along South Boulder Canal, Doudy Draw, and Spring Brook. Based on the availability of potentially suitable

habitat and lack of trapping information, Preble's is assumed to occupy appropriate habitat within Boulder County.

In Jefferson County, the Preble's has been captured or has suitable habitat along portions of Coal Creek, and Ralston Creek. Additionally, Preble's mice have been found along drainages in the Rocky Flats Environmental Technology Site, including Woman Creek, Walnut Creek, and Rock Creek. Based on the availability of potentially suitable habitat and lack of trapping information, Preble's is assumed to occupy appropriate habitat within Jefferson County.

In Douglas County, the Preble's has been captured or has suitable habitat along portions of the South Platte River, and its major tributaries including the East Plum Creek, West Plum Creek, and Cherry Creek drainages. Additionally, Preble's have been found in Roxborough State Park on Little Willow and Willow Creeks, locations in the Pike National Forest in the western part of the county, and at Chatfield State Park. Based on the availability of potentially suitable habitat and lack of trapping information, Preble's is assumed to occupy appropriate habitat within Douglas County.

Effects of Action

The proposed O&M activities may directly impact a combined total of 75 acres of potential or occupied Preble's habitat through temporary and permanent Take, but no more than 25 acres may be disturbed at any one time and no more than 10 acres may be permanently disturbed. Although the proposed foreseeable construction may permanently affect 1.0 acre of potential Preble's habitat within the Permit Boundary in the best-case scenario, a maximum of 10 acres of permanent disturbance to potential habitat may occur during the term of the Permit. The area to be impacted represents a very small portion of the potential Preble's habitat present and the effect of such take is expected to be minor or negligible as a result of the minimal amount and mostly temporary nature of the impacts from the covered activities. The project will not significantly impact the ability of Preble's to travel upstream or downstream along the riparian corridors within the Permit Boundary.

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 BO. Future Federal actions in that area unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act if there are adverse effects or potential for take of a federally-listed species.

In the worst-case scenario, the proposed activities could result in the permanent disturbance of a maximum 10 acres of Preble's habitat, which would contribute to the cumulative disturbance of these vegetation types in Boulder, Jefferson, and Douglas Counties from development and other land use projects. The vegetation impacted could be riparian and/or upland shrubs and grasses, as well as ruderal and weedy vegetation.

The proposed activities may contribute to take of Preble's and/or their habitat in the region when added to other section 10(a)(1)(B) incidental take permits that may be issued by the Service for other projects. However, any Preble's take or habitat loss that may occur in the short term by loss of upland habitat should be offset by increasing the quality and quantity of both upland and riparian habitat through mitigation which could result in an increase in the number of Preble's on the subject properties within the Permit Boundary (as defined in the EA/HCP).

Conclusion

It is the Service's biological opinion that neither the direct nor indirect effects of the proposed project (which includes the implementation of conservation measures agreed to during informal consultation and outlined in this BO) nor the cumulative effects will jeopardize the continued existence of the Preble's and is not likely to destroy or adversely modify proposed critical habitat. Although the projects may adversely affect the Preble's and its habitat along the South Platte

River and its tributaries, Willow Creek and its tributaries, Plum Creek and its tributaries, Ralston Creek and its tributaries, South Boulder Creek and its tributaries, Coal Creek, and the Rocky Flats drainages, the proposed action and conservation measures will avoid the likelihood of jeopardy to the species. Additionally, it is the Service's conference opinion that the action, as proposed, is not likely to destroy or adversely modify proposed critical habitat. The temporary impacts proposed to occur on 3 critical habitat units would have minimal effect on the primary constituent elements for each unit and would not result in adverse modification to critical habitat. The HCP establishes avoidance, minimization, and mitigation to offset these temporary impacts.

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 measures described below are non-discretionary, and must be undertaken by the Service so that they become binding conditions of any grant or section 10(a) permit issued to the Applicant, as appropriate, for the exemption in section 7(o)(2) to apply. The Service has the continuing duty to regulate the activity covered by this Incidental Take Statement. The Service must ensure that the Applicant is required to assume and implement the terms and conditions of the Incidental Take Statement through enforceable terms that are added to the section 10(a) permit, or the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Service will require the Applicant to report the progress of the action or its impact on the species as specified in the Incidental Take Statement.

The Service anticipates incidental take of Preble's through direct killing will be difficult to detect due to their small size and secretive nature. However, the following level of take can be anticipated by the loss of food, cover, and other essential habitat elements. The Service anticipates that the proposed action will result in incidental take of an undetermined number of Preble's through a maximum total permanent loss of 10 acres of riparian and/or upland habitat and the temporary loss of 65 acres (up to 74 acres depending upon amount of permanent loss) of riparian and/or upland habitat within the Permit Boundary and any harm or harassment of individuals during associated project construction and use. In biological and conference opinions, the Service determined that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

Reasonable and Prudent Measures

The Service believes that the following reasonable and prudent measures are necessary and appropriate to minimize impacts of incidental take of Preble's, and therefore should be added to the section 10(a) permit requirements:

1. During construction, the area of proposed impact will be fenced with snow fence, or a similar visible barrier, to prevent inadvertent impacts to habitat outside the construction footprint.
2. The Applicant, or its designated contractor, will monitor the extent of habitat impacted to ensure that it does not exceed the authorized area.

3. The Applicant, or its designated contractor, will monitor all aspects of the proposed restoration, enhancement, and mitigation plan to ensure project completion and success.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the Service must ensure that the Applicant complies with the following terms and conditions which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. The section 10(a)(1)(B) permit, as evaluated in this BO, will include permit conditions that require that the mitigation measures provided in the Project Description section to avoid, minimize, and compensate for adverse impacts to the Preble's and its habitat be completed.
2. The Service will include, as a permit condition, that any incidental take of Preble's must comply with all terms and conditions of said section 10(a)(1)(B) permit.
3. The Service will include, as a permit condition, that workers onsite will be informed by the Applicant, representative agents, or designated contractors as to the reason for and importance of limiting impacts to habitat located outside the designated fenced work area.
4. The Service will include, as a permit condition, that the permittee must provide a report to the Service, which includes photographic documentation of site conditions prior to construction and at completion of each phase of construction as defined in the EA/HCP.
5. The Service will include, as a permit condition, that the permittee conduct annual monitoring of all revegetation efforts and other mitigation efforts as described in the EA/HCP. Monitoring reports shall be forwarded to the Service after each growing season and prior to December 1 of each calendar year.
6. In the unlikely event that a Preble's mouse (dead, injured, or hibernating) is located during construction, the Colorado Field Office of the Service (303)275-2370 or the Service's Law Enforcement Office (303)274-3560 will be contacted immediately.

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 (maximum temporary loss of up to 74 acres of suitable and potential habitat and/or permanent loss of 10 acres of suitable or potential habitat) is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The Service will include, as a permit condition, that the Applicant shall 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 Act 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 that may be used to minimize or avoid adverse affects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

The Service has no additional conservation recommendations.

REINITIATION NOTICE

This concludes formal consultation on the proposed action of section 10(a)(1)(B) permit issuance to the Applicant for Operations and Maintenance activities on Denver Water Properties. As required by 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 action that may affect listed species or critical habitat in a manner or to an extent not considered in this BO; (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 BO; (4) a new species not covered by this opinion is listed or critical habitat designated that may be affected by this action. In instances where the amount or extent of incidental take is exceeded, and operations causing such take should cease pending reinitiation.

You may ask the Service to confirm the conference opinion as a biological opinion issued through formal consultation if the critical habitat is designated. The request must be in writing. If the Service reviews the proposed action and finds that there have been no significant changes in the action as planned or in the information used during the conference, the Service will confirm the conference opinion as the biological opinion on the project and no further section 7 consultation will be necessary.

If you have any questions concerning this Biological Opinion, please contact LeRoy Carlson, Field Supervisor of the Service's Colorado Field Office at (303) 275-2370.

cc: FWS:GJ (L. Bjornestad)
FWS:Regional Office (B. McCue)
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