



Final

May 2006

***Habitat Conservation
Plan and Environmental
Assessment for Douglas
County and the Towns of
Castle Rock and Parker***

Prepared By—

Douglas County and the
Towns of Castle Rock and Parker
(Applicants)

ERO Resources Corporation
(Consultant)

Brooke Fox
(Consultant)

Trout, Raley, Montano,
Witwer & Freeman, P.C.
(Counsel)

With Assistance From—

U.S. Fish and Wildlife Service

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FOR
DOUGLAS COUNTY AND THE
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TITLE PAGE

Lead Agency:

U.S. Fish and Wildlife Service, Department of Interior

Legal Authority:

Endangered Species Act of 1973, as amended,
Section 10(a), as implemented by
50 CFR §§ 17.32(b)(1) and 17.22(b)(1)

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ACKNOWLEDGMENTS

Douglas County's habitat conservation planning efforts began in 1997 as a result of the proposed listing of the Preble's meadow jumping mouse under the Endangered Species Act. After Preble's was listed as a threatened species in 1998, many believed Preble's would be protected by the Endangered Species Act for the long term, and local governments within Douglas County began preparing a county-wide regional habitat conservation plan to provide protection measures for Preble's while allowing certain activities to occur within potential Preble's habitat. The County pulled together a core team to conduct this habitat conservation planning effort. The HCP Team consists Steve Dougherty, Principal/Ecologist with ERO Resource Corporation, Deb Freeman, with Trout, Raley, Montañó, Witwer and Freeman, P.C., and Brooke Fox who started working on the HCP effort as the County's Director of Open Space and Natural Resources and is now a consultant to the County.

In February 2005, the U.S. Fish and Wildlife Service's submitted a proposal to delist Preble's in the Federal Register. As a result, Douglas County and the Towns of Castle Rock and Parker have decided to scale back the original regional HCP to be more responsive to the potential short time frame under which Preble's may continue to be protected under the Endangered Species Act while maintaining a conservation approach that will preserve long-term future riparian conservation opportunities by the Applicants. This document represents that scaled down habitat conservation planning effort and was drafted by the HCP Team.

The HCP Team is enormously appreciative for the opportunity to work with Douglas County and the Towns of Castle Rock and Parker during the lengthy process that has been undertaken to achieve Endangered Species Act section 10 compliance. The HCP Team would like to acknowledge those who have helped during this time consuming and sometimes frustrating process. The Douglas County Habitat Conservation Plan (DCHCP) could not have been completed without funding from Douglas County and the significant commitment of staff hours from the County's Division of Open Space and Natural Resources, Department of Community Development, and Department of Public Works. In addition, the Towns of Castle Rock and Parker have contributed significant staff time, resources, and funding for the preparation of the DCHCP.

The HCP Team would also like to acknowledge: Sadie Russo, with ERO Resources, Inc., for her tireless work to create the many GIS layers and data analyses needed to develop and complete the DCHCP; Tanya Shenk, Colorado Division of Wildlife, and Bruce Lubow, Colorado State University, for their assistance and analysis of the Preble's movement data; Tom Blickensderfer, Colorado Department of Natural Resources, for leadership on behalf of the State on endangered species issues and support of Douglas County and other local government efforts related to Preble's. We would also like to thank the many members of the public who provided comments, suggestions, criticisms and an occasional compliment during public and stakeholder meetings. Their input was invaluable to us as we proceeded through this lengthy process.

Finally, the Applicants and the HCP Team are grateful for funding received from the U. S. Fish and Wildlife Service (an award of \$400,000 in Cooperative Endangered Species Conservation Funds) and from the State of Colorado (Species Conservation Trust Fund monies assisting in at least three land acquisitions benefiting Preble's and supporting technical analysis of Preble's movement and habitat data). These grants have helped ease the enormous cost burden of preparing the habitat conservation plan, and protecting habitat for the benefit of Preble's.

ACRONYMS AND ABBREVIATIONS USED IN THIS DOCUMENT

Act	Endangered Species Act
APE	Area of Potential Effect (for cultural resource assessment)
Applicants	Douglas County and the Towns; the holders of the incidental take permit(s) supported by the DCHCP
BMPs	Best Management Practices
CDOW	Colorado Division of Wildlife
CFR	Code of Federal Regulations
CH	Critical habitat
CNHP	Colorado Natural Heritage Program
County	Douglas County
CRS	Colorado Revised Statutes
DCHCP	Douglas County Habitat Conservation Plan
EA	Environmental Assessment
EIS	Environmental Impact Statement
ERO	ERO Resources Corporation
ESA	Endangered Species Act
GIS	Geographic Information System
HCP	Habitat Conservation Plan
ITP	Incidental take permit
NEPA	National Environmental Policy Act
NRHP	National Register of Historic Places
Preble's	Preble's meadow jumping mouse (<i>Zapus hudsonius preblei</i>)
RCZ	Riparian Conservation Zone
Service	U.S. Fish and Wildlife Service
SHPO	State Historic Preservation Office
Towns	Towns of Castle Rock and Parker
U.S.	United States
USC	United States Code

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ATTACHMENTS

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FINAL

**HABITAT CONSERVATION PLAN AND ENVIRONMENTAL ASSESSMENT
FOR
DOUGLAS COUNTY AND THE TOWNS OF CASTLE ROCK AND PARKER**

Executive Summary

The Douglas County Habitat Conservation Plan (DCHCP) reflects a lengthy process undertaken by Douglas County and the Towns of Castle Rock and Parker (Applicants) to gain compliance with the Endangered Species Act (ESA or the Act). The need to comply with the ESA is the result of the U.S. Fish and Wildlife Service (Service) listing the Preble's meadow jumping mouse (*Zapus hudsonius preblei*) (Preble's) as a threatened subspecies in 1998. This document is submitted as an integrated Habitat Conservation Plan and Environmental Assessment (EA) and therefore meets the requirements of both ESA section 10 and the National Environmental Policy Act (NEPA). The following provides insight into the Applicants' decision making process in developing this habitat conservation plan as well as summarizes the contents of the DCHCP/EA.

Background

The Preble's meadow jumping mouse (Preble's) was proposed for listing as an endangered species in 1997, and subsequently listed by the Service as a threatened species under the ESA in May 1998. Preble's occupies densely vegetated areas within stream corridors along the Front Range of Colorado and Wyoming. In Douglas County, habitat for Preble's is located within each of the County's three major watersheds—South Platte River, Plum Creek and Cherry Creek.

Listing Preble's as a threatened species afforded this small rodent full ESA protection, which includes the prohibition against unlawful "take" of the species. Under ESA section 10(a)(1)(B), the Service may issue an "incidental take permit" (ITP) which is required to be supported by an approved "habitat conservation plan" or "HCP." An HCP is an implementable program that provides for the long-term protection and benefit of a single listed species or multiple species.

As a result of the Preble's listing, many local Front Range governmental entities in Colorado (including Douglas County and the Towns of Castle Rock, Larkspur and Parker) established a Collaborative Planning Process. The purpose of this process was to encourage and coordinate local government habitat conservation efforts throughout the range of Preble's in Colorado, while ensuring that each jurisdiction retained the flexibility to develop regional conservation goals and measures based upon local biological facts, development patterns and social needs. At that time, most believed that

Preble's would be listed for the foreseeable future. A long-term conservation approach in the form of regional habitat conservation planning was viewed as a cost efficient and effective approach to complying with the ESA; in 1998, Boulder, Douglas, Elbert, El Paso, Jefferson and Larimer counties began investigating conservation approaches to address the listing of Preble's.

Alternatives Considered

As early as 1998, Douglas County began seeking input from a wide range of stakeholders, including the agricultural community, developers, environmentalists, local and state governmental entities, and metro districts, to evaluate various conservation approaches. This input guided the development of a range of alternatives that would address the need to comply with the ESA and the need to conduct certain activities (such as road, bridge, and trail construction and maintenance; utility crossings; habitat improvements; routine agricultural practices and others). The alternatives that came out of this process included: 1) no action, or in other words, not develop a programmatic HCP; rather ESA compliance would be conducted on a project-by-project basis; 2) develop a regional HCP within Douglas County to address certain specified Applicant and non-Applicant activities; 3) develop an HCP that would address only County and Town activities; 4) develop a comprehensive regional HCP that would address all foreseeable activities in Douglas County; and 5) participate in development of a multi-jurisdictional Colorado Front Range Regional HCP.

Each alternative was presented to the public and evaluated in view of its relative feasibility, cost, predictability, simplicity and degree to which it met the needs of the local governments and the public. After taking into consideration these factors, the County began developing the Douglas County-wide regional habitat conservation plan (original Regional HCP). This process began in 1998 with the County working with the Towns of Castle Rock, Larkspur and Parker. The original Regional HCP would have focused habitat conservation throughout each of the three major watersheds in the County (South Platte, Plum Creek and Cherry Creek), and provided ESA coverage for activities to be conducted by the County and the Towns and for an additional set of activities that could be conducted by private landowners and others. The original Regional HCP was designed to address the conservation needs of Preble's as well as other listed plant and rare fish and wildlife inhabiting streams and riparian habitats in the County over a proposed term of 50 years.

Impact of the Service's Proposal to Delist Preble's

In late 2003, about the time the County and Towns were finalizing the original Regional HCP for submission to the Service, the Service received two petitions to delist Preble's. In March 2004, the Service initiated a 5-year status review and a 12-month review of these petitions. During the Service's year-long review process, the County and the Towns of Castle Rock and Parker continued to work on the original Regional HCP. The Town of Larkspur decided to withdraw its participation in the process.

In February 2005, the Service announced its 12-month finding on the petitions and its proposal to remove Preble's from the List of Endangered and Threatened Wildlife (70 Fed. Reg. 5404 (February 2, 2005)). The Service's 12-month finding indicated that Preble's is not a discrete taxonomic entity, does not meet the definition of a subspecies,

and was listed in error. Before its proposed action is finalized, the Service will conduct a status review and evaluate threats to the combined *Z.h. campestris* entity in all or a significant portion of its range. The Service also will analyze whether Preble's portion of *Z.h. campestris* qualifies as a Distinct Population Segment in need of protection. It is anticipated that the Service will announce the results of its status review and final action in early 2006.

The County and the Towns of Castle Rock and Parker decided to rethink whether pursuing the original Regional HCP would still meet their needs given the uncertain outcome and timing of the Service's proposal to delist Preble's. The County and Towns considered several potential options in light of the proposed delisting of Preble's including: continuing with the original Regional HCP; doing nothing pending the definitive outcome of the proposed delisting (no action); or scaling back the Regional HCP in order to obtain an ITP as soon as possible. Doing nothing was not a feasible option because the County and the Towns each have projects that are planned to be conducted within the next year and into the foreseeable future that would require compliance with the ESA as long as Preble's remains listed under ESA. The County and Towns also determined that the original Regional HCP was no longer a desirable alternative. This is because the broad scope and complex nature of the regional plan, which would require a time consuming, expensive process prior to final approval, did not seem to fit with the potential of Preble's being delisted sometime within the next few years.

Given the need to balance the uncertainty of the Service's decision on its delisting proposal with securing ESA compliance for a number of public works type projects within the near future, the County and Towns decided to scale back the original Regional HCP to a simplified and shorter term HCP. The new Douglas County HCP (DCHCP) is largely based upon the original Regional HCP, but covers only County and Town activities, addresses conservation measures for only Preble's, has a simpler mitigation and monitoring approach, and has a permit length of 10 years. The DCHCP's scaled back approach will not preclude future options for long-term programmatic riparian conservation efforts by the Applicants or others in the County.

Public Input

The fundamental principles of the DCHCP are based upon analyses and public input conducted during the development of the original Regional HCP. During the original Regional HCP process, the Applicants interacted extensively with the public and stakeholders to ensure that their concerns and input were taken into consideration. Public and stakeholder input was gathered throughout the planning process in a number of ways including large public meetings, individual stakeholder meetings and one-on-one interactions. In addition, the public was encouraged to provide written comments on the original Regional HCP as part of the various public meeting processes. Stakeholder and public involvement in the original Regional HCP process helped provide insight into all aspects of the plan including the role of the plan within the County, mapping, activities to be covered, conservation strategies, mitigation, monitoring, and more. To date, the HCP Team has conducted at least twenty public and stakeholder outreach efforts.

The Applicants plan to conduct various outreach efforts with stakeholders and the public during the DCHCP and EA public comment period. These outreach efforts will provide an opportunity to discuss the Applicants' rationale behind moving forward with the DCHCP, the scope of the DCHCP, and the expected timing of the ITP approval. The Applicants also will consider comments and input as a result of the formal comment period prior to the finalization of the DCHCP.

A Notice of Availability for the draft EA and DCHCP, and the locations where it was available for review, was published in the Federal Register, opening a 60-day public comment period. The draft EA and DCHCP also was posted on the Douglas County and Service web sites. Additionally, the Service maintains a mailing list of individuals and organizations that have requested review of HCP-related planning documents, and who received notification of the availability of the draft EA and DCHCP.

Applicants

The DCHCP is submitted by Douglas County and the Towns, the proposed holders of the ITP(s) (collectively referred to as the Applicants). The DCHCP has been prepared in accordance with section 10 of the ESA to support issuance by the Service of one or more permits authorizing the incidental take of Preble's associated with activities defined and conducted in accordance with the DCHCP. Each of the Applicants will utilize the DCHCP to support its own individual ITP. The use of the term "incidental take permit" or "ITP" throughout the DCHCP refers to those incidental take permits that may be applied for by any or all of the Applicants.

Purpose and Need

The Applicants' and the Service have distinct purposes and needs in relation to the DCHCP. The Applicants' are submitting the DCHCP to the Service as part of the application package supporting the issuance of one or more ITPs under section 10 of the ESA. The Applicants' purpose in submitting the ITP application package is to obtain compliance with the ESA in a timely manner for County and Town activities defined within the DCHCP that may have the potential to adversely impact Preble's and its potential habitat within Douglas County. Despite the Service's proposal to delist Preble's, the Applicants continue to be faced with the regulatory mandates posed by the ESA. These regulatory mandates will continue absent a decision by the Service to delist Preble's. The timing of the Service's final decision on the status of Preble's and potential legal challenges to its decision are uncertain.

Therefore, the Applicants need to balance the uncertainty of the Service's decision on its delisting proposal with the need to secure ESA compliance for a number of public works projects that are likely to occur before any decision on delisting is finalized. The Applicants have concluded that approval of activities on a case-by-case basis results in inefficient and costly regulatory compliance and piecemeal species conservation. In addition the Applicants would like to take advantage of the extensive work done on the original Regional HCP. Therefore, it is the desire of the Applicants to seek approval of and implement the DCHCP as soon as practicable.

Proposed Action

The Applicants are seeking incidental take authorization for identified activities (e.g., road widening, bridge replacement, and trails maintenance and construction, among others) that must be conducted by the Applicants and occur over the next 10 years within the RCZ. The DCHCP and ITP will cover these activities. The Applicants have estimated the impacts to the RCZ associated with the covered activities. The total of this impact estimate forms an impact threshold or cap that will not be exceeded during the 10-year term of the DCHCP. Impacts to the RCZ associated with the covered activities will be mitigated through actions that have been taken by the Applicants to protect the RCZ as part of the development of the original Regional HCP.

Covered Species

The DCHCP covers the incidental take of Preble's. The DCHCP does not cover other federally listed wildlife species with the potential to occur in Douglas County, including the bald eagle (*Haliaeetus leucocephalus*), Canada lynx (*Lynx canadensis*), Mexican spotted owl (*Strix occidentalis lucida*), or the Pawnee montane skipper (*Hesperia leonardus montana*). However, the activities covered by the DCHCP are not expected to adversely impact these species or their habitat.

Geographical Area Covered

The DCHCP covers specified activities conducted by the Applicants within the RCZ on private and non-federal lands within Douglas County. The Towns of Castle Rock, Larkspur, Lone Tree, and Parker are included in the geographic area covered by the DCHCP because some covered activities may be conducted within these areas. The Towns of Castle Rock and Parker are Co-Applicants with Douglas County. The Town of Lone Tree is not a co-applicant because there is no known potential Preble's habitat within or near the Town of Lone Tree. The Town of Larkspur has chosen not to participate in the DCHCP.

Permit Duration

The requested term of the ITP is 10 years with an option to extend.

Habitat Mapping

The Applicants have delineated riparian areas and adjacent upland habitats on non-federal lands with a high likelihood of supporting Preble's within the three major watersheds in the County (Plum Creek, Cherry Creek, and South Platte River upstream of Chatfield Reservoir). The delineated potential habitat is referred to as the RCZ. The RCZ was developed to:

- Be biologically defensible by using the best scientific and commercial data available
- Delineate potential habitat to include areas needed for all aspects of Preble's life cycle (e.g., water, cover, nesting, breeding, foraging, movement, and hibernation)
- Be reproducible and capable of being accurately located on the County's existing aerial photography and GIS database

In order to include all components of potential Preble's habitat within reaches mapped as the RCZ, all of the stream reaches providing potential Preble's habitat were mapped to include:

- The active channel
- Alluvial floor
- Upland side slopes adjacent to the channel or alluvial floor
- A component of the upland vegetation adjacent to the upland side slopes (generally 25 feet to 100 feet wide depending on potential habitat quality)

Inclusion of these components results in an RCZ that also addresses the habitat needs of other species that are not the subject of the DCHCP.

The RCZ establishes the geographic limits of Preble's habitat for the covered activities. Activities that need to be conducted by the Applicants within the RCZ are covered by the DCHCP. Applicant activities occurring outside the RCZ occur outside of Preble's habitat and will not require ESA compliance for potential impacts to Preble's.

Covered Activities

The DCHCP covers identified activities that the Applicants need to conduct within the RCZ, and that may have temporary and permanent impacts on the RCZ. The activities covered by the DCHCP include construction, use, maintenance, and closure of roads, bridges, trails and recreational facilities; maintenance and repair of existing structures and facilities; emergency activities; habitat improvements that benefit the RCZ; and other necessary County or Town public improvements provided the impacts to the RCZ do not exceed the impact threshold described in Chapter 4. Most of the activities are associated with existing facilities (e.g., bridge and road widening and road realignment). These activities are subject to conditions and BMPs to minimize impacts to potential Preble's habitat. The DCHCP establishes an impact cap of 430 acres of the RCZ that will not be exceeded absent amendment of the DCHCP and ITP pursuant to Section 7.6.2. The permanent impacts associated with the covered activities are distributed throughout the County and RCZ and will permanently affect about 308 acres of the RCZ (about 1.6 percent of the RCZ) over the life of the permit. Activities covered by the DCHCP are estimated to permanently impact a maximum of 308 acres of the RCZ (280 acres associated with specific covered activities and 28 acres associated with emergency activities) and temporarily disturb 122 acres of the RCZ over the 10-year term of the DCHCP. Impacts to the RCZ are presented in detail in Chapter 4.

Covered activities that need to occur within the RCZ may be conducted in accordance with the requirements of the DCHCP on lands considered protected and used for mitigation if otherwise allowable under applicable land use requirements and/or deed restrictions.

Mitigation

Impacts to the RCZ associated with the covered activities will be mitigated by permanent protection of portions of the RCZ by the Applicants and the restoration of temporary impacts. Habitat protection will be in place prior to the commencement of impacts associated with the covered activities. The Applicants will develop management plans for permanently protected portions of the RCZ to address habitat needs for Preble's and identify areas needing habitat restoration and/or enhancement.

Monitoring

The monitoring plan for the DCHCP is simple and straightforward because it primarily involves accounting for impacts to the RCZ associated with covered activities and use of protected habitat for mitigation. The monitoring program will ensure that the incidental take is within permitted levels, mitigation requirements are met, and adjustments to implementation of the DCHCP are made as needed to meet the goals, objectives, and commitments. The Applicants will provide the Service with a single annual report that accounts for the impacts to the RCZ associated with the covered activities and the mitigation requirements.

Commitments

The Applicants commit to the following during the term of the DCHCP:

1. To assure that covered activities do not exceed the designated total impact threshold (Section 4.1.1.2 and Table 4-1) absent amendment of the DCHCP and ITP pursuant to Section 7.6.2.
2. To minimize and mitigate the impacts of covered activities to the maximum extent practicable as described in Chapter 5.
3. To develop management plans for all Applicant-owned mitigation lands within 2 years following implementation of the DCHCP. The management plans will address the habitat needs for Preble's and identify areas needing habitat restoration and/or enhancement. Each management plan will identify appropriate management practices to sustain, restore, or enhance riparian habitat contained within the managed property, and will be implemented upon completion of the management plan.
4. To implement the Applicants' monitoring programs, including monitoring of the restoration and revegetation of temporary impacts to the RCZ associated with covered activities, and to implement adaptive management responses as needed.
5. To meet the Applicants' funding obligations set forth in Section 7.2 for implementation of the DCHCP.

As part of monitoring and reporting, the Applicants will provide an annual report to the Service that demonstrates that these commitments for the DCHCP have been met.

Habitat Conservation Planning and NEPA Process

This document addresses and integrates the processes and requirements of ESA and NEPA into one document. NEPA requires all federal agencies to use an environmental evaluation process to analyze the effects of their proposed actions and to include other agency and citizen input. The Applicants are requesting that the Service issue an ITP. This is considered a discretionary action by a federal agency that requires review using the NEPA process to consider the environmental effects associated with their actions. Because development of the HCP is required as part of the ITP process, effects of implementing the HCP must be considered. The Service has determined that an environmental assessment is the appropriate process to consider the potential environmental effects of issuing an ITP to the Applicants. This EA has been prepared in accordance with NEPA, regulations on the Council on Environmental Quality (CFR 1508.9), and the Service's NEPA Handbook.

Specific impact topics were analyzed in detail to focus the EA discussion on Preble's, its habitat, and resources that may be affected by the covered activities and allow comparison of the environmental consequences of each alternative (Table 4-3). These impact topics were identified based on federal laws, regulations, and executive orders; and public and internal scoping.

The following impact topics were selected for detailed analysis:

- Wetlands, riparian areas, flood plains, aquatic resources, and water resources
- Threatened, endangered, and other species of concern
- Cultural resources

The following impact topics were dismissed from detailed analysis:

- Geology and soils
- General wildlife
- Federally listed species of the central and lower Platte River ecosystem
- Air quality
- Noise
- Public health and safety
- Prime and unique farmlands
- Ecologically critical areas, Wild and Scenic rivers, other unique natural areas
- Indian trust resources
- Ethnographic resources
- Socioeconomic environment
- Environmental justice

Table ES-1. Comparative Summary of the Alternatives Evaluated.

Topic	No Action	Douglas County HCP (Proposed Alternative)	Regional HCP
Type of Activities Covered	Activities approved by the Service on a project-by-project basis.	Activities conducted by the County and Towns — primarily road, bridge, trail, and stormwater projects, but also maintenance and repair of existing facilities, emergency activities, and habitat improvement.	Activities conducted by the County and Towns (“Applicant Activities”) which are primarily road, bridge, trail, and stormwater projects, but also maintenance and repair of existing facilities. Regional HCP also covers a set of “Defined Activities” that could be conducted by non-federal parties other than the County and Towns.
Participants	Individual project proponents.	County and Towns.	Applicants would be the County and the Towns and would be permitted to conduct any of the “Applicant Activities” as well as “Defined Activities.” Additionally, other non-federal entities would be permitted to conduct any of the “Defined Activities” so long as they comply with the activity specific BMPs and other requirements.
Covered Species	Based upon individual permit.	Preble’s.	Preble’s, Ute ladies’-tresses orchid, Colorado butterfly plant, northern red bellied dace, and northern leopard frog.
Permit Duration	Determined on a project-by-project basis.	10 years with the option to extend.	50 years with the option to extend.

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Topic	No Action	Douglas County HCP (Proposed Alternative)	Regional HCP
Mitigation	Determined on a project-by-project basis.	A coordinated approach for covered activities that includes incentives and BMPs for habitat avoidance and minimization, rectification of temporary impacts, and habitat preservation at a 3:1 ratio for permanent impacts, and 0.5:1 ratio for temporary impacts. Habitat preservation secured prior to impact occurrence.	A programmatic approach for covered activities, which uses a results-based approach to habitat conservation. This approach includes a priority for impact avoidance and minimization and rectification of temporary impacts. The results-based approach would focus conservation on enough habitat to support a medium and large population of Preble's in the County over the term of the HCP.
Impacts			
Preble's and its Habitat	Determined on a project-by-project basis.	Threshold of impacts is established and cannot be exceeded without an amendment to the ITP. 122 acres of temporary impacts to RCZ. 308 acres of permanent impacts to RCZ.	Threshold of impacts is established and cannot be exceeded without an amendment to the ITP. 478 acres of temporary impacts to RCZ. 2,882 acres of permanent impacts to RCZ.
Other Federally Listed Species	Determined on a project-by-project basis.	Ute ladies'-tresses orchid and Colorado butterfly plant have the potential to occur in the RCZ but are not known to occur in Douglas County. The DCHCP may affect, but is not likely to adversely affect these plant species.	The Regional HCP would include a programmatic approach to surveying portions of the RCZ with the greatest potential to support the Ute ladies'-tresses orchid and Colorado butterfly plant. Once "cleared," surveys for these species would no longer be needed in the County.
Other Species of Concern	Determined on a project-by-project basis.	Actions taken to mitigate impacts to the RCZ will likely benefit species of concern inhabiting the RCZ.	Actions taken to mitigate impacts to the RCZ will likely benefit species of concern inhabiting the RCZ.

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Topic	No Action	Douglas County HCP (Proposed Alternative)	Regional HCP
Wetlands, Riparian Areas, Flood Plains, Aquatic, and Water Resources	Impacts to these resources would vary by project.	Temporary adverse impacts to these resources would occur. Long-term minor to moderate adverse impacts are anticipated from the covered activities.	Temporary adverse impacts to these resources would occur. Long-term minor to moderate adverse impacts are anticipated from the covered activities.
Cultural Resources	Impacts to these resources would vary by project.	[Need to complete following Class II survey.]	Impacts to cultural resources would be addressed programmatically through an agreement with the Service and the State Historic Preservation Office.
Cumulative Effects	Cumulative effects addressed on a project-by-project basis. The lack of a programmatic approach to mitigation would make it more difficult to minimize the cumulative effects of other activities on Preble's and the RCZ.	By establishing impact thresholds and providing mitigation and preservation of substantial habitat for Preble's in a coordinated manner, this alternative has the potential to minimize cumulative effects.	By establishing impact thresholds and programmatically providing mitigation and the conservation and preservation of substantial habitat for Preble's, this alternative has the potential to minimize cumulative effects.

Chapter 1 Background and Purpose and Need

1.1 Introduction

Douglas County and the Towns of Castle Rock and Parker (collectively the Applicants) submit this habitat conservation plan to the U.S. Fish and Wildlife Service (Service) as part of the application package supporting issuance of one or more incidental take permits (ITP or permit) under section 10 of the Endangered Species Act of 1973, as amended (16 USC § 1539) (ESA). Pursuant to section 10(a)(1)(B) of the ESA, the permit is to address the incidental take of the federally listed Preble's meadow jumping mouse (*Zapus hudsonius preblei*) (Preble's) associated with otherwise lawful activities specified by the Douglas County Habitat Conservation Plan (DCHCP). The DCHCP provides measures to avoid, minimize and mitigate, to the maximum extent practicable, the effects of the potential impact on Preble's and its habitat, and to ensure that any incidental take of Preble's will not appreciably reduce the likelihood of its survival and recovery in the wild. If the permit is granted, the Applicants will implement the DCHCP, as required by section 10 of the ESA. This document is also the environmental assessment (EA) that provides the environmental evaluation process for the Service to analyze the effects of granting the ITP. This EA has been prepared in accordance with the National Environmental Policy Act (NEPA), regulations of the Council on Environmental Quality (40 CFR 1508.9), and the Service NEPA Handbook.

1.2 Background

Preble's was proposed for listing as an endangered species in 1997, and subsequently listed by the Service as a threatened species under the ESA in May 1998. Preble's occupies densely vegetated areas within stream corridors along the Front Range of Colorado and Wyoming. In Douglas County, habitat for Preble's is located within each of the County's three major watersheds—South Platte River, Plum Creek and Cherry Creek.

Listing Preble's as a threatened species afforded this small rodent full ESA protection, which includes the prohibition against unlawful "take"¹ of the species. Under ESA section 10(a)(1)(B), the Service may issue an ITP, which is required to be supported by an approved "habitat conservation plan" or "HCP." An HCP is an implementable program that provides for the long-term protection and benefit of a single listed species or multiple species.

As a result of the Preble's listing, many local Front Range governmental entities in Colorado (including Douglas County and the Towns of Castle Rock, Larkspur and Parker) established a Collaborative Planning Process. The purpose of this process was to encourage and coordinate local government habitat conservation efforts throughout the range of Preble's in Colorado, while ensuring that each jurisdiction retained the flexibility to develop regional conservation goals and measures based upon local biological facts, development patterns and social needs. At that time, most believed that Preble's would be listed for the foreseeable future. A long-term conservation approach in the form of regional habitat conservation planning was viewed as a cost efficient and effective approach to complying with the ESA; in 1998, Boulder, Douglas, Elbert, El Paso, Jefferson and Larimer counties began investigating conservation approaches to address the listing of Preble's.

Douglas County began seeking input from a wide range of stakeholders, including the agricultural community, developers, environmentalists, local and state governmental entities, and metro districts, to evaluate various conservation approaches. This input guided the development of a range of alternatives that would address the need to comply with the ESA and the need to conduct certain activities (such as road, bridge, and trail construction and maintenance; utility crossings; habitat improvements; routine agricultural practices and others). These alternatives included: 1) no action which amounts to not developing a programmatic HCP; rather ESA compliance would be conducted on a project-by-project basis; 2) develop a Douglas County Regional HCP to address certain specified Applicant and non-Applicant activities; 3) develop an HCP that would address only County and Town activities; 4) develop a comprehensive regional HCP that would address all foreseeable activities in Douglas County; and 5) participate in development of a multi-jurisdictional Colorado Front Range Regional HCP.

¹ As defined in the ESA and implementing regulations, take means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect a species [listed as threatened or endangered], or attempt to do so." Harass and harm are further defined in federal regulations and case law as follows:

"Harass" means an intentional or negligent act or omission that creates the likelihood of injuring wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns that include, but are not limited to, breeding, feeding, or sheltering.

"Harm" means an act that actually kills or injures wildlife. Such acts may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

Each alternative was presented to the public and evaluated in view of its relative feasibility, cost, predictability, simplicity and degree to which it met the needs of the local governments and the public. After taking into consideration these factors, the County began developing the Douglas County-wide regional habitat conservation plan (original Regional HCP). This process began in 1998 with the County working with the Towns of Castle Rock, Larkspur and Parker. The original Regional HCP focused habitat conservation throughout each of the three major watersheds in the County (South Platte, Plum Creek and Cherry Creek), and provided ESA coverage for activities to be conducted by the County and the Towns and for an additional set of activities that could be conducted by private landowners and others. The original Regional HCP addressed the conservation needs of Preble's as well as other listed plant and rare fish and wildlife inhabiting streams and riparian habitats in the County over a proposed term of 50 years. In late 2003, about the time the County and Towns were finalizing the original Regional HCP for submission to the Service, the Service received two petitions to delist Preble's; in March 2004, the Service initiated a 5-year status review and a 12-month review of these petitions. During the Service's year-long review process, the County and the Towns of Castle Rock and Parker continued to work on the original Regional HCP. The Town of Larkspur decided to withdraw its participation in the process.

In February 2005, the Service announced its 12-month finding on the petitions and its proposal to remove Preble's from the List of Endangered and Threatened Wildlife (70 Fed. Reg. 5404 (February 2, 2005)). The Service's 12-month finding indicated that Preble's is not a discrete taxonomic entity, does not meet the definition of a subspecies, and was listed in error. Before its proposed action is finalized, the Service will conduct a status review and evaluate threats to the combined *Z.h. campestris* entity in all or a significant portion of its range. The Service also will analyze whether Preble's portion of *Z.h. campestris* qualifies as a Distinct Population Segment in need of protection. It is anticipated that the Service will announce the results of its status review and final action in early 2006.

Given the uncertain outcome and timing of the Service's proposal to delist Preble's, the County and the Towns of Castle Rock and Parker decided to rethink whether pursuing the original Regional HCP would still meet their needs. The County and Towns considered several potential options in light of the proposed delisting of Preble's including: continuing with the original Regional HCP; doing nothing pending the definitive outcome of the proposed delisting (no action); or scaling back the Regional HCP in order to obtain an ITP as soon as possible. Doing nothing was not a feasible option because the County and the Towns each have projects that are planned to be conducted within the next year and into the foreseeable future that would require compliance with the ESA as long as Preble's remains listed under ESA. The County and Towns also determined that the original Regional HCP was also not a desirable alternative. This is because the broad scope and complex nature of the regional plan, which would require a time consuming, expensive process prior to final approval, did not seem to fit with the potential of Preble's being delisted sometime within the next few years.

Given need to balance the uncertainty of the Service's decision on its delisting proposal with securing ESA compliance for a number of public works type projects within the near future, the County and Towns decided to scale back the original Regional HCP to a simplified and shorter term HCP. The new DCHCP is largely based upon the original Regional HCP, but covers only County and Town activities, addresses conservation measures for only Preble's, has a simpler mitigation and monitoring approach and has a permit length of 10 years. The DCHCP's scaled back approach will not preclude future options for long-term programmatic conservation efforts by the Applicants or others in the County.

The DCHCP is submitted by Douglas County and the Towns, the proposed holders of the ITP(s) (collectively referred to as the Applicants). This HCP has been prepared in accordance with section 10 of the ESA with the purpose of supporting the issuance by the Service of one or more incidental take permits authorizing the incidental take of Preble's associated with activities defined and conducted in accordance with the DCHCP.

The DCHCP does not cover other federally listed wildlife species with the potential to occur in Douglas County, including the bald eagle (*Haliaeetus leucocephalus*), Canada lynx (*Lynx canadensis*), Mexican spotted owl (*Strix occidentalis lucida*), or the Pawnee montane skipper (*Hesperia leonardus montana*). However, the activities covered by the DCHCP are not expected to adversely impact these species or their habitat.

Each of the Applicants will utilize the DCHCP to support its own individual ITP. The use of the term "incidental take permit" or "ITP" throughout the DCHCP refers to those incidental take permits that may be applied for by any or all of the Applicants. The ITP will authorize the Applicants to conduct covered activities identified in the DCHCP that may result in incidental take of the Preble's. The requested term of the ITP is 10 years.

1.3 Document Organization

This document integrates the Applicants' HCP as part of the application package supporting issuance of one or more ITPs under section 10 of ESA and the Service's EA that provides the environmental evaluation process to analyze the effects of granting the ITP. An HCP submitted in support of an incidental take permit must detail the following information:

- Impacts likely to result from the proposed taking of the species for which permit coverage is requested
- Measures the Applicant will undertake to monitor, minimize, and mitigate such impacts; the funding that will be made available to undertake such measures; and the procedures to deal with unforeseen circumstances
- Alternative actions the Applicant considered that would not result in take, and the reasons why such alternatives are not being utilized
- Additional measures the Service may require as necessary or appropriate for purposes of the plan (Service and NMFS 1996)

The EA briefly analyzes the impacts of the proposed action to determine the significance of the impacts and to determine if an EIS is needed, to analyze alternatives for proposals that involve unresolved conflicts concerning uses of available resources, and to aid in an agency's compliance with achieving NEPA's purposes when preparation of an EIS is not necessary. The EA should include:

- The purpose and need for the proposed action
- The nature of the proposed action
- Alternatives to the proposed action that were considered
- The environmental impacts of the proposed action and its alternatives
- A list of agencies and persons consulted (Service and NMFS 1996)

The requirements for an HCP and EA overlap in several areas (e.g., descriptions of the proposed action and its purpose, alternatives of the proposed action considered, and impacts analysis). To minimize this overlap and reduce repetition, this document integrates the Applicants' HCP and the Service's EA. Some chapters and sections address both the HCP and EA requirements, while other chapters and sections address only HCP or EA requirements. The document is organized as follows:

Table 1-1. DCHCP/EA Document Organization

Chapter/Section	Topic	EA	HCP
Chapter 1	Background and Purpose and Need		
1.1	Introduction		X
1.2	Background		X
1.3	Document Organization	X	X
1.4	Purpose and Need	X	X
1.5	Goals and Objectives	X	X
1.6	Proposed Action	X	X
1.7	Scoping and Public Involvement	X	X
1.8	Scope		X
1.9	Habitat Conservation Planning and NEPA Process	X	X
1.10	Issues and Impact Topics	X	
Chapter 2	Alternative Actions Considered		
2.1	Formulation and Evaluation of Alternatives	X	X
2.2	Overview of Alternatives Considered	X	X
2.3	Evaluation of Alternatives Considered	X	X
2.4	Reasons that the DCHCP was Selected	X	X
Chapter 3	Affected Environment		
3.1	Overview of Biological Resources in Douglas County	X	X
3.2	Preble's Meadow Jumping Mouse	X	X
3.3	Wetlands, Riparian Areas, Flood Plains, Aquatic	X	

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Chapter/Section	Topic	EA	HCP
	Resources, and Water Resources		
3.4	Threatened, Endangered, and Other Species of Concern	X	
3.5	Cultural Resources	X	
Chapter 4	Environmental Consequences		
4.1	Douglas County Habitat Conservation Plan	X	X
4.2	Environmental Consequences of Alternatives	X	
4.3	Cumulative Effects	X	
Chapter 5	Impact Mitigation		
5.1	Incentives for Impact Avoidance and Minimization		X
5.2	Actions to Rectify Temporary Impacts to the RCZ		X
5.3	Habitat Preservation		X
5.4	To the Maximum Extent Practicable, the Applicants will Minimize and Mitigation the Impacts of Incidental Take		X
5.5	Comparison of Mitigation Approaches for the Alternatives	X	X
Chapter 6	Monitoring Program		
6.1	Approach		X
6.2	Impact Accounting		X
6.3	Mitigation Accounting		X
6.4	Monitoring of Biological Goals and Objectives		X
6.5	Reporting		X
6.6	Adaptive Management		X
Chapter 7	Implementation		
7.1	Commitments		X
7.2	Funding Assurances		X
7.3	Changed Circumstances		X
7.4	Unforeseen Circumstances		X
7.5	Implementing Agreement		X
7.6	DCHCP Modifications and ITP Amendments		X
7.7	Permit Enforcement, Suspension and Revocation		X
7.8	Relationship to Other ESA Policies and Requirements	X	X
Chapter 8	References		
Glossary		X	X
Appendices			X

1.4 Purpose and Need

1.4.1 Purpose of the DCHCP

The Applicants are submitting the DCHCP to the Service as part of the application package supporting the issuance of one or more ITPs under section 10 of the ESA. The Applicants' purpose in submitting the ITP application package is to obtain compliance with the ESA in a timely manner for County and Town activities defined within the DCHCP that may have the potential to adversely impact Preble's and its potential habitat within Douglas County. The Applicants may collectively conduct the covered activities and impact up to 430 acres of potential Preble's habitat, defined for the DCHCP as the RCZ. This total impact threshold consists of 122 acres of temporary disturbances, 280 acres of permanent impacts, and 28 acres impacted by emergency activities. The Applicants will mitigate these impacts by preserving up to 1,132 acres of the RCZ prior to the impacts occurring, restoring temporary disturbances to the RCZ associated with the covered activities, and managing the Applicant-protected RCZ to benefit Preble's and its potential habitat. The Applicants are seeking a permit duration of 10 years.

To achieve this purpose, the DCHCP must meet the federal issuance criteria for incidental take coverage in a manner that can be implemented locally. Section 1.5 establishes a clear set of goals and objectives to help ensure that incidental take coverage can be approved by the Service and that the DCHCP can be successfully implemented.

1.4.2 Need for the DCHCP

The ESA creates liability for unauthorized take of listed species of fish and wildlife and requires federal agencies to consult with the Service to ensure that federal actions do not jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Prior to the approval of the DCHCP, the Applicants are required to obtain ESA compliance on a case-by-case basis for a wide range of necessary public works activities including, but not limited to, construction and maintenance of buildings, roads, bridges, and trails; facilities; sedimentation control; and wildlife habitat improvements. Approval of activities on a case-by-case basis results in inefficient and costly regulatory compliance and piecemeal species conservation.

Despite the Service's March 31, 2004 action undertaking a status review of Preble's, and the Service's February 2, 2005 proposal to delist Preble's, the Applicants continue to be faced with the regulatory mandates posed by the ESA. These regulatory mandates will continue absent a decision by the Service to delist Preble's. The timing of the Service's final decision on the status of Preble's and potential legal challenges to its decision are uncertain. The Applicants need to balance the uncertainty of the Service's decision on its delisting proposal with the Applicants' needs to secure ESA compliance for a number of public works projects that are likely to occur before any decision on delisting is finalized. In order for the Applicants to take advantage of the extensive work done on the original Regional HCP, the DCHCP and ITP need to be approved and implemented as soon as practicable.

1.4.3 Decisions and Actions by the Service

The Service is the agency delegated the authority by the Secretary of the Interior to approve or deny section 10 permits in accordance with the ESA. To act on the Applicants' permit application, the Service must determine whether the DCHCP meets the approval criteria specified in the ESA and federal regulations.

As part of the action on the section 10 permit, the Service provided the public an opportunity to comment on the draft DCHCP and draft EA. Under section 7 of the ESA, issuance of an ITP by the Service is a discretionary federal action subject to section 7 compliance. This requires the Service to conduct an internal formal section 7 consultation on issuance of the ITP. Formal consultation terminates with preparation of a Biological Opinion (BO), which provides the Service's determination as to whether the proposed action, including the Applicants' implementation of the DCHCP, is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of designated critical habitat. Section 7 consultation and preparation of the BO parallel the NEPA process.

If the Service determines that issuance of the ITP is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat and that ESA criteria under section 10 have been met, the Service must issue the ITP. If the Service determines other measures are necessary or appropriate to carry out the purposes of section 10, it may require that other measures be implemented as a condition of the ITP. If the issuance criteria are not met, the Service will deny the ITP. A Finding of No Significant Impact (FONSI) will be issued by the Service no sooner than 30 days following release of the final EA and is the decision-making document explaining the rationale for selection of an alternative and any required mitigation. If the Service does not reach a FONSI, an environmental impact statement will be prepared followed by a Record of Decision (ROD) from the Service.

1.5 Goals and Objectives

The Applicants' primary goal in crafting the DCHCP is to produce a plan that can be successfully implemented over the term of the DCHCP. Its successful implementation depends upon the DCHCP's biological adequacy and legal sufficiency.

Douglas County currently benefits from an abundance of quality riparian habitat distributed throughout the County's three major watersheds (Cherry Creek, Plum Creek, and the South Platte River) (see Appendix 1). These riparian habitats currently provide a system of connected wildlife habitat benefiting Preble's. During recent years, the Applicants and others have undertaken strategic land protection efforts that have protected significant riparian habitats. The principal goal of the DCHCP is to avoid, minimize, and mitigate the possible incidental take of Preble's and its potential habitat to the maximum extent practicable, and to not appreciably reduce the likelihood of its survival and recovery in the wild.

To achieve this goal, the DCHCP establishes the following objectives:

- Use the best scientific information available to map potential habitat for Preble's (referred to as the riparian conservation zone or RCZ) for use and reference by the Applicants and public as part of the development of the DCHCP. This has been accomplished (see Section 3.2.5 and Appendix 1).
- Define guidelines and best management practices (BMPs) under which each of the covered activities must be conducted to avoid and minimize impacts to the RCZ and restore temporary impacts to the RCZ associated with covered activities. This has been accomplished as part of the development of the DCHCP (see Appendix 3). The Applicants will monitor construction of covered activities and ensure that all appropriate construction BMPs are implemented and temporary impacts to the RCZ are restored including ensuring that the revegetation requirements are met. If BMPs and revegetation guidelines do not provide adequate restoration of temporary impacts of the RCZ, then the Applicants will revise the BMPs and revegetation guidelines in cooperation with the Service and monitor the effectiveness of the revised BMPs and revegetation guidelines (see Section 6.6).
- Provide compensatory mitigation for temporary and permanent impacts to the RCZ associated with covered activities by protecting riparian resources in Douglas County in a manner that does not foreclose future options for long-term programmatic conservation efforts by the Applicants. This has been accomplished by the Applicants as part of the development of the DCHCP. The Applicants have protected 1,132 acres of the RCZ that will be used by the Applicants to compensate for impacts to the RCZ associated with the covered activities (see Section 5.3). The network of protected riparian habitat could form the foundation of future long-term programmatic conservation efforts by the Applicants.

The DCHCP establishes the following biological goals and objectives to minimize take and ensure the preservation of potential habitat for Preble's.

Goal A: Protect 1,132 acres of the RCZ to provide habitat for Preble's.

Objective A.1: The Applicants must demonstrate that they have protected 1,132 acres of the RCZ. The Applicants will provide a list and map of the properties protected by the Applicants to provide habitat for Preble's (see Table 5-1 and Figures 4a, 4b, and 4c).

Goal B: Manage the protected RCZ to benefit Preble's.

Objective B.1: The Applicants will develop management plans for all Applicant-owned mitigation lands within 2 years following implementation of the DCHCP. The management plans will address the habitat needs for Preble's and identify areas needing habitat restoration and/or enhancement. Each management plan will identify appropriate management practices to sustain, restore, or enhance riparian habitat contained within the managed property, and will be implemented upon completion of the management plan. Such efforts may include native plant revegetation, weed spraying, livestock management, or other appropriate actions resulting in the enhancement of habitat for Preble's and other riparian species. The Applicants will notify the Service of the

completion of management plans. The Applicants will monitor and provide information in the annual report to the Service on enhancement and restoration efforts taken on preserved properties.

Goal C: Restore temporary impacts to the RCZ associated with the covered activities.

Objective C.1: Establish BMPs to minimize impacts and assist in restoration, and develop revegetation guidelines and revegetation success criteria (see Appendix 3, Appendix 4, and Appendix 5).

Objective C.2: The Applicants will monitor construction of covered activities to ensure that all appropriate BMPs are implemented and temporary impacts to the RCZ are restored including that revegetation guidelines and success criteria are met.

1.6 Proposed Action

The Applicants are seeking incidental take authorization for identified activities (e.g., road widening, bridge replacement, and trails maintenance and construction) that will be conducted by the Applicants and occur over the next 10 years within the RCZ (Section 1.6.2 and Section 4.1). The DCHCP and ITP will cover these activities. The Applicants have estimated the impacts to the RCZ associated with the covered activities. The total of this impact estimate forms an impact threshold or cap that will not be exceeded during the 10-year term of the DCHCP. Impacts to the RCZ associated with the covered activities will be mitigated through actions that have been taken by the Applicants to protect the RCZ as part of the development of the original Regional HCP.

1.6.1 Habitat Mapping

The Applicants have delineated riparian areas and adjacent upland habitats on non-federal lands with a high likelihood of supporting Preble's within the three major watersheds in the County (Plum Creek, Cherry Creek, and South Platte River upstream of Chatfield Reservoir) (Figure 1). The delineated potential habitat is referred to as the RCZ. The RCZ was developed to:

- Be biologically defensible by using the best scientific and commercial data available
- Delineate potential habitat to include areas needed for all aspects of Preble's life cycle (e.g., water, cover, nesting, breeding, foraging, movement, and hibernation)
- Be reproducible and capable of being accurately located on the County's existing aerial photography and GIS database

In order to include all components of potential Preble's habitat within reaches mapped as the RCZ, all of the stream reaches providing potential Preble's habitat were mapped to include:

- The active channel
- Alluvial floor
- Upland side slopes adjacent to the channel or alluvial floor

- A component of the upland vegetation adjacent to the upland side slopes (generally 25 feet to 100 feet wide depending on potential habitat quality)

Inclusion of these components results in an RCZ that also addresses the habitat needs of other species that are not the subject of the DCHCP.

The RCZ establishes the geographic limits of Preble's habitat on non-federal lands in Douglas County. Activities that need to be conducted by the Applicants within the RCZ are covered by the DCHCP. Applicant activities occurring outside the RCZ occur outside of Preble's habitat and will not require ESA compliance for potential impacts to Preble's or its habitat.

A more detailed description of the RCZ mapping is presented in Chapter 3 and Appendix 1.

1.6.2 Covered Activities

The DCHCP covers identified activities that the Applicants need to conduct within the RCZ, and that may have temporary and permanent impacts on the RCZ (Appendix 3). These impacts will be mitigated (Section 5.3). Covered activities primarily include construction, use, maintenance, and closure of roads, bridges, and trails, but can include other necessary County or Town public improvements provided the impacts to the RCZ do not exceed the impact threshold described in Chapter 4. Most of the activities are associated with existing facilities (e.g., bridge and road widening and road realignment). These activities are subject to conditions and BMPs to minimize impacts to potential Preble's habitat. The permanent impacts associated with the covered activities are distributed throughout the County and RCZ and will permanently affect about 308 acres of the RCZ or about 1.6 percent of the RCZ over the life of the permit.

Covered activities that need to occur within the RCZ may be conducted in accordance with the requirements of the DCHCP on lands considered protected and used for mitigation if otherwise allowable under applicable land use requirements and/or deed restrictions. Impacts associated with all the aforementioned activities are addressed by the DCHCP in Chapter 4.

1.6.3 Mitigation

Impacts to the RCZ associated with the covered activities will be mitigated by the restoration of temporary impacts, protection, and management of portions of the RCZ by the Applicants. Habitat protection will be in place prior to the impacts associated with the covered activities occurring. Mitigation is addressed in detail in Chapter 5.

1.7 Scoping and Public Involvement

Scoping is the effort to involve agencies and citizens in determining the breadth of issues to be addressed in this HCP and EA. Prior to the final listing of the Preble's, Douglas County established a small team made up of County staff and consultants (HCP Team) to direct the habitat conservation planning process, and to initiate a meaningful dialogue with identified stakeholders and the public.

Much of the DCHCP is based upon processes, analyses and reviews conducted during the development of the original Regional HCP. As discussed below, this is the case with the public involvement process. During development of the original Regional HCP, the HCP Team was charged with interacting with the public and stakeholders to ensure that their concerns and input were taken into consideration throughout the planning process. Public and stakeholder input was gathered throughout the planning process in a number of ways including large public meetings, individual stakeholder meetings and one-on-one interactions (see Appendix 2). In addition, the public was encouraged to provide written comments on the original Regional HCP as part of the various public meeting processes. Stakeholder and public involvement in the original Regional HCP process helped provide insight into all elements of the plan including the role of the plan within the County, mapping, activities to be covered, conservation strategies, mitigation, monitoring, and more. In total, the HCP Team conducted at least twenty public and stakeholder outreach efforts throughout the original Regional HCP development process.

Additional public involvement will occur related to the Applicants' decision to pursue the DCHCP. The HCP Team has held numerous discussions with County and Town staff and held meetings with the County Board of Commissioners to discuss the new direction and specific elements of the DCHCP. In addition, the HCP Team plans to conduct various outreach efforts with stakeholders and the public during the DCHCP and EA public comment period. These outreach efforts will discuss the Applicants' rationale behind moving forward with the DCHCP in lieu of the original Regional HCP, its scope, and the expected timing of the ITP approval. The Applicants also will review comments and input as a result of the formal comment period prior to the finalization of the DCHCP.

A Notice of Availability for the draft EA and DCHCP, and the locations where it was available for review, was published in the Federal Register, opening a 60-day public comments period. The draft EA and DCHCP also was posted on the Douglas County and Service web sites. Additionally, the Service maintains a mailing list of individuals and organizations that have requested review of HCP-related planning documents, and who received notification of the availability of the draft EA and draft DCHCP.

1.8 Scope

The DCHCP addresses covered activities to be conducted by the Applicants within the RCZ on non-federal lands within Douglas County. The species, geographical area, environmental baseline, time period, and impacts covered by the DCHCP are summarized in this section.

1.8.1 Species Covered

The DCHCP addresses the possible incidental take of Preble's. The listing and status of Preble's is described in detail in Chapter 3.

1.8.2 Geographical Area Covered

The DCHCP covers specified activities conducted by the Applicants within the RCZ on private and non-federal lands within Douglas County. The Towns of Castle Rock,

Larkspur, Lone Tree, and Parker are included in the geographic area covered by the DCHCP because some covered activities may be conducted within these areas. The Towns of Castle Rock and Parker are Co-Applicants with Douglas County. The Town of Lone Tree is not a co-applicant because there is no known potential Preble's habitat within or near the Town of Lone Tree. The Town of Larkspur has chosen not to participate in the DCHCP. In addition, the Service approved a "block clearance" for Preble's within a designated portion of the Denver metro area in July 2000. The block clearance eliminates the need for individuals or agencies to coordinate with the Service prior to conducting activities in habitats that otherwise would be deemed to have potential to support Preble's. The establishment of the block clearance zone was based on the likely absence of Preble's within the area. A portion of northwestern Douglas County in the Highlands Ranch area is included in the block clearance area. The RCZ is not delineated within the block clearance area.

1.8.3 Environmental Baseline

For purposes of the ESA, the environmental baseline reflects:

[T]he past and present impacts of all federal, state or private actions and other human activities in the action area, the anticipated impacts of all proposed federal projects in an action area that have already undergone formal or early section 7 consultation, and the impact of state or private actions that are contemporaneous with the consultation in process. (50 CFR § 402.02)

Actions taken by the Service that designate sites for Preble's habitat mitigation (section 7 consultations, HCPs, and approved Preble's habitat mitigation banks) have been noted with the RCZ mapping to ensure that the decisions by the Service that predate the DCHCP are included in the DCHCP. The locations and boundaries of these mitigation decisions by the Service are noted on the master set of RCZ maps maintained by the County, which have been reviewed by the Service (see Table 4-2).

1.8.4 Time Period Covered

The Applicants are applying for an ITP for a period of 10 years extending from the date that a permit is issued. A permit term of at least 10 years is needed due to the uncertainty of the listing status of Preble's. Preble's has been proposed for delisting by the Service (70 Fed. Reg. 5404 (February 2, 2005)) and a final decision from the Service is expected in early 2006. However, this decision could be changed, delayed, or a decision could be challenged in the courts resulting in the continued listing of Preble's and its protection under ESA. The DCHCP and ITPs can be terminated prior to this 10-year term pursuant to the provisions of Sections 7.7.3 and 7.7.4 or extended pursuant to the provisions of Section 7.6.3.

1.8.5 Impacts Covered

Activities covered by the DCHCP are estimated to permanently impact a maximum of 308 acres of the RCZ (280 acres of impacts associated with specific covered activities

and 28 acres of impacts estimated to occur with emergency activities) and temporarily disturb 122 acres of the RCZ over the 10-year term of the DCHCP. Impacts to the RCZ are presented in detail in Chapter 4. The DCHCP establishes an impact cap of 430 acres of the RCZ that will not be exceeded absent amendment of the DCHCP and ITPs pursuant to Section 7.6.2.

1.8.6 Benefits of the DCHCP

The DCHCP benefits Preble's by providing permanently protected habitat prior to the Applicants' impacts to the RCZ, providing appropriate management to restore, enhance, or maintain habitat, and by clearly defining Preble's habitat through the RCZ mapping, which will assist the Applicants in avoiding and minimizing impacts to Preble's habitat. The DCHCP also will benefit other species inhabiting the permanently protected habitat. Applicants benefit from regulatory certainty and a streamlined alternative provided by the DCHCP compared to project-specific ESA compliance.

1.9 Habitat Conservation Planning and NEPA Process

This document addresses and integrates the habitat conservation planning process and National Environmental Policy Act (NEPA) process and requirements into one document. The habitat conservation planning process is intended to make compliance with the ESA more efficient and effective, while providing voluntary opportunities for landowners to be involved in habitat conservation (Service and NMFS 1996). Section 9 of ESA prohibits the take of any species listed as endangered or threatened. ESA was amended in 1982 under section 10(a)(1)(B), to allow for incidental take of endangered or threatened species by non-federal entities. The ITP process requires an applicant to submit an HCP that specifies impacts that are likely to result from covered activities and measures that would be taken to minimize and mitigate any impacts.

The result of such planning is an approved HCP that addresses future Applicant activities in areas of potential Preble's habitat. HCPs are also intended to reduce conflicts between listed species, in this case Preble's, and County and Town infrastructure needs by streamlining the issuance of ITPs. An ITP authorizes the incidental take of threatened or endangered species, but not the underlying activities that result in the take. Approval or regulation of such underlying activities falls under the jurisdiction of local, state, or other federal governmental agencies. The effects of authorized incidental take are minimized and mitigated to the maximum extent practical using the HCP and NEPA processes, as required by ESA, and the Service's Five-Point Policy. The Service's Five-Point Policy (65 Fed. Reg. 35242, June 1, 2000) or Final Addendum to the Habitat Conservation Planning and Incidental Take Permitting Process, provides additional guidance on biological goals and objectives, adaptive management, monitoring, ITP duration, and the public participation process.

Congress established a national policy for the environment through NEPA and the Council on Environmental Quality. The purposes of NEPA are:

- To declare a national policy that would encourage productive and enjoyable harmony between man and his environment

- To promote efforts that would prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man
- To enrich the understanding of the ecological systems and natural resources important to the nation
- To establish the Council on Environmental Quality (section 3, 42 United States Code (USC) § 4321)

NEPA requires all federal agencies to use an environmental evaluation process to analyze the effects of their proposed actions and to include other agency and citizen input. The Applicants are requesting that the Service issue an ITP. This is considered a discretionary action by a federal agency that requires review using the NEPA process to consider the environmental effects associated with their actions. Because development of the HCP is required as part of the ITP process, effects of implementing the HCP must be considered. The Service has determined that an environmental assessment is the appropriate process to consider the potential environmental effects of issuing an ITP to the Applicants. This EA has been prepared in accordance with NEPA, regulations on the Council on Environmental Quality (CFR 1508.9), and the Service's NEPA Handbook.

1.10 Issues and Impact Topics

1.10.1 Issues

Issues and concerns described in the DCHCP and EA were identified from past planning efforts, public and stakeholder meetings, and input from the Towns, Douglas County, and the Service. The issues identified were related to potential effects of the covered activities on wetland, riparian, and aquatic resources; flood plains; threatened, endangered, and species of special concern; and cultural resources.

1.10.2 Derivation of Impact Topics

Specific impact topics were analyzed in detail to focus the EA discussion on Preble's, its habitat, and resources that may be affected by the covered activities and allow comparison of the environmental consequences of each alternative. These impact topics were identified based on federal laws, regulations, and executive orders; and public and internal scoping. A brief rationale for the selection of each impact topic is given below, as is the rationale for dismissing specific impact topics from further consideration.

1.10.3 Impact Topics Selected for Detailed Analysis

1.10.3.1 Wetland, Riparian, and Aquatic Resources

Wetlands, riparian areas, and aquatic resources are the core components of the RCZ. These resources may be affected by the covered activities. Therefore, wetlands, riparian, and aquatic resources were selected as an impact topic.

1.10.3.2 Flood Plains and Water Resources

Executive Order 11988 (Floodplain Management) requires federal agencies to consider impacts to flood plains and the potential risk involved in placing facilities within flood plains. The RCZ and many of the covered activities occur within the flood plain. Therefore, flood plains were selected as an impact topic. The 1972 Federal Water Pollution Control Act (33 USC § 1251 et seq.), as amended by the Clean Water Act of 1977, reflects a national policy to restore and maintain the chemical, physical, and biological integrity of the nation's waters; to enhance the quality of water resources; and to prevent, control, and abate water pollution. The covered activities may involve actions in waterways. Impacts on the biological component of water resources and aquatic habitat will be assessed under wetland, riparian, and aquatic resources.

1.10.3.3 Threatened, Endangered, and Species of Special Concern

Issuance of the ITP is subject to section 7 consultation by the Service pursuant to the ESA. This intra-agency consultation is an analysis in which the Service considers the impacts of issuing the ITP on threatened or endangered species and areas of designated critical habitat, including those not covered by the HCP. Therefore, the effects of the alternative actions on populations of threatened and endangered species were selected as an impact topic to be analyzed in detail in this EA. Impacts to species listed by the Colorado Division of Wildlife (CDOW) and/or the Colorado Natural Heritage Program (CNHP) as endangered, threatened, or special concern species also are considered.

1.10.3.4 Cultural Resources

The National Historic Preservation Act, as amended in 1992 (16 USC 470 et seq.), and NEPA require the consideration of impacts on cultural resources either listed in or eligible to be listed in the National Register of Historic Places (NRHP). The process and documentation required for completion of this EA will be used to comply with section 106 of National Historic Preservation Act, in accordance with section 800.8(3)(c) of the Advisory Council on Historic Preservation's regulations (36 CFR Part 800). Effects to NRHP-eligible or listed cultural resources could result from construction of covered activities; therefore, this impact topic will be analyzed in detail.

1.10.4 Impact Topics Dismissed From Detailed Analysis

1.10.4.1 Geology and Soils

Although construction of the covered activities would result in ground-disturbing activities that could have local impacts on soils, disturbances would be generally limited to narrow corridors and small areas, and would be confined to previously disturbed areas, to the greatest extent practicable. Mitigation would require measures to prevent erosion, including revegetation activities, that would ensure most impacts remain temporary. Overall, impacts on soils would be negligible. There would be no impacts on the geology associated with construction of the covered activities. No specific geologic hazards, such as earthquakes, volcanoes, or landslides, are known to occur in the covered activity areas. Therefore, geology and soils were dismissed from further detailed analysis.

1.10.4.2 General Wildlife

Activities that would occur under any of the alternatives are not anticipated to impact wildlife species other than those that have limited distributions and/or rare or sensitive habitat requirements and are, therefore, listed as threatened, endangered, proposed, candidate, or special concern species by Service, CDOW, and/or the CNHP. Species of concern with potential to occur in the riparian conservation zone are addressed in detail. Therefore, general wildlife issues were dismissed from further detailed analysis as an impact topic

1.10.4.3 Federally Listed Species of the Central and Lower Platte River Ecosystem

In 1997, the Department of the Interior entered into a Cooperative Agreement with the states of Colorado, Nebraska, and Wyoming to address the needs of four federally listed species in the central Platte River ecosystem: the interior least tern (*Sterna antillarum*), piping plover (*Charadrius melodus circumcinctus*), whooping crane (*Grus americana*), and the pallid sturgeon (*Scaphirhynchus albus*). Critical habitat has been designated along the Platte River for the piping plover and whooping crane. Any federal action that facilitates the continuation of existing water depletions or causes new water depletions in the Platte River has been determined by the Service to contribute to jeopardy these species and adverse modification of critical habitat. The granting of ITPs under any of the alternatives would not facilitate existing or new depletions; therefore, there would be no effect to these species and they were dismissed from detailed analysis.

1.10.4.4 Air Quality

The 1963 Clean Air Act, as amended (42 USC 7401 et seq.) requires land managers to protect air quality. Construction of the proposed covered activities may temporarily affect local air quality through increased dust and vehicle emissions from operation of construction and maintenance equipment. Hydrocarbon, nitrous oxide, and sulfur dioxide emissions would be dispersed rapidly by the prevalent winds in the planning area. Dust raised by construction and maintenance equipment would increase airborne particulates intermittently, but this is not expected to be appreciable.

Overall, impacts to air quality from dust and construction and maintenance equipment emissions would be negligible and temporary. Effects would occur only during construction and/or maintenance; no long-term effects would be expected. Therefore, air quality was dismissed from detailed analysis.

1.10.4.5 Noise

Implementation of the proposed action would temporarily affect local sources of noise from the operation of construction and maintenance equipment. Overall, impacts to the ambient noise environment (i.e., the noise environment that exists naturally) from the operation of construction and maintenance equipment would be negligible and temporary. Most covered activities will occur in areas already subject to moderate levels of localized noise associated with traffic (roads and bridges). Preble's is known to occur near these locations with the current level of noise. Effects would occur only during

construction or maintenance; no long-term effects would be expected. Therefore, noise was dismissed from detailed analysis.

1.10.4.6 Public Health and Safety

There is no known documentation that Preble's transmits disease to humans; however, several diseases found in humans can be transmitted from small mammals, typically through an intermediate host such as a flea or tick.

No cases of hantavirus have been documented in Douglas County from 1985-2000. No cases of sylvatic plague have been documented in Douglas County from 1973-2000. No cases of tularemia have been documented in Douglas County. One case of Colorado tick fever was documented for Douglas County in 1996. Therefore, public health and safety issues associated with Preble's conservation were dismissed from detailed analysis.

1.10.4.7 Prime and Unique Farmlands

In August 1980, the Council on Environmental Quality directed federal agencies to assess the effects of their actions on farmland soils classified by the U.S. Department of Agriculture, Natural Resources Conservation Service as prime or unique. Prime farmland is defined as soil that particularly produces general crops such as common foods, forage, fiber, and oil seed; unique farmland produces specialty crops such as fruits, vegetables, and nuts. There are no known prime or unique farmlands associated with the covered activities that could be affected. Therefore, prime and unique farmlands were dismissed from detailed analysis.

1.10.4.8 Ecologically Critical Areas, Wild and Scenic Rivers, Other Unique Natural Areas

None of the covered activities occur in ecologically critical areas or other unique natural areas. The CNHP has recommended portions of the RCZ as conservation sites (Pague et al. 1995). Many of these sites have been preserved as part of the Applicants' DCHCP development. The covered activities would not affect the protection or management of areas recommended for conservation. In 1984, the Pike and San Isabel National Forests and Comanche and Cimarron National Grasslands determined that the South Platte River from below Elevenmile Dam to the high water line of Cheesman Reservoir was eligible for Wild and Scenic Rivers designation. In 1996, the South Platte River, from the stream gage below Cheesman Dam to the high water line of Strontia Springs Reservoir, and the North Fork of the South Platte River from the Berger property near Insmont downstream to a point ¼ mile from its confluence with the South Platte River were also determined to be eligible for potential addition to the Wild and Scenic Rivers System (U.S. Forest Service 2000). In 2004, the Forest Service chose to proceed with a locally developed plan (South Platte Protection Plan) as an alternative to recommending to Congress designation of this area for management under the Wild and Scenic Rivers Act. The covered activities will not affect the management of this area or implementation of the South Platte Protection Plan. Therefore, this topic was dismissed from detailed analysis.

1.10.4.9 Indian Trust Resources

Secretarial Order 3175 requires that any anticipated impacts to American Indian trust resources from a proposed project or action by Department of Interior agencies be explicitly addressed in environmental documents. The federal American Indian trust responsibility is a legally enforceable fiduciary obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights, and it represents a duty to carry out the mandates of federal law with respect to American Indian. There are no Indian trust resources in the area of covered activities. Therefore, American Indian trust resources were dismissed from further detailed analysis as an impact topic.

1.10.4.10 Ethnographic Resources

There are no known ethnographic resources in the planning area covered by the HCP. Should ethnographic resources be identified as a concern during consultation with appropriate American Indian tribes, mitigation measures will be agreed upon with those tribes. The location of ethnographic resources will not be made public under any circumstance. Because no ethnographic resources are known to occur within the areas of covered activities, this topic will not be addressed further in the EA.

1.10.4.11 Socioeconomic Environment

None of the alternatives would significantly change local or regional land use or transportation, or appreciably affect local businesses or agencies. The covered activities involve the construction, maintenance, and repair of public infrastructure (e.g., roads, bridges, and trails). While these projects may affect the socioeconomic environment of the County, the Actions would likely occur with or without the DCHCP because the covered activities also would be covered by the Regional HCP alternatives or be addressed on a project-by-project basis under the No Action Alternative. The proposed action will likely affect the cost, timing, coordination, and consistency for ESA compliance for covered activities; however, these effects would not significantly change the local or regional socioeconomic environment.

The Regional HCP Alternative includes certain defined activities as covered activities that are available to the Applicants as well as other parties. The DCHCP does not cover activities by parties other than the Applicants. The broader coverage of the Regional HCP Alternative could have a positive socioeconomic effect on private parties participating in the plan. This benefit is unlikely to significantly affect the local or regional socioeconomic environment. Any benefit would be limited to the time the Regional HCP Alternative is in place and Preble's remains listed. Therefore, the socioeconomic environment was dismissed from further detailed analysis as an impact topic.

1.10.4.12 Environmental Justice

Executive Order 12898 (General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations) requires all agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations or communities. None of the alternatives would

have health or environmental effects on minorities or low-income populations or communities. Environmental justice, therefore, was dismissed from detailed analysis.

Chapter 2 Alternative Actions Considered

2.1 Formulation and Evaluation of Alternatives

A habitat conservation plan submitted to support an ITP must include a description of alternative actions to the requested taking that the applicant considered and the reasons why such alternatives are not being utilized (ESA section 10(a)(2)(A)). As discussed in Section 1.2, the County and Towns began a process to develop a Regional HCP in 1998 after Preble's was listed as a federally threatened species. The development of the original Regional HCP incorporated consideration of a range of alternatives that included: 1) No action; rather ESA compliance would continue to be conducted on a project by project basis; 2) develop a Regional HCP covering a defined set of activities in Douglas County; 3) develop an HCP that would address only County and Town Activities; 4) develop a comprehensive regional HCP that would address all foreseeable activities in Douglas County; and 5) participate in development of a multi-jurisdictional Colorado Front Range Regional HCP. During the original planning process, the fourth and fifth alternatives were rejected as the least likely to be approved and implemented because of their broad scopes and complexity. The alternative that would address all foreseeable activities in Douglas County was rejected because it was determined not practicable to accurately foresee all future activities that potentially could affect Preble's and its habitat in Douglas County. The County's and Towns' Public Works and Parks and recreation plans provide a basis for predating future activities for the various HCP alternatives; however, there is no such information for accurately predating private party activities.

Participation in the development of a multi-jurisdictional Colorado Front Range regional HCP was determined to be less practicable than development of a comprehensive regional HCP. No interest was expressed by other local governments in developing such an HCP. Although local governments coordinated on various Preble's issues, it became clear that each local government had its own issues, approaches, and schedules for developing an HCP. These disparities among local governments and the extraordinary broad scope and complexity of a multi-jurisdictional HCP eliminated this alternative from further consideration.

At that time, the County and the Towns elected to develop a regional HCP (referred to as the "original Regional HCP" throughout this document), which was submitted to the Service in its final draft form in January 2005 (see Appendix 2).

After the Service provided initial feedback on the draft original Regional HCP and proposed to delist Preble's in February 2005, the County and Towns reassessed the alternatives listed above. The Applicants considered the current uncertainty of the final outcome of the Service's proposal to delist Preble's and the Applicants need to permit certain activities during this time of uncertainty. The Applicants took into consideration 1) their desire to take advantage of the work and expense of developing the original

Regional HCP; 2) their need to secure ESA compliance for numerous projects scheduled within a one to ten year time frame; and 3) their need to secure ITP approval within a relatively short timeframe. In addition, the Applicants undertook a screening and evaluation process using the following factors:

- Applicants' purpose and need
- Impacts on listed species
- Feasibility
- Cost
- Predictability and simplicity
- Public input and perception

As a result of this reevaluation, the Applicants concluded that only three alternatives remained viable. This subset of alternatives included: 1) No action; 2) continue with the processing of the original Regional HCP; and 3) develop an HCP that would address only County and Town activities. Each of these three alternatives are described and analyzed in more detail below.

2.1.1 Purpose and Need

The underlying purpose for drafting an HCP has not changed from what was identified in the original Regional HCP — to obtain compliance with the ESA in a timely manner for certain activities that may have the potential to adversely impact Preble's and its habitat in Douglas County. However, in light of the Service's proposal to delist Preble's, the Applicants would like to utilize as much as possible the work and financial resources already expended for developing the original Regional HCP toward an effort that will provide:

- Issuance of an ITP within 9 months of submittal of an HCP to the Service to cover the period of uncertainty associated with the proposed delisting
- Appropriate take coverage for Preble's related to the County's and Town's near-term projects that occur within the RCZ
- Use of habitat protected by the Applicants during the development of the Regional HCP to mitigate impacts to the RCZ associated with covered activities

2.1.2 Impacts on Listed Species

Each alternative was evaluated to determine its potential impacts on Preble's and its habitat. Alternatives were evaluated in terms of their ability to avoid, minimize, and mitigate impacts to the habitat of Preble's and their provision for long-term conservation of the subspecies. The evaluation of alternatives for the original Regional HCP also considered potential long-term ITP coverage for other species including the Ute ladies'-tresses orchid, Colorado butterfly plant, northern leopard frog, and northern red-bellied dace. In an effort to simplify the DCHCP, and to aid in receiving an ITP in the near term, the DCHCP is covering only the incidental take of Preble's.

2.1.3 Feasibility

From the beginning of the planning effort, one of the primary goals of the Applicants was to ensure that the HCP did not result in a more cumbersome and complicated system than the current process of individual ESA compliance. Feasibility also relates to the ability (time, funding, and staffing) of the Applicants to develop an approvable HCP that will meet the needs of the Applicants. For the purposes of evaluating alternatives for the DCHCP, feasibility refers to the ability to get an HCP and ITP approved and implemented in about 9 months. Thus, timeliness becomes a critical factor in determining which alternatives are potentially feasible. Factors influencing timeliness include:

- Complexity of the plan
- Scope of the plan (e.g., geographic area, species covered, types of activities covered, amount of impacts, and types of mitigation)
- Likely review and approval time
- Required NEPA documentation and process

2.1.4 Cost

The Applicants have incurred substantial costs in delineating and mapping the RCZ, securing upfront protection of key habitat lands, and in developing the original Regional HCP. The Applicants desire to recoup these costs where feasible. The most feasible means to benefit from what the Applicants have expended is to continue to use the RCZ as the best available science in defining Preble's habitat and to use the portions of the RCZ preserved by the Applicants in the development of the original Regional HCP as mitigation for impacts to the RCZ associated with covered activities.

2.1.5 Predictability and Simplicity

The Applicants recognize that case-by-case ESA regulatory compliance can be burdensome, unpredictable, time consuming, and complicated. The Applicants are committed to developing an HCP that provides more predictability and simplicity than does the current process. As discussed above, simplicity relates to timeliness and feasibility.

2.1.6 Public Input and Perception

As discussed above, the three alternatives identified for evaluation as part of the DCHCP process are a subset of the full range of alternatives that were identified and subject to the public input process during the development of the original Regional HCP. Public input on the full range of alternatives was obtained from meetings with various stakeholders, as well as through public notice and a public NEPA scoping meeting where the potential alternatives were presented and discussed. In addition to the public input process, the Applicants evaluated the public perception of each of the three alternatives based upon the uncertainty of the Service's delisting proposal.

2.2 Overview of Alternatives Considered

The following provides an overview of the alternatives selected for further evaluation as part of developing the DCHCP. As stated above, the alternatives are a subset of alternatives identified as part of the original Regional HCP and cover a reasonable range of options available to the Applicants. The alternatives consist of a No Action alternative and two “action” alternatives: continue with the original Regional HCP, or develop an HCP to only address activities conducted by the Applicants (DCHCP).

- **No Action.** This alternative involves the Service denying the applied-for ITP and/or the Applicants electing to not develop an HCP. This alternative represents the status quo and requires individual projects comply with ESA requirements on a case-by-case basis.
- **Develop a Regional HCP in Douglas County.** This alternative was originally the Applicants’ proposed alternative. The original Regional HCP covered activities to be undertaken by the Applicants, private landowners, and other members of the regulated community that could potentially affect riparian species in Douglas County. This alternative would include implementation of the original Regional HCP which included measures to avoid, minimize, and mitigate the potential take of federally listed and other riparian species of concern over a term of 50 years.
- **Develop an HCP that Addresses Only County and Town Activities.** In light of the proposed delisting of Preble’s, this alternative is now the Applicants’ proposed alternative. This alternative involves issuance of an ITP by the Service for activities to be undertaken by the County and Towns that could potentially affect Preble’s and its habitat in Douglas County. This alternative would not address activities undertaken by anyone but Douglas County and the Towns, would only cover impacts to Preble’s and its habitat, and would be implemented over a 10-year term.

Each of these alternatives is discussed in more detail below. A side-by-side comparison of the alternatives is provided in Table 2-1.

Table 2-1. Comparison of Alternatives.

Screening and Evaluation Criteria	No Action	Regional HCP	HCP - Only County and Town Activities
FULFILLS APPLICANTS’ PURPOSE AND NEED			
Comply with ESA in conducting otherwise lawful County and Town activities	- †	+	+
Balances land conservation and economic viability	-	+	+
Provides streamlined, cost effective ESA compliance approach	-	+	+
Provides sufficient permit duration given proposed Preble’s delisting	-	+	+

CHAPTER 2: ALTERNATIVE ACTIONS CONSIDERED
FINAL - HABITAT CONSERVATION PLAN AND ENVIRONMENTAL ASSESSMENT

Screening and Evaluation Criteria	No Action	Regional HCP	HCP - Only County and Town Activities
Provides an approach for future ESA section 7 consultations	-	+	+
Comparison of Alternatives within Category	-5	+5	+5
IMPACTS ON PREBLE'S			
Avoids case-by-case conservation efforts for the County and Towns	-	+	+
Provides incentives to avoid and minimize impacts to the RCZ	-	+	+
Assists recovery efforts	-	+	+
Comparison of Alternatives within Category	-3	+3	+3
FEASIBILITY			
Can be successfully drafted, negotiated and implemented in about 9 months	0	-	+
Comparison of Alternatives within Category	0	-1	+1
COST			
Eases costs, time and logistical burden of Applicants	-	0	+
Reduces administrative costs and burdens for the Service	-	+	+
Total cost and time to Applicants balanced with desired outcome	-	-	+
Comparison of Alternatives within Category	-3	0	+3
PREDICTABILITY AND SIMPLICITY			
Provides Applicants predictability	-	+	+
Provides an uncomplicated approach to ESA compliance	-	-	+
Comparison of Alternatives within Category	-2	0	+2
PUBLIC PERCEPTION			
Consistent with Public Perception	0	0	0
Comparison of Alternatives within Category	0	0	0
Overall Comparison of Alternatives	-13	+7	+14

†Scoring Definitions: (-) = negative response to criteria; (0) = neutral or uncertain response to criteria; (+) = positive response to criteria

2.3 Evaluation of Alternatives Considered

2.3.1 No Action

This alternative involves the Service denying the applied-for ITP and/or the Applicants electing to not participate in the development of an HCP. The Applicants may continue to conserve Preble's habitat as part of their integrated approach to open lands planning, but would not necessarily focus any resources specifically on Preble's conservation.

This alternative is a "status quo" alternative that would maintain the current process for ESA compliance for activities affecting Preble's and its associated habitat in Douglas County. This alternative would likely continue the current situation of numerous individual piecemeal section 7 consultations and HCPs addressing impacts and mitigation on a case-by-case basis for as long as Preble's is listed.

Implementation of a No Action alternative does not mean that there would be no impacts or fewer impacts to Preble's habitat than an HCP. Activities with potential impacts to Preble's habitat would continue to occur in Douglas County and would impact Preble's and its habitat. The current processes (individual section 7 consultations and HCPs) may allow certain activities to occur within habitat areas with applicable mitigation. In addition, these activities would need to be reviewed individually by the Service and mitigated by the project proponents.

In the absence of an HCP, other options could be developed by the Applicants or others to address Preble's conservation and potentially streamline ESA compliance. These include:

- Habitat mitigation banking
- Grouping or "bundling" similar activities for HCPs
- Development of programmatic section 7 consultations
- Development of a county-wide candidate conservation agreement with assurances (CCAA), which would address Preble's if delisted and other species of concern that inhabit or potentially inhabit the RCZ; the CCAA could be developed following a definitive outcome of Preble's delisting or be linked to an HCP that the Applicants would prepare; the CCAA could build on the conservation planning done as part of the original Regional HCP and would cover riparian species other than Preble's

The No Action alternative was given substantial consideration in light of the Service's proposal to delist Preble's. However, despite the possibility that Preble's may be delisted sometime in the near future, the Applicants still have projects that will likely require compliance with the ESA prior any final delisting decision. Therefore, the No Action alternative does not rate well using the screening and evaluation factors outlined in Section 2.1 (see Table 2-1). In particular, the No Action alternative is not a preferable alternative because it: 1) does not provide a streamlined, cost effective ESA compliance

approach; 2) does not ease cost, time, and logistical burdens of the Applicants or the Service; and 3) does not provide predictability or simplicity.

At this time, pursuit of a county-wide CCAA has been set aside by the Applicants due to the time and effort needed to get a county-wide CCAA approved and implemented. The Applicants believe it would not be possible to get an HCP and CCAA in place within the next 9 months. The Applicants may pursue a CCAA in the future if deemed appropriate in view of the timing and outcome of the proposed Preble's delisting and other considerations.

2.3.2 Develop a Regional HCP in Douglas County

This alternative corresponds to the original Regional HCP submitted to the Service in early 2005 and would have covered the Applicants' future activities that potentially affect the RCZ, as well as certain activities undertaken by private landowners and others that occur within the RCZ. The Regional HCP would afford private landowners and other members of the regulated community the opportunity to utilize the Regional HCP for ESA compliance for those covered activities provided they implement the activity per all required conditions and BMPs.

The Regional HCP would have the following benefits for conservation of the RCZ:

- **Impact Avoidance.** Impacts to the covered species would be avoided by first mapping the essential elements of Preble's habitat, and by limiting the activities covered by the Regional HCP. The covered activities would primarily relate to infrastructure that necessarily needs to cross and occur within or adjacent to riparian areas in the County (e.g., utility lines, roads, bridges, and stream bank stabilization). The mapped RCZ would provide the public with predictability by delineating habitat areas to avoid in project planning. The combination of covering a specific set of activities that necessarily need to occur within Preble's habitat, with the mapped RCZ made available to the public, would aid in avoiding unnecessary impacts to Preble's and its habitat.
- **Impact Minimization.** Many of the covered activities would have temporary impacts. The Regional HCP would require BMPs and restoration of temporary impacts of covered activities to minimize impacts to the RCZ.
- **Regional Habitat Conservation.** The Regional HCP would provide a county-wide results-based conservation approach that would focus conservation on a substantial network of riparian habitat.

Prior to the proposed delisting of Preble's, the Regional HCP was the Applicants' preferred alternative. This alternative no longer meets the Applicants' needs for timeliness and simplicity. This alternative would likely require completion of an environmental impact statement (EIS) to comply with NEPA, which would add an estimated 18 to 24 months to approval and implementation of the Regional HCP. In addition, the inclusion of certain activities by non-County or non-Town parties adds to the complexity of the Regional HCP. For these reasons, the Regional HCP is no longer considered a feasible alternative for the Applicants.

2.3.3 Develop an HCP that Addresses Only County and Town Activities

Development of an HCP that addresses only County and Town activities (referred to as the DCHCP) is the Applicants' proposed alternative in light of the Service's recent delisting proposal for Preble's. The Applicants would identify their activities that must be conducted in the RCZ during the term of the DCHCP. These would relate primarily to public works activities that need to cross or occur within the RCZ in the County (e.g., construction and maintenance of roads, bridges, trails, facilities and other structures). Overall, fewer activities would be covered by this alternative relative to the original Regional HCP because this alternative would not include activities to be conducted by private landowners or entities other than the County or Towns and the DCHCP has a shorter permit term.

As part of this alternative, the Applicants would map the locations of the covered activities and identify the temporary and permanent impacts associated with each activity, and to the maximum extent practicable incorporate avoidance, minimization and mitigation measures to offset impacts of the identified activities. Mitigation requirements for impacts caused by these activities may be greater under this alternative relative to the Regional HCP because this alternative does not incorporate a programmatic emphasis on avoidance of Preble's habitat and does not establish a regional results-based conservation approach. The RCZ mapping done for the original Regional HCP will be used to determine impacts and mitigation. Applicant activities outside the RCZ would have no direct impacts on Preble's.

The original Regional HCP covered certain categories of activities that could be conducted by anyone participating in the Regional HCP (not just the County and Towns) provided the activities were implemented following the activity-specific conditions and BMPs. Broadening the scope of the HCP to include these additional activities and participants adds substantial complexity to the HCP and its approval process. The Applicants have determined that it is not feasible to cover activities by parties other than the County and Towns due to timing and complexity. It is also not clear at this time, in view of the proposed delisting of Preble's, whether there is still a substantial need by the public for ESA compliance for potential impacts to Preble's (i.e., many parties are electing to delay projects until a definitive decision is reached on delisting).

In consideration of the proposed delisting of Preble's, the Applicants have decided to pursue a County and Town-only HCP with a permit term of 10 years, which should be of sufficient duration to ensure the Applicants' compliance with ESA until the definitive outcome of the delisting process for Preble's.

2.4 Reasons that the County and Town-Only HCP (DCHCP) was Selected

The DCHCP alternative was selected because it meets the Applicants' purpose and need, is feasible, and will maintain the long-term viability of Preble's in Douglas County. The DCHCP is consistent with the Applicants' needs because it provides a less complex

narrower scope (geographic and covered species), shorter duration (10 years instead of 50 years), and a simple accounting process for impacts and mitigation in comparison to the original Regional HCP. Furthermore, the DCHCP:

- Complies with ESA and the Service's issuance criteria for HCPs
- Has the greatest likelihood of the alternatives considered of being approved and implemented in about 9 months
- Can be developed rapidly using existing information developed for the original Regional HCP and successfully implemented by the Applicants
- Eases costs, time, and logistical burdens of the Applicants and the Service
- Provides a flexible, predictable, and simpler ESA compliance approach than case-by-case ESA compliance
- Does not foreclose, and is consistent with, pursuit of possible future long-term programmatic riparian habitat and species conservation efforts in the County

Chapter 3 Affected Environment

Chapter 3 provides an overview of the affected environment. For the purposes of the DCHCP, the affected environment is considered the portions of the RCZ affected by the covered activities. Those resources within the RCZ potentially affected by the covered activities are discussed. This section provides greater detail on Preble's meadow jumping mouse and its habitat (the RCZ) because these resources are the focus of the DCHCP and EA.

3.1 Overview of Biological Resources in Douglas County

Douglas County is located in central Colorado, along the interface between the mountains and high plains known as the Colorado Piedmont. The County encompasses about 844 square miles. The DCHCP does not include the 225 square miles of Pike National Forest in the southwest portion of the County or the approximate 3,000 acres of Chatfield State Park in the northwest portion of the County. Elevation ranges from about 5,600 feet in the northwest corner of the County at Chatfield Reservoir to 9,748 feet in the west at Devil's Head Peak. The overview of biological resources focuses on resources below 7,600 feet in elevation because Preble's has not been found in Douglas County above that elevation.

The northern one third of the County consists of rolling hills and sweeping grasslands, with several creeks running from higher elevations in the middle and western portions of the County, to the north into the South Platte River or Cherry Creek. Over one-quarter of the west and southwest portion of the County is part of the foothills of the Rocky Mountains with deep canyons and high peaks, and is managed by the U.S. Forest Service—Pike National Forest. The Palmer Divide, which separates the Platte and Arkansas River watersheds, extends from the foothills through the southern half of the County to the east and south into adjacent Elbert and El Paso Counties. This region of bluffs, hills, gullies, and washes is dominated by a grassland-shrubland-woodland mosaic (Pague et al. 1995).

Due to Douglas County's unique topography, climate, and location on the Colorado Piedmont, the flora and fauna are representative of both the High Plains and the southern Rocky Mountains. This diverse mixture of geography, geology, and biology, or ecotones, contributes to Douglas County's unique ecological character (Pague et al. 1995). Transition zones like these tend to support higher levels of biological diversity than other "non-transitional" areas (Odum 1972; Brewer 1990).

No vertebrates and few invertebrates at the species level are endemic solely to Douglas County (Pague et al. 1995); however, there are some species endemic to the Colorado Piedmont that are found in the County, such as Preble's.

In some ways, the vegetation of the County is typical of the foothills/prairie ecotone on Colorado's Front Range (Marr 1967). Grasslands of the northern County are on well drained sandy soils and receive less moisture than those to the south near the Palmer Divide. The resulting composition of grasslands generally follows this north/south hydrological gradient, with typical shortgrass prairie species such as blue grama (*Bouteloua gracilis*) dominating in the north, and midgrass species such as western wheatgrass (*Agropyron smithii*), needle-and-thread grass (*Stipa comata*), and little bluestem (*Schizachyrium scoparium*) becoming more common to the south. Tallgrass species such as big bluestem (*Andropogon gerardii*) are not uncommon in the uplands (Pague et al. 1995).

Gambel oak (*Quercus gambelii*) shrublands are a dominant feature of the Douglas County flora, creating a mosaic of shrubs and grassland that covers the rolling hills of most of the central regions of the County. These shrublands also occur in areas of mixed woodland with ponderosa pine. Riparian areas consist of dense shrubs, especially hawthorn and coyote willow, with some stands of small cottonwoods. Wetlands comprise a small but important portion of the County and are comprised mainly of graminoid types at springs or seeps, or shrub-dominated riparian areas. Coniferous forests of ponderosa pine dominate the mountainous western portions of the County and extend eastward on the higher mesas and along the Palmer Divide. Cooler microhabitats on north-aspect slopes contain mostly Douglas-fir forests with patches of aspen (Pague et al. 1995).

3.2 Preble's Meadow Jumping Mouse

3.2.1 Legal Status

Preble's was listed as a federally threatened subspecies under the Endangered Species Act in May of 1998 (63 Fed. Reg. 26517 (May 13, 1998)). In February 2005, the Service announced its proposal to remove Preble's from the List of Endangered and Threatened Wildlife (70 Fed. Reg. 5404 (February 2, 2005)). The Service's 12-month finding indicated that Preble's is not a discrete taxonomic entity, does not meet the definition of a subspecies, and was listed in error. Before its proposed action is finalized, the Service will conduct a status review and evaluate threats to the combined *Z. h. campestris* entity in all or a significant portion of its range. The Service also will analyze whether the Preble's portion of *Z. h. campestris* qualifies as a Distinct Population Segment in need of protection. It is anticipated that the Service will likely announce the results of its status review and final action in early 2006. This subspecies of meadow jumping mouse is also considered "threatened" by the CDOW (CDOW 1998).

3.2.2 Description

Preble's is a relatively small rodent with an extremely long tail, large hindfeet and long hind legs. The tail is bi-colored, lightly furred and is normally twice as long as the body. Preble's has a distinct broad stripe on its back that runs from its head to its tail and is bordered on either side by gray to orange-brown fur. The underside is white. Adult Preble's range in weight from 0.5 to 1.0 oz. and are about 7 to 10 inches long (Service 2002).



3.2.3 Distribution

Preble's is found along the foothills of southeastern Wyoming, southward along the eastern edge of the Front Range of Colorado to Colorado Springs (Hall 1981; Clark and Stromberg 1987; Fitzgerald et al. 1994). In Douglas County, Preble's is known to occur in all three major watersheds (Plum Creek, Cherry Creek and South Platte River) from near the El Paso County line in the south, to near the Arapahoe County line in the north, along the Elbert County line to the east, and along the Jefferson County line to the west (Figure 2).

The semi-arid climate in southeastern Wyoming and the Colorado Piedmont limits the extent of riparian corridors and, thus, restricts the range of Preble's, which is associated with these corridors. 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, Preble's was confined to the wetter riparian systems. In Colorado, Preble's is found between 4,600 and 7,600 feet (Service 1998; CNHP 1999).

3.2.4 Habitat

Typical habitat for Preble's is comprised of well-developed plains, foothills, and lower montane woody riparian vegetation and adjacent upland woodland, shrubland, and grassland communities with a nearby water source. Plains riparian vegetation includes a relatively dense combination of grasses, forbs, and shrubs; a taller shrub and tree canopy may be present (Bakeman 1997b). Preble's are typically captured in areas with multi-storied cover and an understory of grasses, forbs, or a mixture of grasses and forbs (Bakeman 1997b; Bakeman and Deans 1997; Meaney et al. 1997a, 1997b; Shenk and Eussen 1998; Schorr 2001). The diverse vegetation and well-developed cover can occur in a variety of circumstances (Meaney et al. 1997a).

The most common riparian shrub community along plains riparian streams, where Preble's occur, is coyote willow (*Salix exigua*). Other commonly occurring plains woody riparian vegetation includes: snowberry (*Symphoricarpos* spp.), alder (*Alnus incana*), river birch (*Betula fontinalis*), dogwood (*Cornus sericea*), hawthorn (*Crataegus*

macracantha), peach-leaved willow (*Salix amygdaloides*), Russian olive (*Elaeagnus angustifolia*) and cottonwood (*Populus deltoides* and *P. angustifolia*).

Upland shrub and/or woodland communities often occur adjacent to the plains riparian communities and can include the following shrubs and trees: Gambel oak (*Quercus gambelli*), chokecherry (*Prunus virginiana*), wild plum (*Prunus americana*), hawthorn (*Crataegus* spp.), skunkbrush (*Rhus trilobata*), snowberry, and ponderosa pine (*Pinus ponderosa*).

The lower montane and foothill riparian communities where Preble's have been found are dominated by willow, cottonwood, alder, and birch with adjacent upland woodlands of Gambel oak, ponderosa pine, Douglas-fir (*Pseudotsuga menziesii*), blue spruce (*Picea pungens*), and aspen (*Populus tremuloides*) (Ruggles et al. 2001).

Preble's have rarely been trapped in uplands adjacent to riparian areas (Corn et al. 1995; Meaney et al. 1996; Bakeman 1997a; PTI Environmental 1998; Dharman 2001). Preble's movement studies indicate that most observed movements occur within the riparian communities, adjacent upland shrubland and woodland communities, or nearby seasonal ponds (Shenk and Sivert 1999b; Ryon 1999; Schorr 2001). Relatively few observed Preble's movements occur in open adjacent upland grasslands greater than 30 feet to 100 feet from shrub or tree cover (Appendix 1).

Most of the observed Preble's movements occur within riparian communities. In a rangewide comparison of existing habitat data from Colorado, Clippinger (2002) found that subshrub cover and plant species richness are higher at most sites where meadow jumping mice are present as compared to sites where they are absent, particularly at distances of 49 to 82 feet from streams. A few Preble's movements have been observed in an ephemeral dry wooded gulch, presumably for hibernation, as far as 1,200 feet from a perennial stream and 600 feet from riparian communities (Shenk and Sivert 1999b). Preble's movement has also been observed in dry upland grasslands as far as 290 feet from riparian communities (Shenk and Sivert 1999b). These distant movements from riparian areas appear to be infrequent and exceptions to the majority of observed Preble's movements in and near riparian habitats (Appendix 1).

Habitat known to be occupied by Preble's is associated with perennial drainages. Use of moist areas near perennial drainages also has been documented including: intermittent and ephemeral drainages; seeps and springs; ponds; and agricultural ditches that occur near perennial drainages or within flood plains.

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

Preble's is a true hibernator, usually entering hibernation in September or October and emerging the following May after a potential hibernation period of 7 or 8 months. Apparent hibernacula of the Preble's have been located both within and outside of the 100-year flood plain of streams (Shenk and Sivert 1999b; Ryon 2001; Schorr 2001).

Preble's hibernating outside of the 100-year flood plain likely would be less vulnerable to flood-related mortality (68 Fed. Reg. 37279 (June 23, 2003)).

The primary constituent elements of Preble's habitat are those habitat components essential for the biological needs of reproducing, rearing of young, foraging, sheltering, hibernation, dispersal, and genetic exchange (68 Fed. Reg. 37301 (June 23, 2003)).

Primary constituent elements for Preble's include:

- A pattern of dense riparian vegetation consisting of grasses, forbs, and shrubs in areas along rivers and streams that provide open water through the Preble's active season.
- Adjacent flood plains and vegetated uplands with limited human disturbance.
- Areas that provide connectivity between and within populations. These may include river and stream reaches with minimal vegetative cover or that are armored for erosion control, travel ways beneath bridges, through culverts, along canals and ditches, and other areas that have experienced substantial human alteration or disturbance.
- Dynamic geomorphological and hydrological processes typical of systems within the range of the Preble's, i.e., those processes that create and maintain river and stream channels, flood plains, and flood plain benches, and promote patterns of vegetation favorable to the Preble's (68 Fed. Reg. 37301 (June 23, 2003)).

The Draft Preble's Discussion Document for the Recovery Plan provides recommended guidance for mapping Preble's habitat for recovery sites, and describes the following two ways to delineate Preble's habitat:

- The width of Preble's habitat is defined as the 100-year flood plain plus 100 m (328 feet) on both sides of the creek
- The area delineated provides all the necessary resources for Preble's to nest, breed, find cover, travel, feed, and hibernate, i.e., for long-term survival, and the area delineated includes the three contiguous geomorphological components used by Preble's: alluvial flood plain, transition slopes, and pertinent uplands (grasslands for feeding and suitable hibernation sites)

The RCZ mapping uses a landscape-based approach to delineate all the necessary resources for Preble's and does not use a set distance from a specific feature. The RCZ-delineated habitat varies in its width as landscape features vary (particularly the alluvial floor and adjacent upland transitional slopes). The RCZ landscape-based approach provides all of the habitat components that are included by the set distance 100-year flood plain plus 100 meters approach. The differences in the widths of the RCZ landscape approach and the set distance approach are in the amount of upland habitat included. Depending on the stream reach, one approach may have an overall greater width than the other.

The set distance approach was developed by the Service as part of its Interim Survey Guidelines for Preble's Meadow Jumping Mouse (Service 1999). The intent of the set distance approach was to provide guidance for areas that should be surveyed for the

presence of Preble's, and to establish a potential habitat width beyond which activities would not result in the direct take of Preble's. The set distance approach establishes a "no take" zone for activities occurring more than 100 meters from the 100-year flood plain. The Service's set distance approach is designed to meet needs very different than the DCHCP's objectives. The DCHCP's objectives (see Section 1.5) focus on habitat conservation to provide for the viability of Preble's while allowing specified activities to occur within potential Preble's habitat.

3.2.5 Habitat Mapping

The RCZ was developed for the original Regional HCP to provide a Countywide watershed approach to conserving Preble's habitat. The RCZ remains a valid habitat delineation approach for the DCHCP because: 1) the RCZ represents the best available scientific information related to Preble's habitat in Douglas County; 2) Applicant activities will be scattered throughout the County; therefore, the RCZ provides a clear and consistent delineation of Preble's habitat regardless of where the identified impacts will occur; and 3) the Applicants have incurred substantial cost in delineating and mapping the RCZ and would like to achieve some benefit from those expenditures. A description of the RCZ is provided below.

Each of the stream reaches mapped as part of the RCA include all of the three contiguous geomorphological components of potential Preble's habitat. The RCZ was mapped to include:

- The active channel
- Alluvial floor
- Upland transitional side slopes adjacent to the channel or alluvial floor
- A component of the pertinent upland vegetation adjacent to the upland side slopes (generally 25 feet to 100 feet wide, depending on potential habitat quality)

These habitat components are included in every reach of the RCZ unless a specific component is missing from the landscape. Inclusion of these components means that each and every reach of the RCZ provides the habitat components essential for the biological needs of reproducing, rearing of young, foraging, sheltering, hibernation, dispersal, and genetic exchange. Therefore, the habitat components occur in an integrated fashion throughout the RCZ and separate areas are not established for each habitat component.

3.2.5.1 The RCZ Includes Habitat Essential to Preble's

Preble's potentially use a variety of habitats found along Front Range riparian areas. These include:

- Water (Preble's physiology may require water sources)
- Dense vegetation, typically associated with streams, for cover, foraging, and nesting
- Upland areas, adjacent to or near riparian areas, used for cover, foraging, nesting, and hibernation

- Areas of suitable habitat outside of frequently flooded areas to escape flood events

Additionally, Preble's needs connected areas of suitable vegetative cover to facilitate movements along riparian corridors. Studies of Preble's movements over the course of 3 years at three sites in Douglas County indicate that most Preble's movements occur within woody riparian vegetation along stream corridors (Appendix 1). Because not all stream reaches contained within the RCZ have benefited from Preble's movement data collection, the Applicants used GIS and statistical models to predict the relationship between the RCZ mapping effort throughout the County and observed Preble's movement. When applying GIS and statistical models to compare the Preble's movement data with the county-wide RCZ mapping effort, the result provides a confidence level of 95 percent or greater that the RCZ predicts Preble's movements along the mapped stream reaches. Any areas of potential Preble's habitat not included in the RCZ are areas where Preble's are infrequently observed and area insignificant for the following reasons:

- Each segment of the RCZ includes all of the habitat components that are needed to support Preble's.
- The areas outside the RCZ where Preble's is infrequently observed occur in upland habitats that, unlike the riparian areas, are common throughout the County and are not limiting to Preble's. No take of Preble's is anticipated to result from Applicant activities occurring within these areas.
- The locations of observed Preble's movements within the core riparian area are relatively consistent from year-to-year. The distance movements from the core riparian area into upland that comprise 5 percent or less of observed mouse movements and are inconsistent from year-to-year (i.e., Preble's do not show site fidelity to these distant upland locations).
- Three years of mouse movement data at the three study sites in Douglas County clearly demonstrate that the Preble's subpopulations studied spend a majority of their time within the core riparian habitat and there are some mice that appear to spend all of their time within the core riparian habitat. The reverse of this situation is not true (i.e., there are no Preble's spending their entire time in upland habitats).
- The RCZ occurs within a matrix of protected lands. Thus far, about 24 percent of the RCZ is protected. The full extent of these protected lands reach well beyond the RCZ.
- Other evaluations indicate that the RCZ includes up to 99 percent of the Preble's movements (Appendix 1).

3.2.5.2 Basis for the RCZ Mapping and Its Use

The RCZ mapping is landscaped based, which means the limits of the RCZ vary with vegetation and land form, rather than being based on an arbitrary distance from a predetermined topographic feature (e.g., 300 feet from the 100-year flood plain). This

landscape approach based on vegetation is supported by research that has determined that Preble's exhibits an affinity for complex riparian communities with shrubs, tree, grass, and forb species (Ryon 1996). Using the best information available to them, White and Shenk (2000) concluded that:

82 percent of the variation in Preble's density is explained by a model that includes riparian shrub, tree, and open water (ha/km stream). Most of the variance (78 percent) can be explained by just shrub and tree cover. These results suggest that habitat quality of Preble's can be predicted by the shrub and tree cover available on site.

Every stream reach of habitat within the RCZ provides Preble's with the essential elements for its habitat (water, foraging, nesting, breeding, movement, and hibernation) to the extent these habitat components occur within the stream reach (i.e., some minor reaches of the RCZ may lack adjacent sideslopes or uplands due to land form or adjacent land uses).

The RCZ is well distributed throughout the County. It occurs from the Arapahoe County line to the El Paso County line on Cherry Creek, throughout the entire Plum Creek watershed, and along the Jefferson County line on the South Platte River. The RCZ includes streams in the lower montane, foothills, and plains environments, and includes narrow headwater creeks, broad plains streams, and the South Platte River. The geographic distribution and environmental diversity of drainages included in the RCZ will aid in conservation of Preble's.

The best available scientific information for sites supporting Preble's in Douglas County indicates that the RCZ mapping approach more accurately maps the potential Preble's habitat than a generic approach establishing a set distance from a landscape feature (Lubow 2002; Lubow and Shenk 2003) (Appendix 1). The RCZ mapping:

- Is site-specific, landscape-based, and uses recent high resolution orthophotography to map the limits of potential Preble's habitat.
- Uses vegetation as a key element in determining the distribution of potential Preble's habitat. The best available scientific information (Lubow 2002; White and Shenk 2000) indicates that vegetation (riparian vegetation, tree and shrub cover) is the primary predictor of Preble's habitat.

As discussed previously, the best scientific information available has been used to identify and delineate potential habitat for Preble's in Douglas County through the RCZ mapping. The DCHCP and ITPs authorize incidental take of Preble's associated with identified activities to be undertaken by Applicants in the RCZ pursuant to the minimization and mitigation requirements and procedures of the Plan. Applicants' activities occurring outside the RCZ will have no direct impacts on Preble's. Significant indirect impacts to the RCZ from such activities are also not expected because:

- The majority of the types of activities covered by the DCHCP (i.e., roads and bridge crossings) have direct impacts that are small and contained and typically do not generate significant indirect effects compared to other types of activities

that have a greater potential to generate indirect effects (e.g., residential subdivisions).

- The Projects will be dispersed throughout the County and will be conducted at various times throughout the term of the DCHCP.
- The substantial lands preserved by Applicants adjacent to the RCZ will buffer any incidental indirect impacts (Section 5.3.3).

No take or adverse effect to Preble's is thus anticipated to result from Applicant activities that are conducted outside the RCZ. Accordingly, it is anticipated that no formal section 7 consultation or additional section 10 permitting would be required for such activities to proceed in compliance with the ESA.

3.2.5.3 Review of Habitat Mapping

The RCZ was mapped in phases and has undergone multiple reviews and revisions by the Applicants and their consultant, the public, and the Service (Appendix 1). In 2000, the Applicants began the preliminary effort of mapping potential Preble's habitat using what was known about Preble's habitat at the time. The preliminary RCZ mapping was broad based and focused on all drainages within the County with the potential to support Preble's. The preliminary RCZ mapping included the main perennial and intermittent drainages in the County. All of the main drainages were included in the first phase of the mapping as Preble's have been found in an increasing variety of drainages and locations within Douglas County since listing of Preble's in 1998.

The preliminary RCZ mapping was compared to observed Preble's movement studies at three Douglas County sites. Based on the comparison, the RCZ mapping was revised to include more upland woody vegetation and ponds that were adjacent to or within about 200 feet of the riparian vegetation (see Appendix 1).

The revised preliminary RCZ mapping was presented to the public on April 16, 2001 at an HCP/NEPA public scoping meeting. The revised preliminary RCZ mapping was made available for public review and comment from April 16, 2001 through May 21, 2001 at the Douglas County Division of Open Space and Natural Resources. The public was provided with the opportunity to request mapping reviews and revisions. Approximately 30 requests for reviews and mapping revisions were received and processed by the Applicants.

Each mapping revision request was reviewed on-site with the person requesting the review during the summer of 2001 by a single reviewer to maintain consistency. All requested revisions were reviewed to ensure that any revisions made were consistent with the goals, objectives, and methods for mapping the RCZ. Revisions that were made to the RCZ mapping reflected requests to have the RCZ boundary be consistent with existing conservation easement boundaries and to eliminate areas that were obviously not potential habitat (e.g., parking lots, building pads, and buildings).

Following the review of requested revisions, the RCZ mapping was reviewed to eliminate drainages or segments of drainages that are not currently occupied by Preble's and are unlikely to be occupied by Preble's during the term of the original Regional HCP

based on existing Preble's survey and habitat assessment information and a review of the drainage. Drainages or segments of drainages eliminated from the revised preliminary RCZ mapping included:

- Unnamed tributary to Plum Creek (near Dupont Facility)
- Newlin Gulch (tributary to Cherry Creek)
- Pine Creek (tributary to Cherry Creek)
- Upper Sulphur Gulch (tributary to Cherry Creek)
- Tallman Gulch (tributary to Cherry Creek)
- Four unnamed eastern tributaries to West Plum Creek
- An unnamed tributary to upper East Cherry Creek
- The South Platte River and its tributaries upstream of Cheesman Reservoir Dam

Most of these drainages or segments of drainages were eliminated from the RCZ mapping because they lack potential Preble's habitat and are typically dry throughout the year (e.g., Newlin Gulch, Tallman Gulch, and upper Sulphur Gulch). The lower portions of some drainages were retained (e.g., Sulphur Gulch) because the lower portions of the drainages support water or remain moist throughout most of the year and support potential Preble's habitat. There are no records for Preble's on the South Platte River or its tributaries upstream of Cheesman Reservoir.

Following these revisions, a set of the 1 inch = 500 feet RCZ maps and a composite 1 inch = 2 miles RCZ map were provided to the Service on April 10, 2002 for its review.

In 2002, the Applicants decided to use two approaches to further evaluate the RCZ mapping relative to the observed Preble's movement studies conducted by the CDOW at three sites in Douglas County (Shenk and Sivert 1999a). One evaluation approach used a geographic information system (GIS) to delineate boundaries that enclosed 90 percent, 95 percent, and 99 percent of the Preble's observations closest to the stream for each of the three Douglas County sites. Another evaluation involved a statistical analysis of the observed Preble's movements relative to various landscape features. GIS and statistical models used to compare the Preble's movement data with the county-wide mapping effort indicate that the RCZ mapping provides a confidence level of 95 percent or greater of including observed Preble's movements throughout the County along those stream reaches mapped.

3.2.5.4 Occupation of the RCZ by Preble's

It is unlikely that all of the 283 stream miles and over 18,800 acres of the RCZ are currently occupied by Preble's. It is difficult to predict accurately how much of the RCZ is currently occupied because what is known about the distribution of Preble's in Douglas County continues to evolve. For example, despite numerous trapping efforts, the Cherry Creek watershed was thought to be potential habitat for Preble's, but was not known to be occupied until 1999. Similarly, despite numerous trapping efforts, Preble's was not known to occupy Little Willow Creek until 2002. Based on trapping surveys of potentially suitable habitat in 1994, the CNHP estimated that about 75 percent of the potentially suitable Preble's habitat in Douglas County is occupied. On a stream reach-

by-stream reach basis, Preble's movement studies in Douglas County indicate that there are portions of riparian areas and the flood plain within occupied reaches that are not currently utilized or occupied by Preble's.

The DCHCP assumes that the entire RCZ is occupied by Preble's for impact estimates and habitat mitigation because this approach provides a greater conservation benefit to Preble's.

3.2.6 Abundance

White and Shenk (2000) determined that riparian shrub cover, tree cover, and the amount of open water nearby are good predictors of Preble's densities. Abundance estimates for Preble's have been calculated at several select sites in Colorado (Shenk and Sivert 1999b; Meaney et al. 2000; Kaiser-Hill 2000; Ensign Technical Services 1999; 2000, 2001; Schorr 2001). Because Preble's are found in linear riparian communities, Preble's abundances are estimated in number of individuals per length of stream. Estimates of abundance range from about 3 to 108 individuals per mile with a mean of 53 mice/mile (summarized in White and Shenk 2001). The DCHCP is habitat based and does not focus on Preble's population numbers.

3.2.7 Reasons for Listing and Threats to Recovery

According to the Service, several factors are believed to have played a role in reducing the range and abundance of Preble's. Based on the Preble's Science Team's Threat Assessment (Pague and Grunau 2000) and the rule listing the Preble's under the Endangered Species Act (63 Fed. Reg. 26517 (May 13, 1998)), the following items were identified as potential threats to Preble's populations and recovery.

3.2.7.1 The Present or Threatened Destruction, Modification, or Curtailment of Preble's Habitat or Range

Changes in habitats and plant communities can affect the composition of the mammal community found within them (Andersen et al. 1980; Honeycutt et al. 1981). Preble's is closely associated with riparian ecosystems that are relatively narrow and represent a small percentage of the landscape. If habitat for Preble's is destroyed or adversely 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 (Hafner et al. 1998).

Habitat fragmentation also can limit the extent and abundance of Preble's. As populations become fragmented it becomes more difficult for isolated populations to persist (Caughley and Gunn 1996). Smaller patches of habitat are unable to support as many Preble's as larger patches of habitat. If the threats to persistence are the same, larger populations are believed to be more secure from extinction (Primack 1998). The following are categories of impacts identified by the Preble's Science Team threat assessment.

Habitat conversion, habitat destruction, and habitat fragmentation through housing, commercial, recreational and industrial development. Residential, recreational, and commercial development, accompanied by highway and bridge construction, can directly

remove Preble's habitat or reduce, alter, fragment, and isolate habitat to the point where Preble's may no longer persist. Certain development can impact the species by destroying its nests, food resources, and hibernation sites, by disrupting behavior, or by acting as barriers to movement.

Impairments to supportive hydrology. The structure and function of riparian ecosystems are influenced by the hydrology of the waterway (Busch and Scott 1995). Significant changes in hydrology can alter the soils, vegetation, and shape of the surrounding habitats (Gregory et al. 1991). Thus, certain alterations in the timing and abundance of water in areas where Preble's are found could affect Preble's habitat.

Rock and sand extraction. Alluvial aggregate extraction may destroy and fragment Preble's habitat (Ryon 1996; Armstrong et al. 1997), and unmitigated mining impacts may produce long-term changes to Preble's habitat by altering hydrology and removing riparian vegetation. Mining also may impact gravel deposits that may be important hibernation locations for Preble's. Habitat for Preble's may be restored as part of the ultimate reclamation of the mining sites.

Bank stabilization and channeling of waterways. Bank stabilization, channelization, and other methods of hardening stream banks can increase the rate of stream flow, straighten riparian channels, and narrow riparian areas (Pague and Grunau 2000). Creating impervious cement channels destroys riparian vegetation. Using riprap and other structural stabilization options to reduce erosion can destroy riparian vegetation and prevent or prolong the establishment of riparian vegetation. These impacts can alter the plant composition, soil structure, and physiography of riparian systems to the point that Preble's may no longer persist in areas significantly altered by these activities.

Incompatible farming operations. In areas where intensive haying, cropping, and livestock grazing operations remove Preble's food and shelter resources, Preble's may be negatively impacted. Agricultural operations that allow riparian vegetation to remain are likely compatible with persistence of Preble's populations.

Transportation corridor maintenance, construction and accidents. Transportation corridors frequently cross Preble's habitat and may negatively affect adjacent Preble's populations. As new roads are built, Preble's habitat can be destroyed, altered, or possibly fragmented. Roads also may act as barriers to Preble's dispersal. Train and truck accidents within riparian areas may release spills of chemicals, fuels and other substances that may impact Preble's or its habitat.

Noxious weeds. Invasive, noxious weeds can encroach upon a landscape and displace native plant species. This change in plant structure and diversity reduces the abundance and diversity of native plants, and may negatively impact Preble's cover and food sources. Certain methods for controlling noxious weeds also may impact Preble's due to large-scale removal of vegetation and mechanical mowing operations.

Trail development and use. The development of trail systems may impact Preble's by modifying its habitat, nests, and food resources, or by disrupting its behavior (Meaney et al. 2002). Trails are common throughout Preble's range. Because many trail systems parallel or intersect riparian communities, certain trail development can alter the riparian and upland communities within Preble's habitat. Unrestricted human and pet use of these

trails may alter behavior patterns of Preble's, decrease Preble's survival, and decrease reproductive success.

Utilities construction and maintenance. Construction of utilities within current and future rights-of-way through Preble's habitat may cause temporary habitat disturbance or fragmentation. Maintenance of such facilities also could result in temporary habitat disturbance. It is also possible that toxic chemical spills would be associated with operation of utilities.

3.2.7.2 Predation or Disease

As with most small mammals, Preble's carries parasites and diseases that may reduce vigor, curtail reproductive success, and cause death. There is no evidence that any disease has caused an impact to Preble's populations. Parasites and disease are not considered to be a threat to this subspecies.

Predation is a natural occurrence in Preble's populations, and would not normally be considered a threat. However, the increasing presence of humans near Preble's habitats may result in an increased level of predation that may threaten Preble's. Striped skunks (*Mephitis mephitis*), raccoons (*Procyon lotor*), red foxes (*Vulpes vulpes*) and domestic and feral cats (*Felis catus*) are found in greater densities in and around areas of human activity. These species feed opportunistically on small mammals. Feral cats and house mice (potential competitors with Preble's) were common in and adjacent to historical capture sites where Preble's were no longer found (Ryon 1996). Preble's populations that are near suburban settings are likely subjected to greater predation.

3.2.7.3 The Inadequacy of Existing Regulatory Mechanisms

According to the Service, Preble's decline may be due in part to the lack of or ineffectiveness of existing laws that potentially could protect Preble's and its habitat across its range. The adequacy of local regulatory mechanisms varies throughout the species range. The broad distribution and abundance of Preble's habitat and population densities in Douglas County likely are attributable, in part, to the County's existing regulatory processes and planning approval criteria. While the listing of the Preble's under the ESA has provided a level of protection that has increased the likelihood of conserving the subspecies, local land use regulations, incentives, and open space conservation programs in Douglas County may be most effective in providing protection to Preble's on private and non-federal public lands.

3.2.7.4 Other Natural or Manmade Factors Affecting its Continued Existence

Pesticide and herbicide use. Pesticides and herbicides are used within the range of Preble's. These chemicals may poison Preble's directly, or be detrimental to the vegetation in its habitat. Overall, an integrated pest management approach (use of biological, chemical and mechanical controls) may help reduce these threats while allowing for the control of exotic species.

Fire. Fire is a natural component of the Colorado Front Range, and Preble's habitat naturally changes with fire events. Overall, fire may be one of the methods needed to maintain riparian, transitional and upland vegetation within Preble's habitat. Over the

past several decades, 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. As with many natural catastrophes, fire can kill mice and alter habitat (Howard et al. 1959). Although there are no records of fire killing Preble's, it is possible that fire may take a limited number of individuals. Fire, particularly catastrophic fires, can alter habitat dramatically and change the structure and composition of the vegetation communities so dramatically that Preble's may no longer persist in a burned area until the habitat recovers. In some instances, components of the soil may be so altered that the habitat may not recover to a degree that supports Preble's. Precipitation falling in a burned area also may alter Preble's habitat by causing greater levels of erosion and sedimentation along drainages. Extensive forest fires in 2002 burned Preble's habitat in the South Platte watershed north of Cheesman Reservoir in Douglas County.

Exotic animals. As exotic animals occupy Preble's habitat these species may displace, prey upon, or compete with Preble's. House cats and bullfrogs (*Rana catesbeiana*) have preyed upon Preble's in Colorado (Shenk and Sivert 1999a), and Preble's is rarely found in areas where house mice (*Mus musculus*) or Norway rats (*Rattus norvegicus*) are common (Ryon 1996).

Water quality. Point sources of pollution such as fuel and chemical waste spills or sanitary/sewer drains, as well as nonpoint sources of pollution such as urban or agricultural runoff, can degrade the water quality of riparian areas. Little is known about the potential effects of water quality on Preble's.

Alteration of vegetation succession. Flooding and fire events may temporarily impact Preble's and remove some riparian habitat. However, normal flooding and fire events help maintain willow communities that are considered to be beneficial to Preble's populations. Increasing the paved surfaces within a watershed can result in increased flood events.

Stochastic demographic, genetic, and environmental effects. Stochastic changes in the demography, genetics and environment can threaten the persistence of wildlife populations (Brussard and Gilpin 1989; Caughley and Gunn 1996). Disruption in gene flow due to reduction and isolation of populations may create unpredictable genetic effects that could impact Preble's in an area. This is a potential threat whose likelihood may increase if populations become smaller and more isolated; however, it is not known to be a threat at this time.

3.2.8 Recovery Objectives

The Service and Preble's Recovery Team have initiated the process of planning for Preble's recovery by drafting a "Draft Preble's Discussion Document." The Draft Preble's Discussion Document has not been reviewed by the scientific community, and the completion schedule for a draft Preble's recovery plan has not been announced. However, the most recent Draft Discussion Document was released to the public in early 2002. The Draft Preble's Discussion Document recommends a large recovery population in the West Plum Creek watershed and a medium population in the Cherry Creek watershed in Douglas County. A large population is estimated to have 2,500 adult Preble's that inhabit at least a 50-mile connected network of streams that provide Preble's

habitat. Medium populations have an estimated 500 to 2,499 Preble's that inhabit at least a 10-mile connected network of streams that provide Preble's habitat. The RCZ includes the stream reaches proposed for recovery populations and encompasses significantly greater Preble's habitat than that recommended for recovery (Figure 1 and Appendix 1). The width of the RCZ mapping is consistent with the discussion draft of the recovery plan that recommends:

“(1) The area mapped provides all the necessary resources for the mice to nest, breed, have cover, travel, feed, and hibernate.

(2) The area mapped includes the three contiguous geomorphological components used by Preble's: alluvial floodplain, transition slopes, and pertinent uplands.”

3.2.9 Critical Habitat

Critical habitat for Preble's has been designated (68 Fed. Reg. 37276 (June 23, 2003)). The critical habitat in Douglas County occurs on federal lands in the Upper South Platte Unit (SP 13). This includes a section of the South Platte River upstream of Chatfield Reservoir within the Chatfield State Recreation Area, and portions of drainages on federal lands within the Pike-San Isabel National Forest (portions of the South Platte River, Bear Creek, West Bear Creek, Sugar Creek, Trout Creek, Eagle Creek, Long Hollow, Fern Creek, Illinois Gulch, and Missouri Gulch). The DCHCP addresses only non-federal lands in Douglas County and thus does not include the above areas designated as critical habitat for Preble's (68 Fed. Reg. 37309 (June 23, 2003)).

3.2.10 Other Designations

The Service approved a “block clearance” for Preble's within a designated portion of the Denver metro area in July 2000 (Service 2000). The block clearance eliminates the need for individuals or agencies to coordinate with the Service prior to conducting activities in habitats that otherwise would be deemed to have potential to support Preble's. The establishment of the block clearance zone was based on the likely absence of Preble's within the area. A portion of northwestern Douglas County in the Highlands Ranch area is included in the block clearance area. The RCZ does not occur within the block clearance area. The DCHCP will cover activities in the Douglas County portion of the block clearance zone, or any revisions or elimination thereof.

3.3 Wetlands, Riparian Areas, Flood Plains, Aquatic Resources, and Water Resources

The RCZ encompasses much of the flood plain, riparian, wetland, and aquatic resources in Douglas County. The RCZ typically includes the active channel, all of the 100-year flood plain, plus some component of adjacent uplands. Similarly, most of the wetlands in Douglas County are associated with rivers, streams, and reservoirs, and the RCZ includes many of the wetlands in Douglas County. Because all of these resources are associated with streams and occur within the RCZ, they are discussed together.

3.3.1 Wetlands

3.3.1.1 Introduction

The U.S. Army Corps of Engineers (Corps) defines wetlands as “those areas that are inundated or saturated with ground or surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas” (33 CFR 328). Wetlands are an important natural system because of the diverse biological and hydrologic functions provided.

3.3.1.2 Wetlands Regulations

The Corps regulates the discharge of dredged and fill material into “waters of the United States” under section 404 of the Clean Water Act (CWA). The term “waters of the United States” has broad meaning under the CWA and incorporates deep water aquatic habitats and special aquatic habitats (including wetlands).

Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredged or fill materials into the waters of the United States, including wetlands. Section 401 of the CWA gives the state water board and regional boards the authority to regulate, through water quality certification, any proposed, federally permitted activity that may result in a discharge to water bodies, including wetlands. The state may issue certification, with or without conditions, or deny certification for activities that may result in a discharge to water bodies. Many of the covered activities (e.g., bridge crossings) potentially will involve the discharge of dredged or fill material into waters of the U.S., including wetlands, and will need to obtain authorizations from the Corps and certification from the state as appropriate for the specific covered activity. Some covered activities likely will involve the discharge of fill material in wetlands and waters and require authorization from the Corps.

3.3.1.3 Function of Wetlands

The functions performed by wetlands are the result of interactions among the geology, climate, soils, water, and vegetative characteristics within the watersheds. In Douglas County, wetlands provide potential habitat for plant and animal species federally listed as threatened. In addition, wetlands provide essential nesting, migratory, and wintering areas for a majority of the nation’s migratory bird species. Specifically, wetland functions include, but are not limited to, the following:

- Dissipating stream energy associated with high water flows, thereby reducing erosion and improving water quality
- Filtering sediment, capturing bedload, and aiding in flood plain development
- Improving floodwater retention and groundwater recharge
- Developing root masses that stabilize streambanks against erosive actions
- Developing diverse ponding and channel characteristics to provide habitat and water depth, duration, and temperature necessary for fish production and waterfowl breeding

- Fertilizing flood plains
- Providing fish and wildlife habitat, thereby enhancing biological diversity and abundance (Colorado State Parks, Natural Areas Program 1996)

Wetlands associated with the RCZ are generally riparian, marsh, and wet meadows. These systems are fed by surface water from streams, water that percolates from flood plains of streams, and adjacent ponds. These wetlands are subject to periodic flooding, erosion, and sedimentation due to their proximity to the streams.

3.3.2 Flood Plain Resources and the Riparian Conservation Zone

3.3.2.1 Introduction

Executive Order 11988, which addresses flood plain management, requires federal agencies to provide leadership and take action to reduce the risk of flood loss, to minimize the impacts of floods on human safety, health, and welfare; and to restore and preserve the natural and beneficial values served by flood plains in carrying out their responsibilities.

A flood plain is defined by the state of Colorado as “the area of land susceptible to being inundated as a result of the occurrence of a flood, including the area of land over which flood water would flow from the spillway of a reservoir” (2 CCR 408-1). Flood plains are often fertile areas where sediment high in nutrients has been deposited during flood events, and as the flood waters recede—these sediments and nutrients form new soils.

3.3.2.2 Physical Characteristics of Colorado Front Range Flood Plains

Holocene alluvium is found in the valleys and flood plains of principle streams flowing through the Denver Basin geologic region. Composed of gravel, sand, silt, and clay, these are the youngest alluvial deposits in the region and include Piney Creek and Post-Piney Creek Alluvium. Piney Creek and Broadway Alluviums are the most common geologic units along rivers and creeks and their tributaries in Douglas County. Broadway Alluvium is as thick as 100 feet and contains gravel- to boulder-sized particles. Piney Creek Alluvium contains sand, gravel, cobbles, silt, and clay, and can be as much as 90-feet thick.

Erosion, compaction, and pollution are major environmental factors that influence the ability of a flood plain to retain water. Compaction of soils or paving over soils inhibits the competency of soils to absorb and contain water, and can increase the magnitude of floods and cause a destructive cycle of flooding, streambed aggradation, and streambank erosion. Reduction in the ability of soil to retain water due to compaction reduces water storage potential and accessibility for sustaining vegetation, thereby further reducing productivity in the flood plain. Because soil development is dependent upon soil biota, pollution can reduce soil viability and chemical structure, thus the ability to support plant life. Altering the flood plain with structures or raising the flood plain elevation with fill can reduce the capacity of the flood plain to convey and attenuate flood waters.

3.3.2.3 Flood Plain Values

Flood plains provide many valuable services to the communities in which they are located, some of which have obvious economic values, and others which have aesthetic values. Flood plains provide natural flood and erosion control by: 1) providing areas where floodwaters are stored; 2) reducing flood velocities, providing more time for people to react to floods; 3) reducing peak flood levels in creek channels; and 4) reducing sedimentation of creek channels during flood events. Flood plains help maintain water quality by filtering nutrients and impurities from surface water runoff bound for a creek, processing organic wastes, and helping to moderate temperature fluctuations. Flood plains also assist in recharging groundwater through infiltration and recharge of aquifers, and by slowly releasing water to reduce infrequency and duration of low surface flows. In addition to helping maintain water quality, flood plains also provide valuable functions for biological resources. They provide breeding and feeding habitat for many species, and help protect habitat for rare and endangered species (WDNR 1999).

3.3.2.4 Flood Plain Regulation and Management

The Federal Emergency Management Agency (FEMA) is an independent agency of the federal government that administers the National Flood Insurance Program (NFIP), which provides federally backed flood insurance to communities that agree to adopt and enforce flood plain management ordinances to reduce future flood damage (FEMA 2001). Douglas County and the Towns participate in this program. As part of this program, the FEMA Mitigation Directorate, Flood Hazard Mapping Technical Services Division maintains and updates NFIP maps, also known as a Flood Insurance Rate Map (FIRM). Douglas County and the Towns have adopted and enforce regulations that restrict activities in the 100-year flood plain and protect the function of the flood plain. Douglas County has implemented new requirements for minimizing impacts to streams and the flood plain through its Grading, Erosion, and Sedimentation Control (GES) Criteria Manual (Douglas County 2004).

3.3.2.5 County-Specific Flood Plain Characteristics and Past Major Flood Events

Douglas County is located within a geographic area prone to receiving intense rainfall, resulting in periodic, major flooding of streams and drainageways, primarily Plum Creek, Cherry Creek, and the South Platte River with the exception of the South Platte River, which flows from Cheesman Reservoir in southwestern Douglas County. These flood events have helped shape the RCZ. The majority of the drainage area in Douglas County is upstream of major reservoirs created by flood-control dams.

3.3.2.5.1 Cherry Creek

In recent history, flooding has occurred in the Cherry Creek drainage during July 1912, July 1922, August 1933, August 1945, and June 1965 (Douglas County 1976). The discharge of the floods ranged from 17,000 cubic feet per second (cfs) in 1922 to 50,000 cfs in 1965. The 1933 flood on Cherry Creek was estimated to have an inflow of 35,000 cfs at the then-existing Castlewood Dam and Reservoir. Water overtopped the crest of the dam and the structure failed, resulting in a sudden release of water that caused a flood wave to move down the valley. The peak discharge of the flood was from the failed

dams and is estimated to have ranged from about 126,000 cfs downstream of the dam to 16,500 cfs near the confluence with the South Platte River. Damages were estimated at \$1,000,000, and loss of the dam cut off water supplies to nearly 3,000 acres of farmland, causing a severe recession that forced many families to leave the area. The 1965 flood, the last major flood in Cherry Creek, had an estimated peak flow of 58,000 cfs at the Cherry Creek Dam, which impounded a flood on the night of June 16. Most of the bridges across Cherry Creek were either damaged or destroyed, and one life was lost during this flood (Douglas County 1976).

3.3.2.5.2 Plum Creek

In June 1965, a high-intensity rain event occurred over this watershed, causing a massive flood event that severely damaged and washed out road embankments and bridges on county, state, and interstate highways. Seven homes, a church, the grange hall, and the lower part of main street in Sedalia, located at the southern end of the Plum Creek watershed, were washed away. Five bridges, many culverts, and about 4 miles of Denver and Rio Grande Western Railroad track were damaged (Douglas County 2001a). Subsequent to this flood event, the channel of the main stem of Plum Creek has adjusted both laterally and vertically to reform a stable channel alignment and grade. Over the past 35 years, this movement and associated aggradation and degradation, has affected the 100-year flood plain elevations and area of inundation (Douglas County 2001a).

3.3.2.5.3 South Platte River

Flooding of the South Platte River in Douglas County is attenuated by Cheesman Reservoir in the southwestern portion of the County, and Chatfield Reservoir in the northwestern portion of the County. Significant flooding has occurred on the South Platte River in 1921, 1933, 1942, 1949, 1957, 1965, and 1973. The 1921 flood had a volume of 200,000 acre-feet and a peak discharge of 8,790 cfs in Denver. Rural damages were quite high in the 1933 flood, which originated from intense rains on Plum Creek and Big and Little Dry Creeks. In 1942, flooding on the South Platte River caused damage to several bridges, breached agricultural levees, and flooded croplands. The 1949 and 1957 floods also resulted in extensive damage to rural communities. The 1965 flood, which had a peak discharge at 110,000 cfs in Littleton, caused \$300 million in damages in the Denver metropolitan area alone. The 1973 flood had a peak of 33,000 cfs at Henderson, and caused extensive agricultural damage due to erosion and sedimentation (Wright Water Engineers 1985).

3.3.2.6 Riparian Conservation Zone and Flooding

The flood events described above have affected the RCZ. All three of Douglas County's major drainages had substantial floods in 1965. In addition to damaging and removing structures from the flood plain, the 1965 flood removed most of the woody riparian vegetation from the flood plain, scoured topsoil, deposited cobble and sands on new locations, and shifted channel alignments. Most of the high quality riparian habitat that supports Preble's along Cherry Creek, West Plum Creek, and Plum Creek has developed as a response to and subsequent to the 1965 flood. These periodic floods and their associated riparian dynamics are anticipated to occur in the future.

3.3.2.7 Dynamic Processes that Affect the RCZ

The dynamic geomorphological and hydrological processes typical of systems within the range of Preble's that promote patterns of vegetation favorable to the Preble's are components of the primary constituent elements for Preble's habitat (68 Fed. Reg. 37301 (June 23, 2003)). Most western riparian systems, including those in which Preble's is found, experience periodic disturbance (Gordon et al. 1992) causing the structure and composition of the plant communities within riparian systems to change over time. Such changes can be caused by regular flooding events, plant succession, native and nonnative herbivory (grazing or browsing), water table fluctuations, fire, and other natural and human-driven impacts (Gordon et al. 1992; Busch and Scott 1995; Pague and Grunau 2000).

Flooding is a common and natural event in the riparian systems along the Front Range of Colorado, with major flooding events occurring at least once every 5 to 20 years (Follansbee and Sawyer 1948; U.S. Army Corp of Engineers 1984). In Colorado, some of the most severe and most frequent flooding events occur within the South Platte and Arkansas river drainages along the Front Range (Follansbee and Sawyer 1948). This periodic flooding helps to create a dense vegetative community by stimulating resprouting from willow shrubs and allows vegetation to take advantage of newly deposited soil (Gregory et al. 1991; 68 Fed. Reg. 37278 (June 23, 2003)). The effects from periodic naturally occurring disturbances such as flooding, drought, succession, changes in channel morphology, beaver activity, or fire events are reflected in and considered part of the naturally functioning riparian system in Douglas County. Changes are expected to occur within reaches of the RCZ as vegetation matures, or flooding creates new substrates for colonization by riparian vegetation, or through the successional process involving the creation and/or abandonment of beaver ponds. The landscape-based RCZ includes all the habitat components influenced by these dynamics.

The extensive protected lands that include the RCZ, linkage of the RCZ with the Pike National Forest, and lack of large reservoirs that attenuate flooding and sediment inputs into the RCZ will promote continuation of the dynamic processes that influence Preble's habitat within the County.

3.3.3 Water Resources

Douglas County creeks and streams are typical of those flowing from the Rocky Mountains onto the Colorado Piedmont. Channels are typically narrow, rocky with boulders and meandering characteristics near the mountains, with decreasing particle sizes and braided characteristics becoming more prevalent as water flows onto the Piedmont. Thus, the RCZ is more developed, diverse, and wider at lower elevations (e.g., Plum Creek and lower Cherry Creek) than along higher montane tributary streams. Stream gradients are higher in the mountainous regions than on the Piedmont. Water in Douglas County flows generally south to north; the Cherry Creek, Plum Creek, and South Platte River basins are the major drainageways.

The primary aquifers in the Denver Basin are from shallowest to deepest: Dawson aquifer, Denver aquifer, Arapahoe aquifer, Laramie-Fox Hills aquifer. These aquifers are confined by Pierre Shale, which is a silty, dense shale, with interbedded fine-grained and

very fine-grained sandstone (Robson et al. 1998). All of the aquifers in the Denver Basin system occur under Douglas County and contain recoverable water (Douglas County 2001b).

In Douglas County, aquifer recharge mainly occurs where the aquifer is in contact with a surface stream. The Dawson aquifer receives the most recharge and supplies the most discharge to streams in the county (Douglas County 2001b). The Dawson Formation is a loose alluvium that forms flood plains and soils when eroded. It is an arkosic sandstone, siltstone, and claystone with minor conglomerate (Robson et al. 1998). The Dawson aquifer meets EPA and Colorado Department of Health and Environment (CDPHE) drinking water standards (Douglas County 2001b).

3.3.3.1 Watersheds Supporting the RCZ

The three major watersheds supporting habitat for Preble's in Douglas County are Plum Creek, Cherry Creek, and the South Platte River downstream of Cheesman Reservoir (Figure 1). The following is a description of each of these watersheds.

3.3.3.1.1 Plum Creek Watershed

The Plum Creek watershed is composed of Plum Creek, its two main tributaries (East and West Plum Creeks), and numerous smaller perennial and intermittent tributary drainages. Plum Creek flows into the South Platte River at Chatfield Reservoir. West Plum Creek supports a broad, well-developed riparian corridor that is in relatively good condition (Pague et al. 1995). The creek generally is shallow and braided over fine-grained sand substrates. West Plum Creek basin drains about 302 square miles above Sedalia, where discharge averages about 33.5 cfs (Bestgen and Culver 1985). West Plum Creek is a transitional stream that flows south to north, forming a divide between the foothills to the west and the plains to the east. Its western tributaries link West Plum Creek to montane environments and, in some instances, the Pike National Forest. The eastern tributaries add plains influences to West Plum Creek. The combination of montane, foothills, and plains influences, favorable historical land management practices, and a relatively natural hydrologic regime help to form and maintain a large intact riparian area that supports a high biological diversity.

The CNHP designated West Plum Creek as a conservation "macrosite" and considers it to be perhaps the best remaining transition zone stream system in Colorado (Pague et al. 1995). West Plum Creek contains a number of rare or imperiled species, demonstrating that this macrosite represents a significant proportion of Douglas County's biological diversity. The aquatic habitats support six species of rare or imperiled fish, the locally common northern leopard frog, and the pond dwelling sedge darter dragonfly. The fact that these species are found in few other places in Colorado is itself significant. That they occur in West Plum Creek together is testament to the maintained natural hydrologic integrity of this drainage. Other rare and imperiled species also are associated with West Plum Creek including the great blue heron, black-crowned night heron, cedar waxwing, and American currant (Pague et al. 1995).

High quality habitat for Preble's occurs throughout the drainage. The riparian habitats are relatively unfragmented for the length of the macrosite, and the riparian vegetation is the highest quality of any in Douglas County. East Plum Creek is a

perennial stream with headwaters in the Rampart Range, but with fewer western tributaries than West Plum Creek. The eastern headwaters of East Plum Creek near True Mountain originate from springs that form out of the prairie. The stream channel is typically shallow and braided, flowing over fine-grained substrates of sand. Riparian vegetation is dominated by plains cottonwoods (*Populus deltoides*) and various willow species (*Salix* spp.) with graminoid understories. Grasses and sedges sometimes form dense stands along the stream. For much of its length, the mainstem of East Plum Creek is bounded by Interstate 25 on the one side and the railroad tracks on the other. Typically the East Plum Creek riparian corridor is not as broad and continuous as West Plum Creek's riparian corridor.

From its headwaters near Greenland to about 3 miles south of Castle Rock, East Plum Creek also was designated a conservation macrosite by CNHP. In addition to Preble's, East Plum Creek provides habitat for the following species of concern: Iowa darter, common shiner, and northern leopard frog (Pague et al. 1995).

The mainstem of Plum Creek (formed by the confluence of East and West Plum Creeks) near Sedalia is similar to West Plum Creek and was included as part of the West Plum Creek conservation macrosite by CNHP. Few surveys for Preble's have been conducted in riparian habitats along the mainstem; however, Preble's is known to occur on the mainstem below the confluence of East and West Plum Creeks, where Plum Creek flows into Chatfield Reservoir, and in two western tributaries—Indian Creek and Lehigh Gulch.

The Plum Creek watershed is transitional between the montane and plains environments. The numerous tributaries, particularly for West Plum Creek, contribute to the mix of montane, foothills, and plains biota and are an integral part of the overall habitat that contributes to the high biological diversity of the watershed. Four western tributaries to West Plum Creek—Garber, Jackson, Spring, and Bear Creeks—were considered by CNHP as part of the West Plum Creek conservation macrosite. Nineteen perennial and major intermittent tributaries are included in the RCZ mapping for the Plum Creek watershed (Figure 1). The Plum Creek watershed includes 136 stream miles and over 8,700 acres mapped as RCZ (Appendix 1).

3.3.3.1.2 Cherry Creek Watershed

The Cherry Creek watershed in Douglas County includes numerous tributaries such as Newlin Gulch, East Cherry Creek, West Cherry Creek, Lake Gulch, Antelope Creek, Willow Creek, and Haskell Creek. Cherry Creek flows into the South Platte River in downtown Denver. The southern tributaries of Cherry Creek have their headwaters in southeastern Douglas County and northern El Paso County where they form from natural springs and runoff from the Black Forest area. Cherry Creek and its tributaries are generally shallow and underlain by sandy alluvial material, and are typically bordered by a series of low flood plain terraces. Riparian vegetation typically consists of plains cottonwood and various willow species with graminoid understories. Weedy species such as reed canarygrass (*Phalaris arundinacea*) and leafy spurge (*Euphorbia esula*) are common along Cherry Creek. The Cherry Creek watershed is located east of the Plum Creek watershed, and thus is more influenced by the plains than by the foothills and montane regions to the west.

From Franktown north (downstream), the flood plain surrounding the mainstem of Cherry Creek has been significantly altered by human activities including residential and commercial development, grazing, farming, and recreational trails. CNHP has identified several Natural Heritage Conservation Sites on Cherry Creek, including Parker Regional Park on the mainstem of the creek (Pague et al. 1995). Rare and imperiled species that are associated with this reach of Cherry Creek include, in addition to Preble's, the eastern yellow-billed cuckoo, cedar waxwing, and indigo bunting (Pague et al. 1995).

Cherry Creek south (upstream) of Franktown and its tributaries, West Cherry Creek, East Cherry Creek, and Lake Gulch, typically have a narrower corridor of riparian trees and shrubs along the creek and a narrower flood plain than the northern reaches of Cherry Creek. Extensive herbaceous wetland complexes are more common on these tributaries, however, than along reaches of Cherry Creek farther north. Woody riparian vegetation typically includes plains cottonwood and various willows with an understory of graminoids. Much of the flood plain is often used for hay production or grazing. CNHP has identified several Natural Heritage Conservation Sites in the upper Cherry Creek watershed, including Cherry Creek Canyon upstream of Castlewood Canyon State Park (Pague et al. 1995). Three plant species considered rare or imperiled in Colorado occur at the Cherry Creek Canyon site, including Richardson alum root (*Heuchera richardsonii*), American currant (*Ribes americana*), and woodsia fern (*Woodsia americana*) (Pague et al. 1995). The northern leopard frog (*Rana pipiens*), another species uncommon in Colorado, also occurs along the southern reaches of Cherry Creek and its tributaries.

Preble's is known to occur in riparian habitat along Cherry Creek and its tributaries from near the Arapahoe County line to near the El Paso County line (Figure 2). Preble's surveys have not been as extensive in the Cherry Creek watershed as in the Plum Creek watershed. In general, the woody riparian habitat in the Cherry Creek watershed is not as high in quality as woody riparian habitats in the Plum Creek watershed. The Cherry Creek watershed includes about 118 stream miles and 8,900 acres mapped as RCZ (Appendix 1)

3.3.3.1.3 South Platte River Watershed

The South Platte River watershed includes all of Douglas County. Plum Creek and Cherry Creek are the major tributaries to the South Platte River within the County. The South Platte River flows from southwest to northeast along the border between Douglas and Jefferson Counties. This section addresses the reach of the South Platte River and its tributaries from Cheesman Reservoir to Chatfield Reservoir that are within Douglas County exclusive of the Plum Creek and Cherry Creek watersheds (previously described).

For most of its length in Douglas County, the South Platte River flows through relatively narrow canyons in rocky, mountainous terrain. The presence of roads paralleling the river and many of the major tributaries further limits the width of the riparian corridor. The exception to this is a short reach north of Deckers where the river widens to occupy a wider valley. The vegetation along this portion of the South Platte River consists of species characteristic of streams in the lower montane region including narrow-leaf cottonwood, alder, river birch, blue spruce, and various willows.

Below Waterton Canyon, the South Platte River leaves the montane region and enters the foothills and plains regions. At the mouth of Waterton Canyon, the flood plain becomes broader and is dominated by a wide variety of vegetation such as plains cottonwood, narrow-leaf cottonwood, box elder, New Mexico locust, Russian olive, and various willows with an understory of graminoids.

Most of the tributaries that flow west into the South Platte River from Douglas County are located in the Pike National Forest. Drainages on federally owned lands within the Pike National Forest and Chatfield State Recreation Area are not included in the RCZ mapping. Portions of Bear, Pine, Sugar, and Trout Creeks flow through the Pike National Forest but also flow through privately owned lands. The RCZ is mapped on reaches of these streams along privately owned lands. Bear, Pine, Sugar, West, and Trout Creeks have woody riparian vegetation characteristic of lower montane streams. Willow and Little Willow Creeks, tributaries to the South Platte River, originate in the montane zone within the Pike National Forest and flow north through the foothills in Roxborough State Park and then out to the plains before merging with the South Platte River at Chatfield State Park. Willow and Little Willow Creeks are located mostly on lands outside the Pike National Forest.

Preble's are known to occur along the South Platte River near Trumbull and at Chatfield State Park. Tributaries of the South Platte River in Douglas County where Preble's has been found include Willow Creek, Little Willow Creek, Trout Creek, and Bear Creek (Figure 2).

The South Platte River watershed from Cheesman Reservoir to Chatfield Reservoir includes about 25 stream miles and over 900 acres mapped as RCZ (Appendix 1).

3.3.4 Fisheries and Aquatic Resources

Many streams, lakes, and reservoirs of Douglas County provide habitat for various species of fish. Although there are many introduced species, several native species thrive in habitats provided by these waters. The following section identifies the fisheries present, as well as general habitat requirements for identified fish species most likely to occur within the RCZ.

Native Colorado fishes with the potential to occur in the ponds, lakes, reservoirs, streams, and rivers of Douglas County include: western longnose sucker (*Catostomus catostomus*), western white sucker (*Catostomus commersoni*), plains-mountain sucker (*Catostomus platyrhynchus*), northern redbelly dace (*Phoxinus eos*), northern creek chub (*Semotilus atromaculatus*), lake chub (*Couesius plumbeus*), longnose dace (*Rhinichthys cataractae*), suckermouth minnow (*Phenacobius mirabilis*), northern common shiner (*Luxilus cornutus*), western bigmouth shiner (*Notropis dorsalis*), plains red shiner (*Cyprinella lutrensis*), northern plains minnow (*Hybognathus placitus*), plains stoneroller (*Campostoma anomalum*), central plains killifish (*Fundulus kansae*), plains topminnow (*Fundulus sciadicus*), and the central Johnny darter. Of these native fishes, the western longnose sucker, western white sucker, and lake chub occur in cool lakes and streams, while the central Johnny darter occurs in lakes and streams with gravelly or rocky bottoms. The remainder of these native fishes occurs mostly in streams. The northern redbelly dace and suckermouth minnow prefer streams with gravelly bottoms, especially

with rapid flows in the case of the dace. The suckermouth minnow may also inhabit streams with sandy bottoms. The longnose dace and northern common shiner prefer streams that have adequate gravel riffles, especially clear streams in the case of the shiner. Plains stoneroller prefers streams with adequate, deep pools, while the plains topminnow is found in streams with muddy bottoms (Beckman 1953). The longnose dace is found in the warm waters of Cherry Creek in Castlewood Canyon State Park (Douglas County 2001b). Channel catfish, black bullhead, fathead minnow, and sunfish also are native to Colorado (Beckman 1953) and occur in streams and ponds within the RCZ.

Nonnative species with the potential to occur in the surface waters of Douglas County include carp (*Cyprinus carpio*), pumpkinseed (*Lepomis gibbosus*), yellow perch (*Perca flavescens*), and the Iowa darter (*Etheostoma exile*), an uncommon species. Of these species, yellow perch and carp prefer moderately warm water that is not too deep and has dense aquatic vegetation. Pumpkinseed prefer lakes but are readily adaptable to streams and ponds, thriving in clear, clean waters having sand and gravel bottoms and abundant vegetation. Yellow perch habitat includes the warm waters of streams, rivers, lakes, and ponds, in both deep and shallow areas. Although uncommon, the Iowa darter prefers colder streams and lakes with sandy bottoms (Beckman 1953).

3.4 Threatened, Endangered, and Other Species of Concern

The mapped RCZ provides potential habitat for species of concern other than Preble's. Two plant species listed as threatened under the ESA—Ute ladies'-tresses orchid and Colorado butterfly plant—have the potential to occur within riparian habitats of Douglas County. The RCZ also provides habitat for birds, amphibians, fish, invertebrates, and plants that are not listed under ESA but that have been identified as species of concern by the CDOW or the CNHP.

3.4.1 Listed Plant Species

As mentioned above, two plant species listed as threatened under the ESA—Ute ladies'-tresses orchid and Colorado butterfly plant—have the potential to occur within riparian habitats of Douglas County. Neither of these species is known to occur in Douglas County; however, preservation of the RCZ will benefit these species to the extent these species occur within the mapped RCZ.

3.4.1.1 Ute Ladies'-Tresses Orchid

Ute ladies'-tresses orchid was federally listed as threatened on January 17, 1992 (57 Fed. Reg. 2048 (January 17, 1992)). This white-flowered orchid occurs at elevations below 6,800 feet in sub-irrigated alluvial soils along streams and in open meadows in flood plains (Spackman et al. 1997). Generally, the vegetative cover is relatively open; dense, overgrown sites are not conducive to the orchid's establishment. Ute ladies'-tresses orchid occurs in areas that are saturated to within 18 inches of the surface for at least part of the growing season. Once thought to be fairly common in low elevation riparian areas in Colorado, Utah, and Nevada, currently only sixteen populations are

reported to occur in Colorado. The primary threats to this species are loss or modification of habitat (57 Fed. Reg. 2051 (January 17, 1992)).

The Ute ladies'-tresses orchid has not been found in Douglas County. There is an 1896 historical record from Camp Harding in El Paso County. The nearest existing populations of the orchid occur along Clear Creek in Jefferson County (Id.).

3.4.1.2 Colorado Butterfly Plant

The Colorado butterfly plant is a short-lived perennial herb found in moist areas of flood plains within a small area in southeastern Wyoming, western Nebraska, and north-central Colorado. It occurs on subirrigated, alluvial soils on level or slightly sloping flood plains and drainage bottoms at elevations ranging from 5,000 to 6,000 feet, and is typically found in low depressions or along upper bends of meandering stream. These areas are usually intermediate in moisture between wet, streamside communities dominated by sedges, rushes, and cattails, and dry upland shortgrass prairie. On October 18, 2000, the Colorado butterfly plant was federally listed as threatened because of disturbance to riparian areas from agricultural conversion, water diversions, channelization, urban development, and indiscriminate spraying of herbicides (65 Fed. Reg. 62302 (October 18, 2000)). The designation of critical habitat for the Colorado butterfly plant has been proposed (69 Fed. Reg. 47834 (August 6, 2004)). The designation of critical habitat was not proposed for Douglas County.

Currently, the Colorado butterfly plant is not found in Douglas County, although there is a 1942 historical record of the species in Douglas County (Natural Diversity Data Source 2002). The nearest known existing population occurs in Weld County (Id.).

3.4.1.3 Conservation of Listed Plant Species Habitat

Although there are no known existing populations of the Ute ladies'-tresses orchid or Colorado butterfly plant in Douglas County, the Service currently requires that impacts to potential habitats for these species in Douglas County be addressed including, in some instances, surveys for these species (Service 1992). Based on Service requirements (Service 1992), surveys for the Ute ladies'-tresses orchid are required in potential habitat along perennial tributaries to the South Platte River below 6,500 feet in elevation. Potential habitat includes wet to moist areas with a seasonally high water table near streams.

3.4.2 Other Species of Concern

Several rare or imperiled species identified by the CNHP that are not listed under ESA are known to occur in Douglas County within portions of the mapped RCZ (see Table 3-1). The habitat preservation efforts associated with the DCHCP for Preble's also will benefit these species of concern and will aid in reducing the potential for any future listing of these species under ESA.

Table 3-1. Other Species of Concern Known to Occur Within the Mapped RCZ in Douglas County.

Common Name	Scientific Name	Global Rank [†]	State Rank [‡]	State Status [*]
Amphibians				
Northern leopard frog	<i>Rana pipiens</i>	G5	S3	SC
Birds				
Ovenbird	<i>Seiurus aurocapillus</i>	G5	S2	
Eastern yellow-billed cuckoo	<i>Coccyzus americanus americanus</i>	G5	S3	
Cedar waxwing	<i>Bombycilla cedrorum</i>	G5	S3	
Indigo bunting	<i>Passerina cyanea</i>	G5	S3	
Mammals				
Northern pocket gopher	<i>Thomomys talpoides macrotis</i>	G5	S2	
Fish				
Plains topminnow	<i>Fundulus sciadicus</i>	G4	S2	SC
Northern red-bellied dace	<i>Phoxinus eos</i>	G5	S1	SC
Iowa darter	<i>Etheostoma exile</i>	G5	S2	SC
Common shiner	<i>Notropis cornutus</i>	G5	S2	SC
Johnny darter	<i>Etheostoma nigrum</i>	G5	S3	SC
Dragonflies and Damselflies				
Sedge darner	<i>Aeshna juncea</i>	G5	S3	
Plants				
American currant	<i>Ribes americanum</i>	G5	S1	
Woodsia fern	<i>Woodsia neomexicana</i>	G4	S2	

Source: Adapted from Pague et al. 1995.

[†]Definitions of Natural Heritage Global Imperilment ranks:

G4 = Apparently secure globally, though it might be quite rare in parts of its range, especially at the periphery.

G5 = Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.

[‡]Definition of Natural Heritage State Rarity Ranks:

S1 = Critically imperiled in state because of extreme rarity (5 or fewer occurrences, or very few remaining individuals), or because of some factor of its biology making it especially vulnerable to extirpation from the state.

S2 = Imperiled in state because of rarity (6 to 20 occurrences), or because of other factors demonstrably making it very vulnerable to extirpation from the state.

S3 = Rare in state (21 to 100 occurrences).

^{*}State Status:

SC = Special Concern.

3.5 Cultural Resources

3.5.1 Regulatory Requirements

Several laws and regulations require federal agencies to consider the effects of a proposed project on cultural resources. These laws and regulations set forth a process for compliance, define the responsibilities of the party proposing the action, and prescribe the relationship among other agencies such as the Colorado State Historic Preservation Office (CO SHPO) and the Advisory Council on Historic Preservation (ACHP).

The National Historic Preservation Act of 1966, as amended through 1992 (NHPA) (16 USC 470–470w) is the centerpiece of federal legislation protecting cultural resources. In NHPA, Congress states that the federal government will “provide leadership in the preservation of the prehistoric and historic resources of the United States,” including resources that are federally owned, administered, or controlled. Section 106 of NHPA is most relevant to the HCP.

Section 106 of NHPA requires the federal government to take into account the effects of its actions or programs on historic and archaeological properties prior to implementation. This requirement applies to all proposed actions on federal lands and any proposed activities that are federally supported or permitted. Consultation with the SHPO and/or the ACHP is a critical step in this process. Activities on lands held by a tribe with a designated Tribal Historic Preservation Officer (THPO) must be coordinated with this official.

The section 106 process is designed to identify possible conflicts between historic preservation objectives and the proposed activity, and to resolve those conflicts in the public interest through consultation. Neither NHPA nor ACHP regulations require that all historic properties be preserved, only that the agency consider the effects of any proposed undertaking prior to implementation.

The process for compliance with section 106 consists of the following steps:

1. Identification of Cultural Resources – Ensure that identification of cultural resources located within an Area of Potential Effect (APE) is accomplished through review of existing documentation, field surveys, and interviews. For the purposes of the DCHCP, the APE is defined as the portion of the RCZ disturbed by the covered activity.
2. Property Evaluation – Evaluation of the identified cultural resources using National Register of Historic Places (NRHP) criteria (36 CFR Part 63) in consultation with the CO SHPO and, if necessary, the ACHP. Properties that meet the criteria will be considered “eligible” for listing in the NRHP and will be subject to further review under section 106. Properties that do not meet the criteria will be considered “not eligible” for listing in the NRHP and will not be subject to further section 106 review. For purposes of NHPA, cultural resources that have been listed in the NRHP or have been determined eligible for listing in the NRHP are designated “historic properties.” Historic properties can therefore include archaeological sites in addition to historic-period buildings.

3. Determination of Effect – Assess the effects of the proposed project on properties that were determined to meet NRHP criteria, in consultation with the CO SHPO and, if necessary, the ACHP. One of the following effect findings will be made:
 - No Historic Properties Affected – If no historic properties are found or no effects on historic properties are determined, appropriate documentation must be provided to the SHPO/THPO and consulting parties notified for their concurrence.
 - No Adverse Effect – When the criteria of adverse effect are applied (36 CFR 800.5(a)), and it is determined that historic properties will not be adversely affected by the undertaking, the agency may make a finding of “no adverse effect.” This finding is submitted to the CO SHPO for concurrence.

3.5.2 Definition of Cultural Resources

The NHPA defines a historic (cultural) resource (also known as a historic property) as “any prehistoric or historic district, site, building, or object included in, or eligible for inclusion in the National Register (of Historic Places).” This includes “artifacts, records, and remains which are related to such a district, site, building, structure, or object.” All resources that meet the specific criteria for inclusion in the NRHP, whether they are formally listed or not, fall under this classification. Only those resources that meet the NHPA criteria are protected under the act.

3.5.3 Definition of Effects

According to 36 CFR 800.15(i), an effect is any “alteration to the characteristics of a historic property qualifying it for inclusion in, or eligibility for, the National Register of Historic Places.” This applies to archaeology, historic, and ethnographic resources. Adverse effects can include:

- Physically altering, damaging, or destroying all or part of the resource
- Altering characteristics of the surrounding environment that contribute to the resource’s significance
- Introducing visual or audible elements that are out of character with the property or alter its setting
- Neglecting the resource to the extent that it deteriorates or is destroyed

3.5.4 Methods

A file search was conducted at the Colorado Historical Society Office of Archaeology and Historic Preservation (CHS OAHP) on behalf of the Applicants. The project area includes 105 different covered activity locations that include road construction and improvements, trail construction and stormwater improvements. The purpose of the file and literature search was to compile information on whether any cultural resource sites that are listed in the National Register of Historic Places (NRHP), potentially eligible for

listing in the NRHP, or which require additional data prior to a NRHP eligibility determination, are located within the project areas potentially affected by covered activities (Appendix 3, Tables 3-A through 3-G).

The file and literature search resulted in the identification of 18 previous cultural resource inventory surveys conducted in the area (Table 3-2 and Table 3-3), which documented two cultural resource properties within the areas of covered activities. Site 5DA575 is a prehistoric lithic scatter located within proposed trail construction project CC21. The site has been determined to be officially not eligible for listing in the NRHP (Eddy and Jurgens 1981). Louviers Village (5DA1391) is listed in the National Register. Ten structures are contributing elements to Louviers Village. Road improvements are proposed along Main Street; however, the actual street is not a contributing element to the property.

3.5.5 Summary of Known Cultural Resources in Areas of Covered Activities

Public and private organizations have conducted numerous surveys in Douglas County. In the process of inventorying the historic properties of Douglas County and the Front Range, researchers cataloged over 16,000 sites, some eligible for the NRHP, others ineligible, and still others in need of more data before a decision on eligibility can be made.

Eighteen previous cultural resource inventories have been conducted within portions of fourteen proposed areas of covered activities (Table 3-2 and Table 3-3). The previous cultural resource inventories overlap approximately 6% of the total area of potential affect (APE) for the current project.

Table 3-2. Cultural Resource Inventories in Areas of Covered Activities Involving Trail Construction.

Cultural Resource Survey ID #	Covered Activity ID #	Applicant	Legal Location
DA.CH.R5	CC1-B	Parker	T6S, R66W, NW1/4 NE1/4 Section 9
DA.CN.R1	CC20, CC21	Douglas County	T8S, R66W, NE1/4 NW1/4, NW1/4 NE1/4 Section 15 and T8S, R66W, E1/2 Section 15 and NE1/4, NE1/4 SE1/4 Section 22
DA.DP.R4	CC20	Douglas County	T8S, R66W, NE1/4 NW1/4, NW1/4 NE1/4 Section 15
DA.DP.R4	CC21	Douglas County	T8S, R66W, E1/2 Section 15 and NE1/4, NE1/4 SE1/4 Section 22
DA.CH.NR20	PC17	Douglas County	T9S, R67W, NW1/4, SE1/4 Section 16 and NE1/4 Section 21 and SW1/4 Section 22 and W1/2 Section 27 and NW1/4, NW1/4 Section 34
DA.CH.R18	PC17	Douglas County	T9S, R67W, NW1/4, SE1/4 Section 16 and NE1/4 Section 21 and SW1/4 Section 22 and W1/2 Section 27 and NW1/4, NW1/4 Section 34

Table 3-3. Cultural Resource Inventories in Areas of Covered Activities Involving Road Improvements.

Cultural Resource Survey ID #	Covered Activity ID #	Applicant	Legal Location
DA.PA.R8	CC5-A	Parker	T7S, R66W, NW1/4 NE1/4 Section 3
DA.AE.R6	CC5-B	Parker	T7S, R66W, N1/2 NW1/4 Section 3
DA.CH.R1	CC5-B	Parker	T7S, R66W, N1/2 NW1/4 Section 3
DA.LG.R11	CC6-A	Douglas County	T7S, R66W, S1/2, NW1/4 Section 10
DA.LG.R13	CC6-A	Douglas County	T7S, R66W, S1/2, NW1/4 Section 10
DA.CH.NR19	CC6-A	Douglas County	T7S, R66W, S1/2, NW1/4 Section 10
DA.CH.R17	EPC3-A, EPC5-A	Castle Rock	T7S, R67W, SW1/4 SE1/4, SE1/4 SW1/4 Section 27 and T8S, R67W, SW1/4 SW1/4 Section 11
DA.CH.R25	EPC6-A	Castle Rock	T8S, R67W, SW1/4 SW1/4 Section 11

Cultural Resource Survey ID #	Covered Activity ID #	Applicant	Legal Location
DA.FW.NR1	EPC6-B	Castle Rock	T8S, R67W, SW1/4 SW1/4 Section 14 and SE1/4 SE1/4 Section 15
DA.CH.R32	EPC7-A	Douglas County	T8S, R67W, NE1/4 SE1/4 Section 22
DA.SHF.R12	UPC1-A	Douglas County	T6S, R68W, SW1/4 Section 33
MC.SHF.R26	UPC1-A	Douglas County	T6S, R68W, SW1/4 Section 33

3.5.6 Cultural Resource Sites

Two cultural resource sites were identified within portions of the RCZ potentially affected by covered activities. Site 5DA575 is a prehistoric lithic scatter officially determined not eligible for listing in the NRHP and Louviers Village (5DA1391) is a listed property in the NRHP (McWilliams 1999). The former is located within a proposed trail construction project area and Louviers Village is proposed to have road construction/improvements along Main Street. Ten structures along Main Street are contributing elements of the listed NRHP property; however, the actual street is not a contributing element.

Three additional sites are within one half mile of covered activity locations (Table 3-4). Site 5DA269 (Kinney Site) is estimated to be immediately adjacent to proposed trail construction (Project CC17) and has the potential to be adversely affected by project implementation. Test excavations have taken place at this site, although its eligibility remains as officially needs data (Gilmore and Bridges 1989). The Kinney Site was documented by CDOT prior to the Parker Road Expansion project (Miller and Fiero 1977). Site 922.1, the Atchison Topeka & Santa Fe Railroad (AT&SF), is located approximately 1,900 feet east of PC2-A, 1,500 feet east of UPC1-A, 500 feet west of EPC2-C, 1,500 feet southwest of EPC2-B, 1,400 feet southwest of EPC2-A, 750 feet west of EPC3-B, and 970 feet southwest of EPC3-A. The AT&SF Railroad has been determined field eligible and is located within a potential historic district (Herbst and Rottman 1990; Front Range Research Associates 1999). Finally, site 5DA993, historic features, is located approximately 1,300 feet east of CC5-A, and is officially determined not eligible for listing in the NRHP.

Table 3-4. Eligible Cultural Resources Identified in the Areas of Covered Activities.

Smith. ID. #	Site Type	P.M.	Township and Range	Sec	Quarter	UTM	Assessment
5DA269 Kinney Site	Prehistoric open camp	6	T7S/R66W	3	SE, NE	13 520840mE 4369280mN	Officially needs data
5DA922.1	AT&SF Railroad	6	T6S/R68W T7S/R68W T7S/R67W T8S/R68W	24 Secs.	Numerous	Numerous	Officially eligible; potential historic district
5DA1391	Louviers Village	6	T6S/R68W T7S/R68W	23, 4	Numerous	Numerous	Officially eligible; listed in the NRHP 1999

3.5.7 Analysis of Potential Effects

The paucity of documented cultural resource properties within the areas of covered activities is not considered reflective of actual site density for historic and prehistoric resources. Covered activities are located within riparian areas and most occur along existing roadways and bridges. Each of these contexts has the potential to contain unknown cultural resources. Trail construction along waterways has the potential to uncover prehistoric sites long buried by alluvial deposition, and recent cultural resource investigations along I-25 in Douglas County have uncovered prehistoric sites (e.g., East Plum Creek) (Kalasz et al. 2003).

Approximately 6 percent of the APE has been surveyed for cultural resources. Class III surveys will take place prior to specified covered activities to properly evaluate the project areas for surface or subsurface cultural manifestations prior to ground disturbing activities. All covered activity locations were examined on zoomed images of 1:24,000 USGS topographic maps. Covered activities recommended for Class III surveys include all trail construction projects and road and bridge projects with the potential to impact prehistoric or historic cultural resources. Most of the trail construction projects proposed are located on alluvial terraces above the 100-year flood plain of major perennial and intermittent streams in Douglas County. These locations are high probability areas to contain both prehistoric and historic cultural resources. Six road improvement projects are recommended for the Class III surveys. These include covered activities EPC6-C, LWC1-A, JKC1-A, BG1-A, AC2-A, ECC9-A. Each of these covered activities was selected because of its location near areas likely to contain cultural resources or for its proximity to known cultural resources.

Known cultural resources eligible or potentially eligible for listing in the NRHP include 5DA269 (Kinney Site), the AT&SF Railroad (5DA922.1), and Louviers Village (5DA1391), officially listed in the NRHP on July 2, 1999.

Due to the proximity of ground disturbing activities in the vicinity (estimated to be as little as 34 feet) of 5DA269, it is recommended that avoidance or monitoring take place

during project implementation for covered activity Project No. CC17. No covered activities directly affect 5DA922.1. Proposed road construction/improvements to Main Street of Louviers Village will not affect the physical integrity of the structures (Project UPC1-A). Therefore, a determination of “no adverse effect” is recommended for site 5DA1391.

Chapter 4 Environmental Consequences

Chapter 4 begins by quantifying the anticipated level of incidental take associated with the DCHCP's Proposed Action, and analyzing the impacts of the DCHCP on the RCZ, and on designated Preble's critical habitat, proposed recovery efforts, and other resources. Chapter 4 also states the threshold of take allowed under the DCHCP during the term of the ITP. This chapter concludes with a comparison of the impacts for the alternatives presented in Chapter 2 for the resources and issues identified for detailed analysis in Chapter 1, and a discussion of cumulative effects.

4.1 Douglas County Habitat Conservation Plan

4.1.1 Identification and Quantification of Impacts to Preble's

The RCZ mapping identifies Preble's habitat in Douglas County on non-federal lands. The RCZ encompasses 283 stream miles and over 18,800 acres. The RCZ is used to identify and quantify impacts to Preble's and habitat preserved by the Applicants for mitigation. According to the Service's HCP handbook, the degree of incidental take of covered species can be quantified in terms of habitat (Service and NMFS 1996). Therefore, the impacts associated with the activities covered by the DCHCP are quantified in terms of the number of acres of the RCZ estimated to be impacted by the covered activities over the term of the DCHCP.

4.1.1.1 Incidental Take of Preble's

The activities covered by the DCHCP may result in the incidental take of Preble's. As stated above, the DCHCP is a habitat-based HCP and expresses the potential incidental take of Preble's associated with covered activities in terms of habitat. Habitat is a more reliable parameter for estimating potential impacts to Preble's than population numbers. For example, during the development of the proposed Regional HCP, researchers observed substantial year-to-year changes in the number of Preble's captured at study sites or, in some instances, changes in the presence or absence of Preble's. Also, frequently during the development of the proposed Regional HCP, new information made it challenging to accurately characterize the distribution of Preble's in the County. For these reasons, impacts to the RCZ are used to express the potential incidental take of the covered species associated with covered activities.

4.1.1.2 Impacts to Preble's

The activities covered by the DCHCP are estimated to permanently impact a maximum of 308 acres of the RCZ (280 acres associated with roads, bridges, trails, etc. and 28 acres associated with emergency activities) and temporarily disturb a maximum of 122 acres of the RCZ over the term of the ITP. The total impact threshold to the RCZ is 430 acres. These impacts will be distributed temporally and geographically throughout the County (Figure 3). It is likely that not all of the RCZ is occupied by Preble's and that

over the duration of the DCHCP, the occupation of the RCZ by Preble’s may change (Section 3.2.5.4). Because the impacts associated with the covered activities are distributed temporally and geographically throughout the County, impacts will not be concentrated in habitat that is more likely to be occupied by Preble’s.

The activities and impacts listed in Table 4-1 are predictable. The DCHCP also covers activities that cannot be predicted accurately (e.g., emergency activities, maintenance and repair of existing facilities and structures, and habitat improvements that benefit the RCZ). The Applicants have increased the estimate of predictable covered activities by 10 percent to address these other covered activities. The estimated impact for these other activities is included in the impact threshold for the DCHCP.

The loss of about 1.6 percent of the RCZ over the 10-year term of the DCHCP is a minor impact that will not have a significant adverse impact on the RCZ and will not adversely affect the long-term viability of Preble’s in Douglas County. Mitigation of the impacts is discussed in Chapter 5.

Table 4-1. Impacts to the RCZ in Acres for Covered Activities.

Applicant	Roads and Bridges		Trails		Stormwater, Utilities, Other [†]		Total	
	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.
Douglas County	31.3	194.6	1.2	20.8	0	0	32.5	215.4
Castle Rock	18.6	29.6	3.6	10.3	34.3	6.1	56.5	46.0
Parker	16.3	12.5	1.0	3.7	15.7	2.8	33.0	19.0
Total	66.2	236.7	5.8	34.8	50.0	8.9	122.0	280.4

[†]Impacts associated with emergency activities are estimated to be 10 percent of the total permanent impacts, or 28 acres. The total impact threshold to the RCZ is 430 acres (see Table 5-3).

4.1.2 Overview of Direct and Indirect Impacts

Direct and indirect impacts to the RCZ will occur from activities covered by the DCHCP. For the purposes of the DCHCP, “direct” impacts to Preble’s habitat are associated with covered activities, and will potentially result in temporary and permanent impacts to the RCZ. “Indirect” impacts are associated with activities located outside the RCZ that may affect the RCZ.

4.1.2.1 Direct Impacts

Most covered activities involve roads and bridges, but other activities also are included (e.g., trails construction and maintenance, maintenance and repair of existing facilities and structures, emergency activities, habitat improvement, and bank stabilization). Covered activities are subject to conditions and BMPs to minimize impacts to the RCZ (Appendix 3). The location and size of temporary or permanent impact to the RCZ are established for each covered activity (Appendix 3). The estimated impacts to the RCZ from covered activities are conservative (i.e., a potential overestimate). For example, impact estimates are based on the maximum impacts that

may occur. Site-specific plans and the required BMPs will help reduce the estimated impacts. Another example of conservative impact estimates is the inclusion of the bridge footprint as a permanent impact although bridge shading will not eliminate all habitat.

Impacts to the RCZ associated with covered activities will not exceed the impact thresholds established for each Applicant for the term of the DCHCP.² The impact estimate and thresholds are based on future projects planned by the Applicants. The location and size of the covered activities may be modified over the term of the DCHCP (see Section 7.6.1).

4.1.2.1.1 Roads and Bridges

As part of the County planning process (Douglas County 2001b), the Public Works Department identified 51 future road and bridge projects within the RCZ that are projected to occur over the next 10 years (Appendix 3). The Towns have identified 16 road and bridge projects within the RCZ. These projects will temporarily impact about 66.2 acres and permanently impact about 236.7 acres of the RCZ (Table 4-1). The Applicants have requested incidental take coverage for these activities and the DCHCP mitigation plan will address their impacts.

Impacts to the RCZ associated with covered activities are scattered throughout the County. Most of the Applicants' future road and bridge projects are associated with existing facilities that will need to be repaired or expanded to meet the future transportation needs of the Applicants. The Applicants' road and bridge projects covered by the DCHCP will not have a significant impact on the RCZ because:

- Over 80 percent of the projects are associated with existing facilities (i.e., will occur in areas of past habitat disturbance). Preble's are known to occupy areas with the existing facilities and appear to readily recolonize these areas of past disturbances.
- The projects will be constructed in ways to minimize impacts.
- The projects will not form permanent barriers to Preble's movements.
- The projects are dispersed throughout the County and will be conducted at various times throughout the term of the DCHCP.

4.1.2.1.2 Trails and Recreation Facilities

Each of the Applicants has undertaken significant efforts to adopt a Master Plan for parks, trails, and open space within their respective communities. Based upon these conceptual plans, the Applicants have developed a list for desired regional trail construction, which served as the basis for quantifying the impacts associated with new trail construction. As a result, new regional trail construction and recreational facility construction by the Applicants over the term of the DCHCP is estimated to temporarily impact about 5.8 acres of the RCZ and permanently impact about 34.8 acres of the RCZ (Table 4-1). While the Applicants have been successful in aligning many of their

² The ITP is based on the total impacts associated with covered activities for the term of the DCHCP. The Applicants will have the ability to carry forward any unused portion of the impact threshold from one covered activity to another covered activity.

regional trails outside of riparian areas, it is difficult at this time to predict trail alignments into the future, particularly on private property. Therefore, impacts associated with trail construction for the DCHCP were developed to provide flexibility given these uncertainties. However, because the Applicants are committing to a threshold of impacts for this activity, it is in their best interest to thoughtfully plan and minimize impacts to the RCZ.

4.1.2.1.3 Other Covered Activities

The operation, maintenance and repair of existing structures and facilities, emergency activities, and habitat improvements that benefit the RCZ are also covered activities (Appendix 3). These activities are expected to have minimal adverse impacts on Preble's and the RCZ, and in the case of emergency and habitat improvements activities, may benefit the RCZ. These types of covered activities will be conducted by the Applicants on an as-needed basis. It is not feasible to determine the exact timing, location, and nature of these activities. Therefore, any adverse impacts associated with these activities will be mitigated by the general BMPs for all covered activities and the 3:1 habitat preservation ratios for mitigation of permanent impacts.

4.1.2.2 Indirect Impacts

As discussed previously, the best scientific information available has been used to identify and delineate potential habitat for Preble's in Douglas County through the RCZ mapping. The DCHCP and ITPs authorize incidental take of Preble's associated with identified activities to be undertaken by Applicants in the RCZ pursuant to the minimization and mitigation requirements and procedures of the Plan. Applicants' activities occurring outside the RCZ will have no direct impacts on Preble's. Significant indirect impacts to the RCZ from such activities are also not expected because:

- The Applicants' activities typically involve the construction, maintenance, improvement, replacement, or enlargement of infrastructure (roads, bridges, and trails). These activities typically have minor to moderate localized impacts and are not the types of activities that typically alter large areas next to the RCZ that, in turn, have secondary impacts to the RCZ (e.g., large residential subdivisions).
- The Projects will be dispersed throughout the County and will be conducted at various times throughout the term of the DCHCP.
- The substantial lands preserved by Applicants adjacent to the RCZ will buffer any incidental indirect impacts (Section 5.3.3).

No take or adverse effect to Preble's is thus anticipated to result from Applicant activities that are conducted outside the RCZ. Accordingly, it is anticipated that no formal section 7 consultation or additional section 10 permitting would be required for such activities to proceed in compliance with the ESA. Mitigation for indirect effects is addressed in Chapter 5.

4.1.2.3 Secondary Impacts

For the purposes of the DCHCP, secondary impacts are those impacts to the RCZ that are caused by covered activities that occur within the RCZ, but the impacts are later or

farther away than the direct impact of the covered activity. These secondary impacts could cause changes in vegetation (e.g., shading from bridges, periodic mowing and weed control associated with roads and trails, or changes to channel morphology associated with roads and streambank stabilization). The future effects of the secondary impacts will be co-mingled with indirect impacts, existing activities that affect the RCZ, and future stochastic and catastrophic events. The secondary impacts, as well as the combination of secondary and indirect impacts, are estimated to be insignificant and are mitigated as described in Chapter 5. The following sections describe the types of potential secondary impacts that may be associated with covered activities occurring within the RCZ.

4.1.2.3.1 Changes in Vegetation

Covered activities occurring within the RCZ may have secondary impacts that could alter existing vegetation composition, structure, and cover in the vicinity of the activity. Future potential changes to vegetation in the vicinity of the covered activities may include:

- Increased shading from widened bridges that may reduce, suppress, or alter the existing species composition of vegetation within the shaded area.
- Mowing and weed control of areas adjoining new trails, new roads, and widened roads that may alter the existing height and species composition within the areas of mowing and weed control.
- Accumulation of sediment from road sanding, compaction, and other disturbance associated with road maintenance that may reduce, suppress, or alter the existing species composition of vegetation adjacent to road shoulders.
- Potential changes to the species composition of existing vegetation due to weed control.

4.1.2.3.2 Hydrological Impairment

Covered activities that occur within the RCZ may alter existing surface water and ground water hydrology in the vicinity of the covered activity. Localized channel changes may be associated with bridge and road construction, utility crossings, and bank stabilization activities.

These potential secondary impacts will be localized (occur in the vicinity of the covered activity), and will not significantly affect the long-term viability of Preble's in Douglas County.

4.1.2.4 Stochastic or Catastrophic Events

Stochastic and catastrophic events can affect Preble's and the RCZ but are beyond the control of the Applicants. A stochastic demographic event is an unforeseen change in population demographics or genetics that occurs by chance. A stochastic demographic event refers to random changes in population structure. Such an event might skew the age or sex ratio, such that one gender or age class becomes disproportionately large or small in relation to the population as a whole. Demographic events may be related to genetic events if, for instance, the number of breeding females dropped to a very low

number. A stochastic genetic event refers to reduction in fitness of individuals due to reduction of alleles in the gene pool. This loss of genetic variability is closely related to population size because the number of alleles is dependent on the number of breeding individuals passing on their genes.

Stochastic events can also be environmental, in which case they are often referred to as catastrophic events. Catastrophic events would be chance occurrences of sudden environmental change that result in destruction of a large percentage of a species population. Possible events include disease, catastrophic fire, accidental spills of hazardous materials, and floods. If there are too few populations, or the populations are too small, the chances of losing a species during a catastrophic event are greatly increased (Pague and Grunau 2000).

4.1.3 Effects on Critical Habitat

The Service has designated critical habitat within Douglas County for Preble's, and has proposed the designation of critical habitat for the Colorado butterfly plant. The proposed critical habitat designation for the Colorado butterfly plant does not include Douglas County (69 Fed. Reg. 47834 (August 6, 2004)). The DCHCP will have no adverse effect on designated critical habitat for Preble's. The critical habitat for Preble's in Douglas County occurs on federal lands (Section 3.2.9). The DCHCP addresses only Applicant activities on non-federal lands in Douglas County and, thus, does not include the areas designated as critical habitat for Preble's.

4.1.4 Effects on Recovery

The Service has prepared a draft discussion document regarding recovery for Preble's. The incidental take associated with the activities covered by the DCHCP will not appreciably reduce the likelihood of the survival and recovery of Preble's. Implementation of the DCHCP is consistent with and will contribute to the recovery objectives for Preble's. The preservation of reaches of the RCZ associated with the DCHCP will protect significant habitat for Preble's and contribute to its recovery.

4.1.4.1 Environmental Baseline

The environmental baseline is "the past and present impacts of all federal, state or private actions and other human activities in an action area, the anticipated impacts of all proposed federal projects in an action area that have already undergone formal or early section 7 consultation, and the impact of state or private actions that are contemporaneous with the consultation in process" (50 CFR §402.02).

Actions taken by the Service (section 7 consultations, HCPs, and approved Preble's habitat mitigation banks) have been integrated with the RCZ mapping to ensure that the decisions by the Service that pre-date the DCHCP regarding Preble's habitat are reflected in Table 4-2. The RCZ also reflects the effects of other past and current development-related activities. In Douglas County, development-related activities have been concentrated in the northern portion of the County (see Chapter 3). These past and current activities have had minimal impacts on the presence and distribution of Preble's in the County because the riparian corridors that provide habitat for Preble's are well

distributed throughout the County (see Section 3.2.3), and 88 percent of the RCZ is protected or occurs in rural agricultural portions of the County.

The Service has made decisions regarding actions in the RCZ that predate the DCHCP (e.g., section 7 consultations, biological opinions, HCPs, approved habitat mitigation). Some of the covered activities may conflict with previous Service decisions (see Table 4-2). The Applicants will coordinate with the Service to determine if any of the covered activities may conflict with previous Service decisions. All such potential conflicts will be identified and the impacts to any previous Service decisions estimated. The DCHCP's mitigation plan will address any identified conflicts.

The impacts to the RCZ, or any areas originally determined by the Service to be Preble's habitat beyond the RCZ, will be mitigated following the DCHCP's approach to mitigating temporary and permanent impacts described in Chapter 5. The Applicants will provide additional mitigation for impacts to any habitat permanently protected to meet Service requirements. The Applicants will mitigate these permanent impacts at a 4 to 1 ratio rather than the 3 to 1 ratio required for other covered activities specified by the DCHCP. This will be debited from the Applicant's accounting of lands preserved for mitigation for the DCHCP (see Section 6.3).

4.2 Environmental Consequences of Alternatives

This section describes the environmental consequences of the No Action, Regional HCP and the DCHCP alternatives. The methods for assessing environmental consequences also are discussed. NEPA requires consideration of context, intensity, and duration of impacts, cumulative impacts, and measures to mitigate impacts. Cumulative impacts are discussed separately because most of the cumulative effects are associated with activities other than the three alternatives.

4.2.1 Methods for Assessing Impacts

Overall, impact analyses and conclusions were based on the review of existing literature and information, and professional judgments. Definitions used to evaluate the context, intensity, and duration of impacts associated with the EA alternatives are discussed below.

Context is the setting within which an impact is analyzed, such as the affected region, society as a whole, the affected interests, and/or locality. In this EA, intensity of impacts is evaluated within a local context (i.e., the areas affected by the activities to be covered by the HCP), while the intensity of cumulative impacts are evaluated in a regional (i.e., Douglas County and Colorado Front Range) context.

Table 4-2. Locations of Previous Service Decisions in Douglas County and Nearby Covered Activities.

HCP Covered Activity in Area	Project Names of Previous Service Decisions	Filing Numbers	Date	Section, Township, Range	Drainage	Permanent Impacts of Covered Activities [†]
**		200280402			East Plum Creek	
**	CDOT - 5th Street Project Design	F017			East Plum Creek	
**	Mitigation Plan for MedVed	199980853			East Plum Creek	
**	Pinery Glen HCP	001-039.000	1/2002		Bayou Gulch	
**		199980512			Cherry Creek	
**	Pinery West	ES/GJ-6-CO-01-F-029			Cherry Creek	
**	Perry Park Boulevard Culvert Replacement	ES/GJ-6-CO-04-F-041	12/2004	SW1/4, Section 22, T9S, R68W	Bear Creek	
**	Castle Oaks Road Development	ES/GJ-6-CO-05-F-001	1/2005	NW1/4 Section 27, T7S, R66W	Cherry Creek	
**	Palmer Divide Ranches on E. Cherry Creek	ES/GJ-6-CO-05-F-017	7/2005	SE1/4 Section 28, NE1/4 Section 33, T9S, R65W	E. Cherry Creek	
**	Chatfield State Park Waterline	ES/GJ-6-CO-04-F-038	11/2004	NE1/4 Section 23, T6S, R69W	S. Platte	
**	Parker Road Improvements at Kinney Creek	ES/GJ-6-CO-04-F-021	6/2004	NE1/4 NE1/4 Section 3, T7S, R66W	Kinney Creek	
**	Phase 3 Project	ES/GJ-6-CO-03-F-016	6/2003	Section 22, T6S, R66W	Cherry Creek	
**	Castlewood Canyon	ES/GJ-6-CO-03-F-003	1/2003	SW1/4 NW1/4 Section 25, T8S, R66W	Cherry Creek	
**	McLain/Western Water	ES/GJ-6-CO-03-F-004	2/2003	SE1/4 Section 3, T8S, R66W	Cherry Creek	
**	Country Club Drive	ES/GJ-6-CO-02-F-005	4/2002	Section 15, T9S, R58W	Bear Creek	
**	Allis Ranch / Plum Creek	ES/GJ-6-CO-02-F-035	11/2002	NW1/4 Section 14, T8S, R68W	Plum Creek	
BG1-A	Solitude Project Colorado	ES/GJ-6-CO-05-F-015	7/2005	Sections 24, 25, 19 & 30, T7S, R66W & R67W	East Plum Creek	0.7
CC1-B	West Creek Storm Drainage	ES/GJ-6-CO-05-F-002	2/2005	NE1/4 Section 9, T6S, R66W	Cherry Creek	0.51
CC2-A (road)	Parker Auto Plaza; West Creek Storm Drainage	ES/GJ-6-CO-05-F-002	2005; 2/2005	NE1/4 Section 9, T6S, R66W	Cherry Creek	0.5

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HCP Covered Activity in Area	Project Names of Previous Service Decisions	Filing Numbers	Date	Section, Township, Range	Drainage	Permanent Impacts of Covered Activities [†]
CC2-A (trail)	Parker Auto Plaza; West Creek Storm Drainage	ES/GJ-6-CO-05-F-002	2005; 2/2005	NE1/4 Section 9, T6S, R66W	Cherry Creek	0.55
CC2-B	West Creek Storm Drainage	ES/GJ-6-CO-05-F-002	2/2005	NE1/4 Section 9, T6S, R66W	Cherry Creek	0.5
CC2-C	Lincoln Meadows HCP; Clarke Farms Force Main Sewer	ES/GJ-6-CO-02-F-015; ES/GJ-6-CO-05-F-026	7/2002; 9/2005	Section 16, T6S, R66W	Cherry Creek	0.4
CC45	Cherry Creek Trail	ES/GJ-6-CO-04-F-003	2/2004	Section 27, 34, T7S, R66W	Cherry Creek	0.4
CC6	Phase IV West Interceptor Sewer Pipeline	ES/GJ-6-CO-05-F-003	1/2005	Sections 21, 22, 27, 34, T6S, R66W; Section 3, T7S, R66W	Cherry Creek	2.7
CC6-A	Pinery Wastewater Plant	ES/GJ-6-CO-04-F-001	1/2004	Section 10, T7S, R66W	Cherry Creek	3.3
CC7-B	Pinery Wastewater Plant	ES/GJ-6-CO-04-F-001	1/2004	Section 10, T7S, R66W	Cherry Creek	3.3
CRT1-A	Meadows Property HCP		12/2003		East Plum Creek	2.0
CRT1-B	Meadows Property HCP; East Plum Creek Sewer; PCWA; CDOT Wolfensberger Road	;ES/GJ-6-CO-05-F-008; ;CJ-6-CO-01-F-022	12/2003; 6/2005	Sections 14, 15, 16, T8S, R67W	East Plum Creek	3.7
CRT1-C	Hier & Co HCP; Crystal Valley Dawson Ridge Parkway I-25	; ES/GJ-6-CO-04-F-039	8/1999; 12/2004	SE1/4 Section 22, T8S, R67W	East Plum Creek; S. Platte & E. Plum	4.4
CRU1-A	BCK Farms, Inc.	ES/GJ-6-CO-02-F-019	8/2002	Section 20, T7S, R67W	East Plum Creek	0
CRU2-A	East Plum Creek Sewer	ES/GJ-6-CO-05-F-008	6/2005	Sections 14, 15, 16, T8S, R67W	East Plum Creek	0.5
CRU2-B	East Plum Creek Sewer	ES/GJ-6-CO-05-F-008	6/2005	Sections 14, 15, 16, T8S, R67W	East Plum Creek	0.1
CRU3-B	Crystal Valley Dawson Ridge Parkway I-25	ES/GJ-6-CO-04-F-039	12/2004	SE1/4 Section 22, T8S, R67W	S. Platte & E. Plum	0.5
CRU4	East Plum Creek Sewer; Crystal Valley Dawson Ridge Parkway I-25	ES/GJ-6-CO-05-F-008; ES/GJ-6-CO-04-F-039	6/2005; 12/2004	Sections 14, 15, 16, T8S, R67W; SE1/4 Section 22, T8S, R67W	East Plum Creek; S. Platte & E. Plum	0.0
EPC15-A	SH105 and East Plum Creek	ES/GJ-6-CO-05-F-021	8/2005	Section 7, 8, T10S, R67W	East Plum Creek	3.4
EPC2-A	Meadows Property HCP		12/2003		East Plum Creek	18.2
EPC3-A	Meadows Property HCP		12/2003		East Plum Creek	3.7
EPC6-B	East Plum Creek Sewer	ES/GJ-6-CO-05-F-008	6/2005	Sections 14, 15, 16, T8S, R67W	East Plum Creek	0.0

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HCP Covered Activity in Area	Project Names of Previous Service Decisions	Filing Numbers	Date	Section, Township, Range	Drainage	Permanent Impacts of Covered Activities [†]
EPC7-A	Crystal Valley Dawson Ridge Parkway I-25	ES/GJ-6-CO-04-F-039	12/2004	SE1/4 Section 22, T8S, R67W	S. Platte & E. Plum	1.8
PC23	I-25 at MP169.5 Wing Wall Replacement	ES/GJ-6-CO-04-F-037	12/2004	NW1/4 SE1/4 Section 3, T10S, R67W	S. Platte River, E. Plum Creek, Carpenter Creek	0.2
PC2-A	Aurora Rampart Waterline Valve Maintenance	ES/GJ-6-CO-05-F-004	1/2005	SE1/4 Section 20, T6S, R68W	Plum Creek	6.8
PSW-5	Clarke Farms Force Main Sewer; Twenty Mile Outfall	ES/GJ-6-CO-05-F-026; ES/GJ-6-CO-04-F-036	9/2005; 10/2004	Section 16, T6S, R66W; SE1/4 Section 16, T6S, R66W	Cherry Creek	0.4
PSW-8	West Creek Storm Drainage	ES/GJ-6-CO-05-F-002	2/2005	NE1/4 Section 9, T6S, R66W	Cherry Creek	0.2
PSW-9	West Creek Storm Drainage	ES/GJ-6-CO-05-F-002	2/2005	NE1/4 Section 9, T6S, R66W	Cherry Creek	0.3
					Total	59.2

[†]This total represents the potential maximum permanent impact associated with covered activities that could be located in areas covered by previous Service decisions.

For this analysis, *impact intensity* or severity is defined for each impact topic as follows:

Wetland, Riparian, Aquatic, Flood Plain, and Water Resources

- Negligible — actions of the alternative could affect wetland, riparian, aquatic, flood plain, and water resources, but the change would be so small that it would not be measurable or have any perceptible consequences.
- Minor — actions of the alternative could affect wetland, riparian, aquatic, flood plain, and water resources, but the change would be slight and localized with few measurable consequences (i.e., the functions of the resources would not be lost).
- Moderate — actions of the alternative could affect wetland, riparian, aquatic, flood plain, and water resources with measurable changes (i.e., the function of the resource would be affected).
- Major — actions of the alternative would result in total loss of wetland, riparian, aquatic, flood plain, and water resources.

Threatened and Endangered Species and Species of Special Concern

Standard terminology in the ESA used to assess impacts to federally listed species is as follows:

- No effect — when the alternative would not affect a federally listed, proposed, or candidate species, or its designated critical habitat.
- May affect/not likely to adversely affect — effects on a federally listed, proposed, or candidate species or designated critical habitat are discountable (i.e., extremely unlikely to occur and not able to be meaningfully measured, detected, or evaluated) or completely beneficial.
- May affect/likely to adversely affect — when an adverse effect to a federally listed, proposed, or candidate species, or designated critical habitat may occur as a direct or indirect result of proposed actions and the effect is either not discountable or completely beneficial.

Consultation regarding section 7 compliance for the HCP and ITP will be conducted prior to issuance of the ITP. The resulting biological opinion will be included as an appendix to the EA when complete.

Effect levels used to assess impacts to other species of concern are:

- Negligible — actions or the alternative could affect species of concern or their habitat, but the change would be so small that it would not be measurable or have any perceptible consequences.
- Minor — actions of the alternative could affect species of concern or their habitat, but the change would be slight and localized with few measurable consequences.
- Moderate — actions of the alternative could affect species of concern or their habitat with measurable changes not localized to the management action area, but no species of concern would be markedly impacted.

- Major — actions of the alternative could affect species of concern or their habitat, with measurable, localized, and /or non-localized changes, and one or more species of concern may be markedly impacted.

Cultural Resources

In accordance with section 106 of the National Historic Preservation Act, an assessment of the effects of proposed activities on features that were determined, in consultation with the Colorado SHPO, to meet the NRHP criteria or are listed on the NRHP must be conducted. Terminology used in the National Historic Preservation Act to assess impacts to historic resources includes:

- No Historic Properties Affected — if no historic properties are found or no effects on historic properties are determined, appropriate documentation must be provided to the SHPO/Tribal Historic Preservation office and consulting parties notified for their concurrence.
- No Adverse Effect — when the criteria of adverse effect are applied (36 CFR 800.5(a)), and it is determined that historic properties will not be adversely affected by the undertaking, the agency may make a finding of “no adverse effect.” This finding is submitted to the Colorado SHPO for concurrence.
- Historic Properties Adversely Affected — adverse effects occur when an undertaking may directly or indirectly alter characteristics of a historic property that qualify it for inclusion in the NRHP. Reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or are cumulative should also be considered. The finding of “historic properties adversely affected” is submitted to the SHPO/Tribal Historic Preservation office for concurrence.

The *duration* of the impacts in this analysis is defined as follows:

- Short term — impacts occur only during implementation of the activity or last for 1 to 5 years.
- Long term — impacts would occur for greater than 5 years.

Impacts associated with each alternative are presented by resource categories because the impacts associated with each alternative are similar. Impacts are similar because, under each alternative, the County and Towns would continue to pursue necessary activities within the RCZ. Under each alternative, the County and Town activities would primarily include infrastructure (e.g., roads, bridges, trails, and stormwater facilities). The differences among the alternatives for each resource category are discussed under each alternative and are summarized in Table 4-3.

Table 4-3. Summary of Impacts of the Alternatives Evaluated.

Impact Topic	No Action Alternative	Douglas County HCP (Proposed Alternative)	Regional HCP
Preble's and its Habitat	Determined on a project-by-project basis.	Threshold of impacts is established and cannot be exceeded without an amendment to the ITP. 122 acres of temporary impacts to RCZ. 308 acres of permanent impacts to RCZ.	Threshold of impacts is established and cannot be exceeded without an amendment to the ITP. 478 acres of temporary impacts to RCZ. 2,882 acres of permanent impacts to RCZ.
Other Federally Listed Species	Determined on a project-by-project basis.	Ute ladies'-tresses orchid and Colorado butterfly plant have the potential to occur in the RCZ but are not known to occur in Douglas County. The DCHCP may affect, but is not likely to adversely affect these plant species.	The Regional HCP would include a programmatic approach to surveying portions of the RCZ with the greatest potential to support the Ute ladies'-tresses orchid and Colorado butterfly plant. Once "cleared," surveys for these species would no longer be needed in the County.
Other Species of Concern	Determined on a project-by-project basis.	Actions taken to mitigate impacts to the RCZ will likely benefit species of concern inhabiting the RCZ.	Actions taken to mitigate impacts to the RCZ will likely benefit species of concern inhabiting the RCZ.
Wetlands, Riparian Areas, Flood Plains, Aquatic, and Water Resources	Impacts to these resources would vary by project.	Temporary adverse impacts to these resources would occur. Long-term minor to moderate adverse impacts are anticipated from the covered activities.	Temporary adverse impacts to these resources would occur. Long-term minor to moderate adverse impacts are anticipated from the covered activities.
Cultural Resources	Impacts to these resources would vary by project.	[Need to complete following Class II survey.]	Impacts to cultural resources would be addressed programmatic through an agreement with the Service and the State Historic Preservation Office.

CHAPTER 4: ENVIRONMENTAL CONSEQUENCES
 FINAL - HABITAT CONSERVATION PLAN AND ENVIRONMENTAL ASSESSMENT

Impact Topic	No Action Alternative	Douglas County HCP (Proposed Alternative)	Regional HCP
Cumulative Effects	Cumulative effects addressed on a project-by-project basis. The lack of a programmatic approach to mitigation would make it more difficult to minimize the cumulative effects of other activities on Preble's and the RCZ.	By establishing impact thresholds and providing mitigation and preservation of substantial habitat for Preble's in a coordinated manner, this alternative has the potential to minimize cumulative effects.	By establishing impact thresholds and programmatically providing mitigation and the conservation and preservation of substantial habitat for Preble's, this alternative has the potential to minimize cumulative effects.

4.2.2 Wetlands, Riparian Areas, Flood Plains, Aquatic Resources, and Water Resources

Construction and maintenance of roads, bridges, trails, and stormwater facilities in the RCZ by the County and Towns will temporarily and permanently affect these resources similarly for all alternatives. The impacts will typically involve 0.5 to 5 acres of the RCZ per activity, and will be scattered throughout the County. Under all alternatives, these activities will need to comply with flood plain regulations, section 404 of the CWA (wetlands and waters) and sedimentation and erosion control criteria. Therefore, on a project-by-project comparison basis, there should be little difference in the impacts to these resources among the alternatives.

Short-term, minor, adverse impacts to wetlands, riparian areas, flood plains, aquatic, and water resources are anticipated from temporary disturbances associated with the County's and Towns' activities in the RCZ for all alternatives. Long-term minor to moderate adverse impacts to these resources are anticipated from permanent impacts associated with the County's and Town's activities in the RCZ.

4.2.2.1 No Action Alternative

Unlike the HCP alternatives that establish an impact cap, the No Action Alternative lacks an incentive to avoid and minimize impacts; therefore, under the No Action Alternative, impacts to the RCZ could be greater. Under the No Action Alternative, there would be no large-scale programmatic or coordinated preservation and management of the RCZ to mitigate the impacts of County and Town activities to the RCZ. Mitigation would be done on a project-by-project basis and would likely involve a variety of actions including onsite habitat restoration and enhancement and preservation of small areas to offset individual project impacts.

4.2.2.2 Regional HCP Alternative

The Regional HCP establishes an impact cap that provides an incentive to avoid and minimize impacts to the RCZ; therefore, there may be fewer impacts to these resources under the Regional HCP alternative. The Regional HCP alternative also emphasizes impact avoidance by limiting the types of activities (albeit a broader set of allowed activities compared to the DCHCP) that can be covered by the Regional HCP and that can occur in the RCZ. This emphasis on impact avoidance could further reduce impacts to the RCZ. The Regional HCP Alternative incorporates a results-based conservation design that focuses on conserving habitat to support a medium and large population of Preble's in Douglas County over the 50-year term of the permit. This approach would conserve significantly more of the RCZ than the case-by-case mitigation of the No Action Alternative or the DCHCP that has a 10-year permit term and coordinates its mitigation and preservation approach on defined areas within the RCZ.

4.2.2.3 DCHCP (Proposed Alternative)

The DCHCP establishes a cap on impacts that provides an incentive to avoid and minimize impacts to the RCZ. The DCHCP provides a coordinated approach to preservation of the RCZ to mitigate impacts to the RCZ.

4.2.3 Threatened, Endangered, and Other Species of Concern

Impacts to Preble's and its habitat are discussed in detail for the DCHCP in Section 4.1.1. Because Preble's habitat is largely coincident with the resources discussed in Section 4.2, the analysis of impacts to Preble's and the RCZ would be similar for each alternative for the reasons discussed above. In addition to Preble's, two listed plant species and uncommonly occurring amphibians, birds, fish, and plants not listed under the ESA occur within the streams and riparian habitats included in the RCZ.

4.2.3.1 Listed Plant Species

The only listed plant species that have the potential to occur within the RCZ are the Ute ladies'-tresses orchid and Colorado butterfly plant. There are no known occurrences of either species in Douglas County (see Section 3.4.1). Potential impacts to these plant species have not been estimated because there are no known occurrences for these plants in the County.

4.2.3.2 Species of Concern

Several rare or imperiled species that are not listed under ESA are known to occur in the streams and riparian habitats of Douglas County (see Section 3.4.2). The efforts associated with the Regional HCP or the DCHCP for preservation of the RCZ also will benefit these species of concern and will aid in reducing the potential for any future listing of these species under ESA.

4.2.3.2.1 Fish and Aquatic Invertebrates

Native fish rare to Colorado (northern red-bellied dace, plains topminnow, Iowa darter, common shiner, and Johnny darter) and the sedge darter (an aquatic insect) are known to occur within the RCZ in Douglas County. These species may be adversely impacted by certain activities common to all of the alternatives. However, these impacts will be minor and the habitat conservation afforded by the Regional HCP or DCHCP alternatives will benefit these species. Impacts to aquatic habitat will be less than those estimated to occur for Preble's because the stream is only one component of the RCZ. There are likely to be few permanent impacts to aquatic habitat associated with covered activities for either the Regional HCP or DCHCP. Most of the anticipated permanent impacts to the RCZ for these alternatives are associated with roads and bridges. Although the roads and bridges may displace riparian habitats, they will typically span streams causing temporary disturbances to aquatic habitats and, in some instances, changes in bottom substrates; however, there will be no significant loss of aquatic habitat that may support these rare fish and aquatic invertebrate species. Reaches of the RCZ protected by the Regional HCP or DCHCP alternatives as mitigation for impacts associated with covered activities also will benefit native fish and aquatic invertebrates.

Some of the reaches that support these rare native fish occur within protected lands (County open space and private conservation easements). For example, four of the five rare native fish species are known to occur in Garber Creek protected by a Colorado Open Lands conservation easement. Garber Creek represents the stronghold for the northern red-bellied dace in Colorado. While it has been extirpated from other parts of the state, population numbers in Garber Creek are high and have persisted at the site for

at least 14 years (Pague et al. 1995). Other rare native fish, such as the Iowa darter and common shiner, occur in East Plum Creek on County open space lands.

The activities with impacts to aquatic habitats in the West Plum Creek watershed will be primarily bridge construction (Figure 4). Bridge construction will cause temporary impacts to the aquatic habitats (e.g., sedimentation, rerouting of flows, and dewatering). Permanent impacts to aquatic habitat in West Plum Creek and Plum Creek will be limited to abutments, supports, and riprap that could permanently replace minor amounts of the aquatic habitat. Impacts to the fish and invertebrate species of concern would be minor and primarily associated with bridge construction for all alternatives.

4.2.3.2.2 Amphibians

The northern leopard frog is the only amphibian of concern within the RCZ. Impacts to the frog's streamside habitat would be minor and associated primarily with bridge construction for all alternatives.

4.2.3.2.3 Birds

The ovenbird, Eastern yellow-billed cuckoo, and indigo bunting are known to use riparian habitats in Douglas County. The habitat utilized by the birds approximates the core woody riparian habitat identified as part of the RCZ, although some of the birds utilize more limited components of the woody riparian habitats (e.g., the yellow-billed cuckoo utilizes riparian forests with tall trees [Andrews and Righter 1992]). Reaches of the RCZ protected by the Regional HCP or DCHCP alternatives as mitigation for impacts associated with covered activities also will benefit these birds. Some of the known locations for these birds in Douglas County occur on protected lands. For example, Parker Regional Park on Cherry Creek provides known nesting locations for the Eastern yellow-billed cuckoo, cedar waxwing, and indigo bunting (Pague et al. 1995). Impacts on these bird species would be minor for all alternatives.

4.2.3.2.4 Mammals

The northern pocket gopher is known to occur within the upland portions of the RCZ within the approximate northern two thirds of the County. Many known locations for the gopher occur on protected lands in Douglas County. The gopher is known to use upland mesic grasslands adjacent to or near riparian areas. Reaches of the RCZ protected by the Regional HCP or DCHCP alternatives as mitigation for impacts associated with covered activities will benefit the northern pocket gopher. Impacts to the northern pocket gopher would be minor for all alternatives.

4.2.3.2.5 Plants

Two rare plants, the American currant and woodsia fern, are known to occur within and adjacent to riparian habitat in Douglas County. American currant occurs in moist habitats of canyons and flood plains; the woodsia fern occurs in the crevices of rock outcrops of canyons. Impacts to these rare plant species from activities associated with any of the alternatives will be insignificant. The only area in the County known to support both species is Castlewood Canyon State Park along Cherry Creek. This area will remain undeveloped and conserved as part of the state park. Two other areas are known to be inhabited by American currant. One site occurs along Garber Creek, a tributary to West Plum Creek; the other site occurs along West Plum Creek (Pague et al.

1995). Both sites occur on lands protected from future development by conservation easements. Impacts to these plants would be negligible for all alternatives.

Short-term, minor, adverse impacts to federally listed species (other than Preble's) and other species of concern are anticipated from temporary disturbances associated with the County's and Town's activities in the RCZ for all alternatives. Long-term minor to moderate adverse impacts to these resources are anticipated from permanent impacts associated with the County's and Town's activities in the RCZ.

4.2.3.3 No Action Alternative

For the reasons discussed under Section 4.2.2.1, the No Action Alternative may have slightly greater impacts on the RCZ on a project-by-project basis. The No Action Alternative lacks a programmatic or coordinated approach to habitat preservation when compared to the HCP alternatives. This alternative could result in slightly greater impacts to species of concern.

4.2.3.4 Regional HCP Alternative

For the reasons discussed in Section 4.2.2.2, the Regional HCP Alternative may have fewer impacts on the RCZ and riparian species of concern than the No Action Alternative. The Regional HCP Alternative provides a greater long-term conservation benefit for the RCZ than the No Action or DCHCP alternatives, thus benefiting riparian species of concern.

4.2.3.5 DCHCP Alternative

For the reasons discussed in Section 4.2.2.3, the DCHCP Alternative may have fewer impacts on the RCZ and riparian species of concern than the No Action Alternative. The DCHCP provides a coordinated approach to preservation of the RCZ that the No Action Alternative does not provide. Thus, the DCHCP Alternative potentially provides a greater benefit to riparian species of concern than the No Action Alternative.

4.2.4 Cultural Resources

A "no historic properties affected" is recommended for the covered activities if site 5DA269 is avoided. Because only 6% of the APE has been surveyed for cultural resources, it is recommended that a Class III survey be implemented for all trail construction projects, the road and bridge covered activities listed in Section 3.5, and a sample of road improvement projects.

4.3 Cumulative Effects

Cumulative effects are defined differently under NEPA and ESA. This section analyzes cumulative effects as defined by both NEPA and ESA because this document integrates the EA (prepared subject to NEPA requirements) and HCP (prepared subject to ESA requirements). The basic difference between cumulative effects as they are defined under NEPA versus ESA is that under NEPA, reasonably foreseeable future federal activities are included and under ESA, reasonably foreseeable future federal activities are not included.

Cumulative effects under the ESA are those effects of future non-federal (state, local government, or private) activities that are reasonably certain to occur during the course of the federal activity subject to consultation. Future federal actions that are unrelated to the Proposed Action are not considered because they require separate consultation pursuant to section 7 of the ESA. Cumulative impacts are defined under NEPA as “the impact on the environment that results from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency. (federal or non-federal) or person undertakes such actions” (40 CFR 1508.7). Cumulative impacts can result from individually minor, but collectively significant actions taking place over time. The Council on Environmental Quality (CEQ), which implements NEPA, requires assessment of cumulative impacts in the decision making process for federal actions. With respect to the DCHCP, the federal action by the Service is issuance of an ITP that authorizes the incidental take of Preble’s by the Applicants associated with performing certain otherwise lawful activities.

Sections 4.3.1 through 4.3.3 describe cumulative effects associated with the proposed federal action without the consideration of reasonably foreseeable federal actions (ESA definition). Section 4.3.4 describes the reasonably foreseeable federal actions and their potential cumulative effects (NEPA definition).

The cumulative effects to Preble’s, other riparian species, and the environment in general vary little among the three alternatives because most of the cumulative effects are associated with activities that are independent of any of the alternatives. Therefore, the potential cumulative effects for the three alternatives are discussed in this section. Potential differences in cumulative effects among the alternatives are discussed. The cumulative effects analysis focuses on Preble’s and its habitat because that is the focus of the DCHCP. The time period for analysis is the requested 10-year ITP duration.

4.3.1 Preble’s and the RCZ in Douglas County

Cumulative effects on Preble’s and the RCZ will continue to occur in Douglas County over the life of the DCHCP. These cumulative effects are associated with human activities affecting land use and management and naturally occurring stochastic and catastrophic events. The cumulative effects described below are associated with activities that will occur outside the RCZ, but are also effects that occur with or without implementation of any alternative.

Specifically, the broad distribution of Preble’s throughout the County suggests that these past activities had minimal impacts on the presence and distribution of Preble’s in the County. The Preble’s Science Team (Pague and Grunau 2000) identified the following as having a high or medium priority for affecting Preble’s and its habitat in Douglas County:

- Land use
- Increased predation
- Hydrological impairment
- Water quality (point and non-point sources)

4.3.1.1 Land Use

Land use integrates many of the potential cumulative effects. Land use is related to growth and development, and future land use patterns outside the RCZ that can indirectly affect the RCZ. Current and future land use patterns are favorable to conservation of the RCZ. The extensive areas of agricultural, open space, and rural residential lands provide substantial areas of riparian habitat throughout the County. Significantly, about 88 percent of the RCZ occurs within lands that are either protected or within areas of agricultural or rural residential land use. The land uses that currently benefit the RCZ are planned to continue in the southern half of the County (Douglas County 2001b).

The southern half of Douglas County is expected to remain in land uses similar to existing land uses over the duration of the DCHCP. The southern half of the County is dominated by rural and agricultural land uses and large blocks of protected lands (Douglas County 2001b). The effects associated with dense urban and suburban development that has occurred in the northern portion of the County (e.g., Highlands Ranch and Lone Tree) are not expected to occur in the southern half of the County (Douglas County 2001b). The large tracks of protected lands and large ranches in the southern portion of the County will minimize the potential for indirect effects to the RCZ from existing land uses, future development, and land use changes.

4.3.1.2 Increased Predation, Competition by Domestic Pets and Exotic Species, or Disease

The extent and importance of increased predation by domestic pets and the effects from exotic species, such as house mice, on Preble's in Douglas County is not well known or documented. Increased predation by domestic pets and the effects from other exotic species is thought to be associated with residential and commercial development (Section 3.2.7.2).

The threat of increased predation may increase in the future in portions of the County with increased development. The potential impact of increased predation related to future development near Preble's habitat is difficult to quantify. However, about 88 percent of the stream miles mapped as RCZ currently occur in agricultural and/or rural residential areas, or areas that are protected such as open space, parkland, or conservation easements. High-density suburban development is not expected to substantially increase in areas of the County where the majority of the RCZ occurs.

4.3.1.3 Hydrological Impairment

The water needs of Douglas County will increase as its population grows. As Douglas County develops, the following trends are likely to occur:

- An increased demand for water
- An increase in water imported into the County
- Increased use of tributary (alluvial) and non-tributary ground water
- Increased return flows (landscape irrigation and treated effluent)
- Increased impervious surfaces with an associated increase in stormwater runoff

These trends will result in future streamflow changes in portions of the RCZ. The magnitude, location, and timing of these changes cannot be accurately predicted or quantified. Some stream reaches will gain flows; some will have decreased flows.

Increased flows likely will occur in the small intermittent tributaries that will carry increased stormwater and landscape irrigation return flows. Future increased flows in the minor tributaries likely will enhance the RCZ; however, the flows are unlikely to be substantial enough to be subject to diversion in their headwater locations. Most of this future water development is expected to occur in the northern third to half of the County. The mainstems of Plum Creek, West Plum Creek, East Plum Creek, and Cherry Creek are likely to be targeted for future water development projects that attempt to capture and reuse water associated with the above-described future changes. Future water development in Douglas County will likely include increased use of non-tributary ground water, and the eventual importation of renewable surface water supplies. While this will result in additional discharges to Plum Creek and Cherry Creek, most water suppliers intend to recapture and reuse these supplies. Pumping to recapture these supplies may cause the streams to go dry at some locations during heavy pumping of the alluvium.

At the same time, it is likely that suppliers will utilize streams to transport water wherever possible because of the very large cost of pipeline construction. This new water to the stream will help to keep the stream live wherever this transport occurs. The net effect of water supply discharges and withdrawals by water providers is not predictable, although it is likely to result in some stream sections with increased flow and some sections that are dry at some time during the year.

The Parker Water and Sanitation District is beginning to construct Reuter Hess Reservoir, a storage reservoir located on Newlin Gulch, a tributary of Cherry Creek. A purpose of the reservoir is to divert water supply during spring runoff events from Cherry Creek upstream of Parker for water supply. The diversions to the reservoir will decrease the annual supply of water in Cherry Creek downstream of this location in some years.

Changes to a site's hydrology can affect riparian vegetation that provides the core of the RCZ. Increased flows and channel realignment can cause channel downcutting that results in an associated decline in the adjacent alluvial ground water levels. Declines of alluvial ground water levels along streams can alter the distribution and species composition of riparian vegetation. If ground water levels decline below the rooting depths of riparian vegetation, the riparian vegetation will die and be replaced by vegetation tolerant of drier conditions. Similarly, wells that pump alluvial ground water can affect riparian vegetation. The loss or degradation of riparian vegetation can adversely affect the RCZ. Preble's currently coexists with alluvial ground water wells along East Plum Creek and Cherry Creek.

Successional changes in riparian plant communities could affect the RCZ. The establishment, development, and maintenance of riparian plant communities is a dynamic process that is influenced by streamflows, sediment transport, the alluvial water table, and land management. The Plum Creek and Cherry Creek watersheds, which support 90 percent of the RCZ in the County, are in an excellent position to continue providing the dynamic processes that have formed and maintained the extensive riparian habitats in

these watersheds. These watersheds are dynamic because there are no large on-channel reservoirs to regulate flows or accumulate sediment until these drainages exit the County (Chatfield Reservoir and Cherry Creek Reservoir). Additionally, the Palmer Divide receives the Front Range's most violent weather. The six heaviest downpours on record from Fort Collins to Colorado Springs have occurred on the Palmer Divide (Hansen et al. 1978). The combination of heavy precipitation events and unregulated streams will ensure the long-term dynamics needed to maintain the existing riparian systems.

The following general trends in riparian plant community succession are anticipated to occur in the County throughout the term of the DCHCP and ITP:

- Continued periodic flooding, which will reinitiate riparian succession.
- Localized sedimentation associated with development will both degrade habitat and provide additional substrate for riparian community colonization and development.
- Depleted stream reaches associated with diversions and alluvial ground water pumping, which will degrade habitat.
- Increased flows in stream reaches associated with increased return flows, introduction of non-tributary ground water into drainages, and importation of water that likely will increase habitat, provided that channel downcutting associated with increased peak flows due to increased impervious surfaces in the northern portion of the County is controlled.

Future increases to base flows are expected, on balance, to offset depletions that may occur in selected stream reaches. The future flow increases will be associated with future growth and water demands in the County previously described. These trends are expected to result in an increase in the future quality and quantity of riparian and streamside habitat in Douglas County and result in a diversity of riparian habitats in a variety of successional phases. These trends should benefit Preble's and other species that inhabit the RCZ.

4.3.1.4 Water Quality

Little is known about the potential effects of water quality on Preble's or its habitat. Erosion and sedimentation can influence the establishment, development, and succession of riparian communities. Future development in the County potentially will increase localized erosion and sedimentation. Grading and increased impervious surfaces will be the likely primary sources of sediment. The County has developed new erosion and sedimentation control requirements that will help minimize erosion and sedimentation (Douglas County 2002).

Increased sediment input into area streams could inundate riparian communities with sediment that will temporarily cause a decline in riparian vegetation but, over the long term, could increase the extent of riparian vegetation by providing new suitable substrates for colonization.

Water quality may decline in the lower reaches of the mainstems of Plum Creek, West Plum Creek, East Plum Creek, and Cherry Creek because these stream reaches

likely will be targeted for future water supplies that rely on capturing reusable return flows. These reaches also occur downstream of the more densely developed portions of the County.

4.3.1.5 Other Resources and Activities

The DCHCP does not cover activities in the RCZ by parties other than the Applicants. Because the DCHCP covers specified activities by the County and Towns, there will likely be activities that proceed independent of the DCHCP in Douglas County that affect the RCZ. ESA compliance for activities not covered by the DCHCP would be addressed through separate section 7 consultations or individual HCPs and ITPs. These activities may include: buildings; golf courses; roads and bridges; utilities; water supply projects, sand and gravel mining operations; and trails. As these activities will proceed in compliance with ESA section 7 and section 9 standards for protection of Preble's and its habitat, their cumulative impacts are not anticipated to have a significant adverse effect on Preble's or its recovery, designated critical habitat, or the DCHCP.

There are also trends within the County that will benefit Preble's and reduce the potential cumulative effects on the RCZ. For example, currently about 68 stream miles (24 percent) of the RCZ occur within open space and protected lands. The amount of protected lands and stream miles in Douglas County is expected to increase over time. The long-term management of the open space lands will increase habitat quality, particularly riparian habitat. For example, beaver have returned to many of the County's open space lands. This keystone riparian species has reinitiated needed riparian dynamics into areas that, over the long term, will provide a diversity of riparian habitat that will benefit Preble's and other riparian species.

The County has implemented new grading, erosion, and sediment control criteria that will significantly restrict adverse impacts to streams and riparian habitats (Douglas County 2004). The County is implementing an integrated weed management program that will continue and expand over the course of the DCHCP. These County actions (acquisition of open space and conservation easements, increased control over activities affecting streams and riparian areas, and control of noxious weeds) will benefit the RCZ in Douglas County over the life of the DCHCP and beyond.

4.3.2 Throughout the Range of Preble's

Activities that have affected Preble's and its habitat will continue to occur throughout the known range of Preble's. The significance of these effects is likely to vary by region. For example, regions that have implemented regional or large-scale HCPs will afford increased conservation for Preble's. Currently, there are several regional or large-scale HCPs being developed (Douglas, El Paso, and Boulder Counties, and the Livermore Valley in Larimer County). Implementation of a recovery plan for Preble's (in progress) could ultimately recover the species. Preble's and its habitat will benefit from these regional conservation planning efforts. However, there will still be impacts to Preble's and its habitat throughout its range.

4.3.3 Other Riparian Species

On balance, the cumulative effects to potential habitat for other riparian species of concern will be positive due to the DCHCP, an increase in protected lands, and County programs that further riparian conservation.

Activities that affect the potential habitat of listed plant species in Douglas County will continue to occur. The cumulative impacts on the potential habitat of the Ute ladies'-tresses orchid and Colorado butterfly plant will be minimal. Similar to the cumulative effects described for Preble's, the potential habitat for Ute ladies'-tresses orchid and Colorado butterfly plant will benefit from the DCHCP.

Activities that will affect the northern leopard frog and other amphibians and their habitats and native fish and their habitats also will continue to occur. The cumulative impacts on habitat for these species will be minimal. These species occur on protected lands and are limited to flood plains that also receive a degree of protection in the County. The habitat for these species will benefit from the DCHCP. These species are restricted to the core of the RCZ in aquatic and streamside habitats.

4.3.4 Reasonably Foreseeable Future Federal Actions

The DCHCP does not cover activities on federal lands. Reasonably foreseeable future federal actions will not have significant cumulative effects for the reasons described in this section. Activities in the Pike National Forest and Chatfield State Park could adversely affect Preble's and its habitat; however, the activities would be addressed through separate section 7 consultations that would require conservation measures. On balance, management of the federal lands as parkland and national forest will benefit Preble's, the RCZ, and other riparian species.

Future federal actions in Douglas County that could significantly affect portions of the RCZ include the widening of Highway 85 and Interstate I-25. These impacts to the RCZ will be mitigated through requirements of the individual section 7 consultations, or HCPs and ITPs associated with these activities.

Section 404 permitting approvals under the Clean Water Act (CWA) will likely be the most common federal action potentially involving the RCZ. Under section 404 of the CWA, the U.S. Army Corps of Engineers authorizes the discharge of dredge and fill material in waters of the U.S., including wetlands. Most of the drainages associated with the RCZ are waters of the U.S. and wetlands commonly occur along these drainages. Activities commonly permitted by the Corps under section 404 include: roads, bridges, utility lines, storm water facilities, bank stabilization, and residential development. The Corps will consult with the Service under section 7 of the ESA regarding potential impacts to Preble's and its habitat and other federally listed species or species proposed for listing associated with the proposed permitted activity. These separate section 7 consultations would require conservation measures. As part of the consultation process the Service would consider any potential adverse effects to the DCHCP and the conservation measures provided by the Service's Biological Opinion would assure that future Corps permitted activities would not impair implementation of the DCHCP by the Applicants. No federal actions would proceed in a manner that, individually or

cumulatively, would form permanent barriers to Preble's movements or materially impact the RCZ. These federal actions would also need to consider impacts to species and their habitat associated with wetlands and waters and measures to mitigate impacts.

Chapter 5 Impact Mitigation

Chapter 5 discusses the DCHCP's approach to impact mitigation. Section 10(a)(2)(B) of the ESA requires that the applicant will, to the maximum extent practicable, minimize and mitigate the impacts of the incidental take to be authorized by an ITP. A finding by the Service that this criterion has been met requires consideration of two factors: "adequacy of the minimization and mitigation program, and whether it is the maximum that can be practically implemented by the applicant" (Service and NMFS 1996). To the extent that the minimization and mitigation program can be demonstrated to provide substantial benefits to the species, less emphasis can be placed on the second factor (Id.). The Applicants propose to mitigate impacts to the RCZ associated with the covered activities through impact avoidance to the RCZ, habitat preservation³, restoration of temporary impacts and through management of protected properties address habitat needs for Preble's and identify areas needing habitat enhancement and restoration. The approaches to mitigation for the alternatives evaluated are compared at the end of Chapter 5.

5.1 Incentives for Impact Avoidance and Minimization

The establishment of an impact threshold provides an incentive to avoid and minimize impacts to the RCZ. To the degree that the Applicants can further reduce impacts to the RCZ associated with the covered activities, the impact threshold can be conserved and, if needed, it can be applied to future activities that are either not anticipated at this time or for covered activities that may have slightly greater impacts than originally estimated. There is also an incentive to avoid and reduce impacts to the RCZ to conserve the use of the preserved RCZ for mitigation. To the degree that the Applicants can conserve the mitigation lands, these lands can be used in the future for mitigation of covered activities if it is necessary to extend the term of the DCHCP or amend the DCHCP to include additional covered activities. Increases in the total impact threshold for covered activities require an amendment of the DCHCP.

5.2 Actions to Rectify Temporary Impacts to the RCZ

Temporary impacts to the RCZ associated with the covered activities are minimized and mitigated through restoration requirements, specific activity conditions, and BMPs. The BMPs focus on reducing the size of the temporary impact and speeding rehabilitation

³ For the purposes of the DCHCP, "RCZ habitat preservation" refers to the protection of portions of the RCZ from future development by the Applicant in a manner that maintains the long-term viability of the habitat to potentially support Preble's (e.g., Applicant-owned open space, conservation easements, deed restrictions, plat notes, or other actions taken by the Applicants that protect the RCZ). The RCZ habitat preservation does not preclude covered activities from occurring on portions of the preserved RCZ.

of habitat from the temporary impacts. These BMPs include topsoil salvaging and handling, minimizing impacts to woody vegetation, and compliance with general revegetation guidelines and success criteria (see Appendix 4). Rectifying the impact is an accepted form of mitigation for HCPs (Service and NMFS 1996).

5.3 Habitat Preservation

The Applicants propose to mitigate the impacts to Preble's and the RCZ associated with covered activities by preserving portions of the RCZ. This habitat preservation will mitigate the following:

- Permanent impacts⁴ to the RCZ
- Any residual temporary impacts to the RCZ not rectified through restoration requirements
- Any indirect or secondary impacts associated with covered activities
- Any potential impacts to Preble's that may extend beyond the RCZ

As part of the development of the original Regional HCP, the Applicants acquired and preserved lands for the long-term benefit of Preble's and other species and their habitats from the time Preble's was proposed for listing until the development of the DCHCP. The acquisition of these properties was discussed with the Service and the incorporation of these properties into the original Regional HCP results-based conservation design was an expectation of the Service and Applicants.

The Applicants have protected 15 stream miles and 1,132 acres of the RCZ as part of the development of the original Regional HCP (Table 5-1). The Applicants have managed these properties to benefit Preble's (Table 5-2). The preservation and management of the RCZ will be used to mitigate the impacts to the RCZ associated with the covered activities (Table 5-3).

⁴ For purposes of the DCHCP, a permanent impact to the RCZ is an impact associated with a covered activity that replaces existing habitat within the RCZ with a feature that is not habitat (e.g., roads, trails, and other features that remove vegetation permanently).

Table 5-1. Protected Properties Owned by Applicants – Mitigation Order.

Property	Recordation Number [†]	Date Purchased/ Acquired	Total Area (Acres)	Management Plan Complete	Protected RCZ	
					RCZ Acres	Stream Miles
Douglas County						
1. Columbine Open Space	9836759	5/12/1998	156.1	X	85.3	1.2
2. Prairie Canyon Ranch	9648049, 9718008, 9824261, 99030506, 11121256	1996 - 2000	1,002.9		57.7	1.3
3. Ramsour	9855402	7/20/1998	167.5	X	33.2	0.5
4. Snortland	00051913	7/27/2000	112.0	X	87.9	1.3
5. Douglas Valley Estates	01095819	6/11/2001	6.2		5.4	0.0
6. Greenland	00051580	7/26/2000	3,407.9	X	285.3	3.5
7. Lake Gulch	99051809	5/26/1999	212.2	X	13.4	0.1
8. Grange	2002075930	7/30/2002	640.9	X	47.8	0.8
9. North Willow Creek Ranch	00008268	2/7/2000	724.6		8.9	0.4
10 Red Mesa Ranch	2002120700	11/12/2002	244.1		19.6	0.5
11. Nelson Ranch	01112098	11/21/2001	585.5	X	17.7	0.7
12. Hungry Horse [†]	2003042735	4/1/2003	134.4	X	12.7	0.0
13. Dupont	02052035	5/31/2002	508.5	X	277.3	1.8
Douglas County's Totals			7,902.8		952.2	12.1
Castle Rock						
1. East Plum Creek at PC Pkwy.	0252339		2.25		2.25	0.15
2. East Plum Creek at Perry St.	0378984 0401472		4.52 0.29		4.30 0.24	0.19 0.05
3. East Plum Creek at Jerry St.	0446722 0446702 0356702 0356707 0404829		0.82 0.89 0.53 0.81 0.80		0.82 0.89 0.53 0.81 0.80	0.10
4. Sellars Gulch at Lewis	0457011 0457012		0.85 0.35		0.76 0.35	0.05 0.02
5. Sellars Gulch at South St.	0415445 0400081		1.35 4.08		1.22 0.82	0.07 0.05
6. East Plum Creek at Briscoe	0436393 0436394		0.87 0.62		0.43 0.62	0.07 0.08
7. East Plum Creek at Brookside	0355382		1.90		1.90	0.13
8. East Plum Creek at 5 th Street	0431043		2.26		0.45	0.12

Property	Recordation Number [†]	Date Purchased/ Acquired	Total Area (Acres)	Management Plan Complete	Protected RCZ	
					RCZ Acres	Stream Miles
9. East Plum Creek at Park St	0442135 0441024		24.09 9.91		22.8 2.48	0.40
10. Sellars Gulch at Town Hall	0343406 0383021 0357890 0413364 0356657		0.06 0.80 0.09 0.32 0.16		0.06 0.40 0.09 0.16 0.16	0.11
Castle Rock's Totals			58.62		40.34	1.59
Parker						
1. Reatta West	86598	11/30/2000	40.8		.01	0
2. Bar Triple C	2002127363	11/18/2002	10.6		0.8	0.0
3. Country Meadows #2	1020379	03/12/2001	37.6		13.6	.2
4. Stroh Soccer Park	2002093993	08/28/2002	16.5		.6	0
5. Stroh Ranch Cherry Creek	2002093993	08/28/2002	76.4		44.3	.8
6. Twenty Mile Curve	15957	03/06/2000	6.6		1.0	0
7. Norton	99066183	07/28/1999	71.3		22.6	0.3
8. Cherry Creek Park	9829770	04/27/1998	36.5		36.5	.6
9. Clarke Farms West Bank	2005042779	05/09/05	19.3		17.2	.2
Parker's Totals			315.6		136.61	2.1
Applicants' Total of RCZ Protection			8,277.02		1,132.15	15.79

Note: Applicants have provided the Service with proof of ownership of all the protected properties that will serve as mitigation land. (See Applicants' Proof of Ownership of DCHCP Protected Properties, 2005.) Also, the Applicants have attached the Open Space, Parks and Trails Sales and Use Tax Resolution as Appendix 7. This document guides the Applicants' open space program and sets forth protection provisions for open space properties.

[†] A number assigned by the Douglas County Clerk and Recorder indicating the date on which a warranty deed was recorded.

[‡] Property contains habitat identified as RCZ. While the actual extent of stream miles is limited on the property, the protected property is currently or will be adjacent to other protected RCZ.

For the purposes of mitigation accounting, each Applicant will use the appropriate mitigation impact ratio(s) for each project to deduct from the protected RCZ acreage listed above. Each Applicant will utilize their own protected properties for mitigation in the order listed above, unless such property has been substituted for another as described in Section 7.6.1.4 of the DCHCP. At such time that Castle Rock or Parker has utilized all mitigation acres available on properties it owns, the Town may begin utilizing in the appropriate order County protected property as mitigation.

Table 5-2. Management of Applicants' Protected Lands Benefiting Preble's.

Property	Management Plan Completed	Comments
Columbine Open Space	X	<p>Specific management actions implemented benefiting Preble's:</p> <ul style="list-style-type: none"> • 2000: Preble's habitat signage installed informing public of special management area; prohibits access to riparian area by public and pets. • 1998-present: Annual noxious weed control by Douglas County and CDOW; targeted species include diffuse knapweed, common mullein, Canada thistle, houndstongue, Russian olive, and poison hemlock. In addition, a small infestation of purple loosestrife was recently discovered and eradicated. • 1998-present: The County coordinated with the Service and CDOW to conduct Preble's movement surveys and gather additional scientific information regarding Preble's. • Management actions have encouraged beaver to return resulting in increased riparian vegetation. <p>Other conservation factors benefiting Preble's and other species:</p> <ul style="list-style-type: none"> • CDOW holds a conservation easement on the property. The conservation easement is specifically crafted for the protection of Preble's. • Property adjoins Ramsour open space property protected by a conservation easement held by DCLC. This connection provides Preble's with well over a mile of protected habitat. • Since 2003, Douglas County has successfully reduced populations of non-native bullfrogs. Northern leopard frogs are now thriving in ponds.
Douglas Valley Estates		<p>Conservation factors benefiting Preble's and/or other species:</p> <ul style="list-style-type: none"> • Adjoins Snortland open space and JA Ranch conservation easement providing additional habitat protection for Preble's and other species.
Dupont	X	<p>Specific management actions implemented benefiting Preble's:</p> <p>2003-present:</p> <ul style="list-style-type: none"> • Control of ATVs; • Public access limited to guided hikes; • Extensive weed control efforts are conducted on the Dupont Open Space. Target species include leafy spurge, Scotch thistle, houndstongue, and diffuse knapweed; and • Russian olives have been eradicated from the property.

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Property	Management Plan Completed	Comments
		<p>Other conservation factors benefiting Preble’s and/or other species:</p> <ul style="list-style-type: none"> • Adjoins Highlands Ranch Open Space, which is protected by a conservation easement. This provides additional habitat and refuge benefiting Preble’s and other wildlife species.
Grange	X	<ul style="list-style-type: none"> • This property was purchased in 2002. The riparian area was significantly degraded because of over-grazing by livestock. <p>Specific management actions implemented benefiting Preble’s:</p> <ul style="list-style-type: none"> • 2002: Removal of livestock grazing to facilitate re-growth of native vegetation. • 2004-2005: Approximately 4000 shrubs planted including coyote willow, cottonwood, three-leaf sumac, wax current, golden current, chokecherries, wild plums, and peachleaf willows. • 2002-2005: Significant recruitment of coyote willows and cottonwoods has occurred naturally. <p>Additional conservation factors benefiting Preble’s and/or other species:</p> <ul style="list-style-type: none"> • Trail alignment diverted out of Preble’s habitat. • Adjacent to Hidden Mesa Open Space providing additional habitat and refuge.
Greenland	X	<p>Specific management actions implemented benefiting Preble’s:</p> <ul style="list-style-type: none"> • 2002-present: Riparian plantings around ponds; and erosion control. • Trail alignment diverted out of Preble’s habitat. <p>Additional conservation factors benefiting Preble’s and/or other species:</p> <ul style="list-style-type: none"> • Adjacent to conservation easements and open space (Greenland Ranch, Christensen, Douglas Heights).
Hungry Horse	X	<p>Specific management actions implemented benefiting Preble’s:</p> <ul style="list-style-type: none"> • 2003-2005: Extensive leafy spurge control efforts; eradication of Russian olive. • Winter 2004-2005: Habitat enhancement by native grass plantings including big bluestem, switch grass, sideoats grama, western wheatgrass, thickspike wheatgrass, little bluestem and yellow Indian grass.
Lake Gulch	X	<p>Conservation factors benefiting Preble’s and/or other species:</p> <ul style="list-style-type: none"> • Property surrounded by other protected lands: conservation easements (JA Ranch and Greenland Ranch) providing additional habitat and refuge.

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Property	Management Plan Completed	Comments
Nelson Ranch	X	<p>Conservation factors benefiting Preble’s and/or other species:</p> <ul style="list-style-type: none"> • Adjoins Roxborough State Park and other protected open space (Pike Hill and Nelson Ranch) which provides additional habitat and refuge.
North Willow Creek Ranch		<p>Specific management actions implemented benefiting Preble’s:</p> <ul style="list-style-type: none"> • 1999-present: Extensive weed control. • 2004: Coyote willow and cottonwood planting. • Reseeded with native vegetation. <p>Conservation factors benefiting Preble’s and/or other species:</p> <ul style="list-style-type: none"> • CDOW conservation easement. • Limited size parking lot. • No dogs allowed on property. • Adjoins Red Mesa Ranch, which provides additional habitat and refuge.
Norton		<p>Conservation factors benefiting Preble’s and/or other wildlife species:</p> <ul style="list-style-type: none"> • County holds conservation easement. • Only passive recreation allowed on property.
Prairie Canyon Ranch		<p>Specific management actions implemented benefiting Preble’s:</p> <ul style="list-style-type: none"> • 2001: Douglas County constructed a fence to exclude livestock grazing from approximately one mile of Cherry Creek. This resulted in the natural increase of native riparian and wetland vegetation, bank stabilization. • 2004: Additional one-half mile fenced to exclude livestock. • 2003-2005: Five thousand shrubs and trees (including coyote willows, cottonwoods, peachleaf willows, chokecherries, snowberry, wild plum, serviceberry, wax current, and golden current) planted in riparian area on Prairie Canyon. • 1999-present: Extensive, ongoing weed control efforts in the RCZ have focused on eradicating knapweed, Canada thistle, kochia, Scotch thistle, and musk thistle.

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Property	Management Plan Completed	Comments
		<p>Additional conservation factors benefiting Preble's and/or other species:</p> <ul style="list-style-type: none"> • Property adjoins State Land Board land and Castlewood Canyon State Park providing additional habitat and refuge protection for Preble's and other plant and wildlife species. Douglas County and the State work cooperatively on managing adjacent lands.
Ramsour	X	<p>Conservation factors benefiting Preble's and/or other species:</p> <ul style="list-style-type: none"> • Public access limited to existing road/trail. • Adjoins Columbine open space and conservation easement (JA Ranch) which provides additional habitat and refuge.
Red Mesa Ranch		<p>Conservation factors benefiting Preble's and/or other species:</p> <ul style="list-style-type: none"> • Adjoins Roxborough State Park and North Willow Creek Ranch which provides additional habitat and refuge.
Snortland	X	<p>Conservation factors benefiting Preble's and/or other species:</p> <ul style="list-style-type: none"> • Specifically acquired for the conservation of Preble's. • Beaver have returned and are not controlled. • Adjacent to conservation easement (JA Ranch) which provides additional habitat protection. • Trash removal.

Table 5-3. Impacts Mitigated by Preservation of the RCZ.

Impact Type	Impacted Acreage	Preserved RCZ Acreage Used to Mitigate Impacts
Total Impact Threshold	430	985
Permanent	280	840 (280 AC X 3)
Temporary	122	61 (122 acres x 0.5)
Other Activities (emergency, maintenance, and repair)	28	84 (28 acres x 3)
Undesignated Mitigation Acreage available for Adaptive Management [†]	NA	147
Total Preserved RCZ Acreage		1,132 (985 + 147)

[†]See Section 6.6 for explanation of Adaptive Management.

Similar to the covered activities, these protected reaches of the RCZ are scattered throughout the County (Figure 4a). However, many of the reaches of the RCZ protected by the Applicants to mitigate the impacts associated with the covered activities have strategic conservation significance. The protected reaches help to form a network of protected habitat for Preble’s and other riparian species by connecting with larger protected areas such as state parks or privately protected lands. Evidence of the importance of maintaining such corridors is provided by empirical investigations that have demonstrated reduced extinction rates and increased colonization rates of patches connected to corridors compared with patches without corridors (Peles et al. 1999). At a local scale, interconnected or adjacent reaches of habitat are preferable to isolated reaches (Preble’s Science Team *in* Pague and Grunau 2000). The protection and management of these properties will benefit Preble’s and other riparian species long past the term of the DCHCP. The protected habitat is distributed throughout the County and will help maintain the long-term viability of Preble’s. Populations that are geographically well distributed across their native range at local, regional, and rangewide scales are less susceptible to extinction than species confined to small portions of their range. Populations representing the range of ecological variability (e.g., elevation, climate, stream order, soils, and hydrology) at local, regional, and rangewide scales are less susceptible to extirpation (Preble’s Science Team *in* Pague and Grunau 2000). Preservation of the RCZ is an appropriate form of mitigation for the covered activities because:

- Many of the lands protected by the Applicants connect with other protected lands to form a network of protected riparian habitat.
- The conservation benefit of the Applicants’ protected properties extends beyond the RCZ. The properties protected by the Applicants include about 7,145 acres of protected lands bordering the RCZ in addition to the 1,132 acres of the RCZ that have been protected. These additional protected lands will serve to buffer the protected RCZ from surrounding land uses.

- The properties that will be used for mitigation are managed in a way that benefits Preble's and the RCZ.
- The properties are protected from future development in perpetuity, a benefit that exceeds the term of the DCHCP.

The distribution of protected properties is diverse and includes minor tributaries and their associated riparian habitat as well as larger creeks. This diversity provides the following conservation advantages:

- Reduces the potential impact of indirect and secondary effects by distributing protected riparian habitat throughout the watershed.
- Provides riparian and adjoining upland habitat in diverse locations that may serve as a temporary refuge during floods or fire (stochastic environmental events).
- Provides for conservation of known and unknown populations of Preble's.
- Provides habitat and connections for Preble's to expand its range in the future or recolonize abandoned habitats.

About 884 acres, or 78 percent, of the preserved RCZ habitat occurs in the upper Cherry Creek, upper East Plum Creek, West Plum Creek, and Plum Creek watersheds. Some of the highest quality habitat for Preble's along the Front Range occurs in these areas, which are located in the portions of the County expected to remain in rural and agricultural land uses similar to current land uses. These continued land uses will help to buffer the protected habitat from indirect impacts.

The RCZ habitat preservation does not preclude covered activities from occurring on portions of the RCZ preserved. Any portion of the preserved RCZ permanently impacted by a covered activity will be deducted at a 4 to 1 ratio from the RCZ habitat preservation mitigation land total.

5.3.1 Habitat Preservation for Temporary Impacts

Temporary impacts to the RCZ from covered activities are capped at 122 acres. As discussed in Section 5.2, temporary impacts to the RCZ will be rectified through restoration requirements. The Applicants anticipate that some residual temporary impacts will not be addressed in the near term by restoration (e.g., changes in vegetation types, a lag in vegetation establishment, or periodic mowing). Habitat preservation will be used to mitigate these potential residual temporary impacts. For every 1 acre of temporary impacts associated with covered activities, the Applicants have preserved 0.5 acre of the RCZ. The 0.5 acre of preservation per 1 acre of impact to the RCZ is an appropriate level of mitigation for potential residual temporary impacts for the following reasons:

- Habitat is preserved prior to the impacts occurring
- Not all temporary impacts will have lasting residual impacts
- All areas of temporary impacts will be restored

The DCHCP covers activities that will have minor temporary impacts to the RCZ associated with the maintenance and repair of existing facilities and structures, emergency activities, and habitat improvements. Any temporary impacts to the RCZ will be mitigated by the BMPs and revegetation requirements.

5.3.2 Habitat Preservation for Permanent Impacts

Permanent impacts to the RCZ from covered activities (including emergency activities) are capped at 308 acres. Permanent impacts to the RCZ associated with covered activities will be mitigated through habitat preservation by the Applicants. For every 1 acre of permanent impact to the RCZ, the Applicants have protected 3 acres of the RCZ. The Applicants have estimated impacts to the RCZ from covered activities that have been identified to occur over the term of the DCHCP. The DCHCP also covers types of activities with projects than cannot be accurately identified because they occur infrequently and in response to events that cannot be accurately predicted (e.g., repair of existing facilities, emergency activities, and habitat improvements). These activities could have potential permanent adverse impacts to the RCZ although these potential impacts are anticipated to be minimal because they are most likely associated with infrequently occurring emergency activities. As described in Chapter 6, the Applicants will track and report permanent impacts to the RCZ from emergency activities. These impacts will be included in the permanent impact threshold for the DCHCP.

Habitat preservation is appropriate mitigation for the following reasons:

1. Preservation of Habitat Prior to Impacts. The County and Towns have preserved 1,132 acres of the RCZ as part of the development process of the original HCP. This habitat has been preserved well in advance of any impacts. Many of the protected properties have had substantial time for riparian habitat to improve with the removal or reduction of livestock grazing and return of beavers.

2. Impacts Will Be Phased. Impacts to the RCZ will not all occur in the first year of the DCHCP. Impacts will be phased; however, all of the habitat preservation used to mitigate the impacts has occurred.

3. Protected Properties Extend Beyond the RCZ. The properties protected by the County and Towns include 7,145 acres in addition to the 1,132 acres of RCZ that has been protected. These additional protected lands provide added benefit to Preble's and the RCZ.

4. The Impacts of Covered Activities Are Widely Scattered. Most of the impacts to the RCZ are widely scattered bridge and road projects. However, the preserved habitat occurs in much larger blocks than the impacts. Impacts are typically about 3.6 acres in size and rarely affect more than about 700 feet of a stream reach. However, the County and Towns, through their open space and natural areas planning, have successfully protected extended stream reaches.

5. Habitat Preserved for Mitigation Provides Continuity. Much of the habitat preserved by the County and Towns is strategically located. Reaches of the RCZ have been preserved next to state parks, the national forest, and private conservation easements

that build on and extend a network of connected stream miles of the RCZ (Section 5.3 and Figure 4a).

6. Habitat Preservation will Persist if Preble's is Delisted. Earlier in its Preble's habitat mitigation considerations, the Service preferred habitat creation, restoration, and enhancement over preservation. If Preble's is delisted, many of these non-preservation mitigation efforts may not remain as habitat. However, permanent protection of the RCZ will persist beyond any potential delisting. The preservation of these riparian habitats will benefit Preble's and other riparian species long after any potential delisting and beyond the term of the DCHCP.

5.3.3 Lands Preserved Beyond the RCZ

The Applicants believe they have demonstrated that the RCZ represents the best scientific information available for Douglas County to determine potential habitat for Preble's (see Appendix 1). As an example, the Applicants used GIS and statistical modeling to compare Preble's movement data with the county-wide RCZ mapping effort. This comparison provides a 95 to 99 percent level of confidence that the RCZ represents the area of Preble's movement (Appendix 1). These modeling efforts, as well as the other factors discussed in Section 3.2.5.1 (The RCZ Includes Habitat Essential to Preble's), demonstrate that the area outside of the RCZ where Preble's is infrequently observed does not provide significant habitat for Preble's. Even so, the Applicants have protected 7,145 acres of lands adjacent to the RCZ over and above the 1,132 acres they have protected for mitigation purposes within the RCZ. The Applicants' protection of this substantial area adjacent to the RCZ adds value to the protected RCZ and the DCHCP's mitigation plan, and aids in minimizing any future or cumulative impacts to the protected RCZ.

5.3.4 Land Management Efforts to Enhance and Restore the RCZ

Because the majority of riparian areas within Douglas County are of high quality, the opportunities for enhancement and restoration of the RCZ are far fewer than the opportunities to conserve and protect quality segments of the RCZ. Nonetheless, as part of each Applicant's overall management of its open space, each Applicant will develop management plans for the open space



Beaver ponds and lodge at Columbine Open Space.

properties that they own or manage and use for mitigation to ensure that the RCZ is maintained or enhanced to benefit Preble's. The management plans will address, among other purposes, the habitat needs for Preble's and identify areas needing habitat restoration and/or enhancement. Depending upon the habitat conditions identified on the protected lands, management practices to enhance habitat may include livestock management plans, fencing of riparian areas, weed control, and native vegetation plantings, and/or other appropriate management tools and practices. See Table 5.2 and discussion below for examples of enhancement or restoration efforts that have been conducted by the Applicants to date. Management of Applicant-owned protected lands consistent with the conservation of Preble's occurred throughout the development of the original Regional HCP. For example, at Prairie Canyon Ranch, protection of riparian habitats has resulted in dramatic improvements (see photos). Actions such as these will continue as part of the implementation of the DCHCP.⁵

Douglas County's acquired open spaces for protection of Preble's habitat along East Plum Creek (Columbine and Snortland) have had visible increases in woody riparian vegetation; more importantly, beaver have returned to these stream reaches. The return of beaver to many of the stream reaches of the RCZ within protected lands is important because this will help ensure the dynamics that are needed to maintain a healthy riparian system. This trend of protected lands and improved riparian health will increase over the term of the DCHCP as more lands are protected and managed by the Applicants.

Other management actions to enhance habitat undertaken by the Applicants are summarized in Table 5-2 above. Future management actions taken to enhance Preble's habitat will be documented in the Applicants' annual report provided to the Service.



Prairie Canyon Ranch in 2001 when County acquired the property for open space.



Prairie Canyon Ranch in 2005 with restored riparian vegetation.

⁵ The Douglas County Open Space sales and use tax requires 8 percent of the collected tax be used for operation and maintenance; thus a portion of the funding for the management, enhancement, and restoration of Applicant-owned protected lands within the RCZ will be provided, at least in part, from this portion of the sales and use tax.

5.4 To the Maximum Extent Practicable, the Applicants Will Minimize and Mitigate the Impacts of Incidental Take

The Applicants have, to the maximum extent practicable, minimized and mitigated the impacts of incidental take of Preble's through the following:

1. Temporary impacts will be restored.
2. Any residual temporary impacts will be compensated through properties owned by the Applicants that preserve portions of the RCZ.
3. Where feasible, the protected areas of the RCZ connect to other protected lands and aid in forming a network of protected habitat.
4. Protection of areas containing the RCZ and owned by an Applicant, which will be used for mitigation, will occur prior to the impacts from covered activities occurring.
5. The total impact threshold provides an incentive to the Applicants to avoid and minimize impacts to the RCZ.
6. Opportunities in Douglas County to create or enhance habitat for Preble's are limited. Preservation of the RCZ on Applicant-owned land will ensure that quality habitat for Preble's will remain in Douglas County.
7. Protected properties containing the RCZ to be used for mitigation have extensive protected lands adjacent to the RCZ, which will buffer the protected RCZ from secondary impacts.
8. The mitigation ratios will ensure that more habitat is preserved than the amount of habitat affected by the covered activities.

5.5 Comparison of Mitigation Approaches for the Alternatives

The mitigation provided by each alternative would be different. The No Action alternative would provide mitigation for Preble's and its habitat on a project-by-project basis as is currently the situation in Douglas County. The County and Towns would develop mitigation proposals for each HCP or section 7 consultation that addresses impacts to Preble's and its habitat. Mitigation could involve habitat creation, restoration, enhancement, and/or preservation. Each mitigation plan would be developed separately and negotiated with the Service. Mitigation projects would be small and scattered because there would be no programmatic or coordinated approach to mitigation and the future County and Town projects are scattered throughout the County. This project-by-project mitigation does not provide any enhanced benefit to Preble's beyond the direct mitigation when compared to the other alternatives.

The mitigation proposed in the original Regional HCP was a results-based approach that focused first on impact avoidance of the RCZ by limiting the types of activities that

were covered by the Regional HCP. Impacts to the RCZ were minimized through the application of BMPs to reduce and rectify the impacts. An impact threshold was established for temporary and permanent impacts to the RCZ. Impacts to the RCZ were mitigated through the results-based conservation design approach that included:

1. Operating on a regional, watershed basis. The Regional HCP would utilize the best available science through mapping of the RCZ, reflecting a geographically and ecologically diverse network of potential Preble's habitat distributed throughout the County.
2. Minimizing impacts to the RCZ to the maximum extent practicable by incorporating avoidance of the RCZ as a primary conservation objective. Activities covered by the Plan are directed away from the RCZ, except for a specifically defined set of activities (Defined Activities and Applicant Activities) that: (A) will not form a barrier to the movement of the covered species to other portions of the watershed; and (B) incorporate and follow prescribed activity-specific conditions and BMPs to further minimize and rectify impacts.
3. Quantifying and capping impacts to the RCZ associated with covered activities via specified impact thresholds.
4. Mitigating the impacts through implementation of a conservation design satisfying the biological goals and objectives of the Regional HCP. The Regional HCP's conservation design would be implemented to protect, maintain, or enhance the quantity and distribution of habitat needed to provide for the long-term viability of Preble's in Douglas County over the term of the HCP. Habitat providing for the long-term viability of Preble's in Douglas County was defined as that supporting at least one medium population (10 connected stream miles of the RCZ) and one large population (50 connected stream miles of the RCZ).
5. The following targets were established for preservation of the RCZ:
 - Preservation of one-third of the stream miles of the RCZ (95 stream miles).
 - Of the 45.5 stream miles of the RCZ to be preserved (over and above what is currently protected), 60 percent of the stream miles would be targeted to occur within the RCZ priority conservation area that includes upper Cherry Creek, upper East Plum Creek, and the West Plum Creek and Plum Creek watersheds.
 - The Applicants will develop management plans for all preserved habitat acquired by the Applicants.
 - The Applicants will establish funding for the long-term management of the lands owned by the Applicants.

This results-based conservation approach was appropriate for the original Regional HCP because the HCP would have included the entire County, a set of defined covered activities for parties other than the County and Towns over a 50-year term. The results-based approach to mitigation would have conserved a substantial portion of the RCZ and provided for the long-term viability of Preble's in Douglas County. However, as

discussed in Chapter 1, the approval of the original Regional HCP would take 2 additional years and it no longer met the Applicants' need for timeliness.

The mitigation provided by the DCHCP (proposed alternative) is discussed in detail in the previous sections. The mitigation plan for the DCHCP strikes a balance between the results-based conservation design of the original Regional HCP and the no action alternatives. The DCHCP has a coordinated approach to mitigation, establishes an impact threshold, and includes incentives and required BMPs to avoid, minimize, and rectify impacts to the RCZ. The DCHCP will use portions of the RCZ preserved by the Applicants to mitigate impacts to the RCZ. Many of these preserved areas are strategically located in areas important to the future conservation of Preble's and are adjacent to other protected lands, thus forming a network of protected habitat for Preble's. This network of habitat that will remain protected beyond the term of the DCHCP provides a substantial added benefit to Preble's beyond the project-by-project mitigation approach of the no action alternative.

Chapter 6 Monitoring Program

The purpose of the monitoring program is to evaluate the progress of the DCHCP and to ensure that it is properly implemented. In accordance with ESA section 10 regulations, the DCHCP's monitoring program specifies the measures the Applicants will take to "monitor" the impacts of the taking authorized by the ITP. (See 50 CFR § 17.22(b)(1)(iii)(B) and 50 CFR § 222.22(b)(5)(iii).) These measures provide periodic accounting by the Applicants of take and fulfillment of mitigation requirements, and will occur throughout the term of the DCHCP. The monitoring measures and subsequent reporting will allow the Service, the Applicants and the interested public to evaluate the progress and effectiveness of implementation of the DCHCP.

6.1 Approach

The monitoring plan for the DCHCP is simple and straightforward because it primarily involves accounting for impacts to the RCZ associated with covered activities and use of the protected habitat for mitigation. The monitoring program will ensure that the incidental take is within permitted levels, mitigation requirements are met, the biological goals and objectives are met, and adjustments to implementation of the DCHCP are made as needed to meet the goals, objectives, and commitments.

6.2 Impact Accounting

The Applicants will provide to the Service an annual accounting of the impacts to the RCZ associated with the covered activities. The accounting will compare the estimated impacts of covered activities used to establish RCZ impact thresholds for covered activities with actual impacts. For each covered activity that is constructed, the Applicants will determine the actual temporary and permanent impacts to the RCZ. These impacts will be debited against the impact threshold established for the DCHCP. The Applicants also will report annually on any emergency or habitat improvement activities conducted by the Applicants in the RCZ. The Applicants will estimate the temporary and permanent impacts (adverse and beneficial) to the RCZ associated with these activities and the measures taken to minimize and rectify impacts.

As part of the impact accounting, the Applicants also will monitor construction of covered activities and ensure that all appropriate construction BMPs are implemented and temporary impacts are restored including ensuring that the revegetation requirements are met.

6.2.1 Identified Covered Activities that May Undergo ESA Compliance Separate from the DCHCP

The permitting of the DCHCP is a lengthy and uncertain process, and as a result the Applicants initiated planning, design and permitting processes on a number of activities covered in the DCHCP in order to implement activities within a timeframe that meets the Applicants' funding, public purpose and planning needs. The Applicants initiated ESA

compliance processes for these identified covered activities on a separate track from the DCHCP and ITPs processes. However, the permanent and temporary impacts of these identified covered activities are incorporated into the DCHCP impact thresholds shown in Table 5-3 to allow the Applicants flexibility to mitigate the impacts of the identified covered activities either through the DCHCP or through the mitigation measures negotiated as part of the activity's separate ESA compliance process.

Table 6.1⁶ provides a listing of identified covered activities that have obtained the necessary ESA approvals in advance of the finalization of the DCHCP. For these identified covered activities, the Applicants intend to rely on the DCHCP to provide the necessary habitat mitigation for potential impacts to Preble's and its habitat. All other projects for which the Applicants have completed ESA compliance measures separate from the DCHCP will be mitigated and monitored in compliance with their associated permits and approvals.

As part of the impact accounting, the Applicants will identify which covered activities received prior ESA approval.

Table 6-1. Covered Activities with ESA Compliance Separate from the DCHCP.

Name of Covered Activity	Covered Activity	Drainage	Temporary Impact (acres)	Permanent Impact (acres)	Total Impact (acres)	Status of ESA Compliance	Jurisdiction
CR 105 at East Plum Creek	EPC 15-A	East Plum Creek	0.52	3.40	3.92		Douglas County
Larkspur Bridge	EPC 16-A	East Plum Creek	2.00	5.00	7.00		Douglas County
Spruce Mountain Road at Carpenter Creek	CARP-A1 CARP-A3	Carpenter Creek	0.34 0.24	2.19 1.54	2.53 1.78		Douglas County
Perry Park Access	WPC10-C	West Plum Creek	0.78	5.08	5.86		Douglas County
Best Road at Antelope Creek	AC6-A	Antelope Creek	0.11	0.68	0.79		Douglas County
Pine Lane	CC2-B	Cherry Creek	0.06	0.37	0.43		Parker
Hess Road	CC4-A	Cherry Creek	0.40	2.62	3.02		Parker
Drainageway D Confluence Rehabilitation	PSW-1	Cherry Creek	0.70	0.20	0.90		Parker

⁶ For the Draft DCHCP, Table 6-1 includes all identified covered activities that the Applicants have either already initiated or may initiate an ESA compliance process prior to the final approval of the DCHCP. In the final DCHCP, Table 6-1 will only include those identified covered activities that have received permit approvals and will be mitigated through the DCHCP.

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Name of Covered Activity	Covered Activity	Drainage	Temporary Impact (acres)	Permanent Impact (acres)	Total Impact (acres)	Status of ESA Compliance	Jurisdiction
Drainageway A Confluence Rehabilitation	PSW-2	Cherry Creek	0.50	0.20	0.70		Parker
Cherry Creek Stabilization near Stroh Ranch	PSW-3	Cherry Creek	3.50	0.60	4.10		Parker
Bayou Gulch Trail	CC6	Bayou Gulch/Cherry Creek	0.10	2.70	2.80	BA started	Douglas County
Bayou Gulch Trail	CC7	Bayou Gulch/Cherry Creek	0.04	0.10	0.14	BA started	Douglas County
Cottonwood Channel Rehabilitation	PSW-4	Cherry Creek	1.70	0.10	1.80		Parker
Cherry Creek Stabilization near Mainstreet	PSW-5	Cherry Creek	2.50	0.40	2.90		Parker
Cherry Creek Stabilization near Lincoln Avenue	PSW-6	Cherry Creek	1.70	0.50	2.20		Parker
Cherry Creek Stabilization near Hess Road	PSW-7	Cherry Creek	1.70	0.30	2.00		Parker
Cherry Creek Stabilization near Pine Drive	PSW-8	Cherry Creek	1.40	0.20	1.60		Parker
Cherry Creek Stabilization near E-470	PSW-9	Cherry Creek	2.00	0.30	2.30		Parker
Stormwater Maintenance — Assorted		Cherry Creek	3.00	0.00	3.00		Parker
US 85/ Meadows Parkway	EPC3-A	East Plum Creek	3.40	18.20	21.6		Castle Rock
Total			26.69	44.68	71.37		

6.3 Mitigation Accounting

As part of the development of the DCHCP, the Applicants have permanently protected a number of properties that contain 1,132 acres of the RCZ (see Table 5-1). Impacts to the RCZ associated with the covered projects will be mitigated using the 1,132 acres of protected RCZ acres as follows:

- Temporary Impact – 0.5 acre of preserved RCZ for each 1 acre of temporary impact to RCZ
- Permanent Impact – 3 acres of preserved RCZ for each 1 acre of permanent impact to RCZ
- Emergency Activity Impact – 3 acres of preserved RCZ for each 1 acre of permanent impact to RCZ
- Permanent Impacts to Mitigation Lands – 4 acres of preserved RCZ for each 1 acre of impact to RCZ

The permanently protected properties have been organized in Table 5-1 in the order in which the Applicants will use the permanently protected acreage for mitigation purposes. Each Applicant will account for mitigation acreage using properties it owns first. For example, the impacts associated with the Douglas County's first covered activity conducted will be mitigated using Columbine Open Space; Castle Rock will use East Plum Creek at PC Parkway and Parker will use Reatta West. Once the mitigation acreage associated with the Applicant's first property is fully used, then the Applicant will utilize its next property for mitigation until it has been fully utilized in accordance with the rations described above. Each Applicant will continue to utilize its own mitigation properties until the associated mitigation acreage has been depleted. Once Castle Rock and/or Parker has utilized all mitigation acres available on properties it owns, the Town(s) may begin utilizing in the appropriate order County protected property as mitigation.

The Applicants will provide an annual accounting of mitigation as part of the annual monitoring report. This annual mitigation accounting will demonstrate:

- The following for each covered activity where impacts are being mitigated:
 - Project name and unique identifier
 - Temporary impacts in acres and tenths of acres
 - Permanent impacts in acres and tenths of acres
 - Emergency activity impacts in acres and tenths of acres
 - Approximate date of impacts (month/year)
- The name of the permanently protected property used to mitigate the impacts of the project and how many acres and tenths of acres were used to mitigation the covered activity's permanent and temporary impacts
- The remaining balance of acres for the each permanently protected property used for mitigation

- The remaining impact threshold for temporary and permanent impacts at the close of the reporting period
- Verification from the Applicants that the areas of the preserved RCZ used for mitigation remains preserved

6.4 Monitoring of Biological Goals and Objectives

The monitoring program will track the Applicants' progress toward meeting the DCHCP's biological goals and objectives. The DCHCP establishes three biological goals and four objectives (see Section 1.5). The Applicants have met Objective A.1 (protect 1,132 acres of the RCZ) and Objective C.1 (established BMPs, revegetation guidelines, and success criteria for temporary impacts) as part of the development of the DCHCP.

As part of the monitoring program for the DCHCP, the Applicants will report annually to the Service on the completion and implementation of the management plans to benefit Preble's and riparian habitat for all Applicant-owned mitigation lands (Objective B.1). The Applicants will monitor construction of covered activities to ensure that all appropriate BMPs are implemented and temporary impacts to the RCZ are restored including that the revegetation guidelines and success criteria in Appendices 4 and 5 have been met (Objective C.2). The results of this monitoring will be reported to the Service annually.

6.5 Reporting

The Applicants will provide to the Service an annual report that compiles the information described in Section 6.2, Section 6.3, and Section 6.4. A single annual monitoring report will be submitted by the County to the Service. The report will address information for the County and Towns. The report will be provided to the Service no later than March 1 of the year following the year the report addresses.

6.6 Adaptive Management

The primary reason for using adaptive management in HCPs is to allow for changes in strategies that may be necessary to reach the long-term goals (or biological objectives) of the HCP and to ensure the likelihood of survival and recovery of the species in the wild (Service and NMFS 1996). The DCHCP provides a relatively simple and straightforward approach to addressing the potential incidental take coverage of Preble's for activities conducted by the Applicants in the RCZ. This approach is unlikely to require substantial adaptive management measures. The following are some adaptive management measures that may be implemented if needed over the term of the DCHCP.

- If BMPs and revegetation guidelines do not provide adequate restoration of temporary impacts of the RCZ, then the Applicants will revise the BMPs and revegetation guidelines in cooperation with the Service and monitor the effectiveness of the revised BMPs and revegetation guidelines.
- If a naturally occurring catastrophic event interferes with the implementation of a management plan for preserved habitat acquired by the Applicants for mitigation,

then the Applicants will revise the management plans for properties affected by the event or re-implement the existing plans as appropriate for the circumstances in consultation with the Service.

- If impacts associated with the covered activities are consistently higher than impacts originally estimated for the covered activities, then the Applicants will seek approval from the Service of an amendment to the DCHCP addressing the total impact threshold and/or the amount of mitigation needed.
- The Applicants have set aside 147 acres of RCZ preservation over and above what is required to mitigate the impacts associated with the Applicants' covered activities, for adaptive management and mitigation of covered activities that may impact lands used for mitigation in Service decisions that predate the DCHCP (Section 4.1.4.1) or covered activities that occur on portions of the RCZ preserved for mitigation of the DCHCP (Section 5.3). Permanent impacts from covered activities on lands used for mitigation in Service decisions that predate the DCHCP will be mitigated at a 4:1 ratio (Table 4-2).

Chapter 7 Implementation

7.1 Commitments

The Applicants commit to the following during the term of the DCHCP:

1. To assure that covered activities do not exceed the designated total impact threshold (Section 4.1.1.2 and Table 4-1) absent amendment of the DCHCP and ITPs pursuant to Section 7.6.2.
2. To minimize and mitigate the impacts of covered activities to the maximum extent practicable as described in Chapter 5.
3. To develop management plans for all Applicant-owned mitigation lands within 2 years following implementation of the DCHCP. The management plans will address the habitat needs for Preble's and identify areas needing habitat restoration and/or enhancement. Each management plan will identify appropriate management practices to sustain, restore, or enhance riparian habitat contained within the managed property, and will be implemented upon completion of the management plan.
4. To implement the Applicants' monitoring programs, including monitoring of the restoration and revegetation of temporary impacts to the RCZ associated with covered activities, and to implement adaptive management responses as needed.
5. To meet the Applicants' funding obligations set forth in Section 7.2 below for implementation of the DCHCP.
6. As part of monitoring and reporting, to provide an annual report to the Service that demonstrates compliance with these commitments.

7.2 Funding Assurances

Adequate funding is needed to properly implement the DCHCP and is required as one of the Service's issuance criteria (Service and NMFS 1996). Funding needed to perform elements of the DCHCP including mitigation and monitoring, and the sources of such funding are described below.

7.2.1 Sources of Funding

To demonstrate the availability of funding needed to implement the DCHCP, the Applicants have identified the funding sources to be used in carrying out the various requirements of the DCHCP. Funding sources for the DCHCP, along with revenue projections through 2009, are identified by jurisdiction in Table 7-1 below.

Table 7-1. Revenue Projections for Funding Sources.

Funding Source	Budget Projections [†]			
	2006	2007	2008	2009
Douglas County				
General Fund	\$87,501,800	\$90,341,600	\$96,123,000	\$97,379,000
Open Space, Trails and Parks Sales and Use Tax	\$6,693,200	\$6,855,400	\$7,028,000	\$7,211,600
Conservation Trust Fund	\$800,000	\$800,000	\$800,000	\$800,000
Road Sales and Use Tax Fund	\$20,313,928	\$8,448,000	\$8,796,000	\$9,136,900
Road and Bridge Fund	\$11,715,000	\$10,758,400	\$11,652,500	\$12,252,000
Castle Rock				
Transportation Fund	\$17,900,000	\$18,400,000	\$19,000,000	\$19,600,000
General Fund	\$22,000,000	\$22,700,000	\$23,300,000	\$24,000,000
Conservation Trust Fund	\$900,000	\$900,000	\$950,000	\$980,000
Stormwater Fund	\$2,400,000	\$2,500,000	\$2,500,000	\$2,600,000
Sewer Fund	\$9,200,000	\$9,500,000	\$9,800,000	\$10,000,000
Water Fund	\$13,700,000	\$14,100,000	\$14,500,000	\$14,900,000
Water Resource Fund	\$2,300,000	\$2,400,000	\$2,400,000	\$2,500,000
Parker				
Capital Projects Fund	600,000	1,500,000	1,300,000	1,200,000
Park and Recreation Fund	1,000,000	700,000	400,000	60,000
Stormwater Utility Fund	600,000	600,000	800,000	900,000
General Fund	6,600,000	5,600,000	5,200,000	4,200,000
Conservation Trust	1,000,000	200,000	100,000	300,000

[†]The funding projections provided in Table 7-1 above are projections for the entire fund balance. Only a portion of the project revenues will be allocated toward implementation of the DCHCP. It is anticipated that these funding sources will continue throughout the permit term.

Table 7-2 links the funding sources identified in Table 7-1 above to specific DCHCP implementation measure categories.

Table 7-2. Sources of Funds for DCHCP Implementation Measures.

Applicant	Implementation Measures Funding Category	Source(s) of Funds
Douglas County	Road and Bridge Projects	General Fund; Road and Bridge Fund; Road Sales and Use Tax Fund
Douglas County	Trail Projects	General Fund; Open Space, Trails and Parks Sales and Use Tax Fund; and Conservation Trust Fund
Douglas County	Emergency	General Fund
Douglas County	Annual Reporting	General Fund
Douglas County	Management Plan Development	Open Space, Trails and Parks Sales and Use Tax Fund
Douglas County	Maintenance and Management of Protected Properties	Open Space, Trails and Parks Sales and Use Tax Fund
Town of Castle Rock	Road and Bridge Projects	Transportation Fund; General Fund
Town of Castle Rock	Trail Projects	Transportation Fund; General Fund; and Conservation Trust Fund
Town of Castle Rock	Utility and Other Projects	Stormwater Fund; Water Fund; Sewer Fund; General Fund; and Water Resource Fund
Town of Castle Rock	Emergency Activities	General Fund
Town of Castle Rock	Monitoring and Reporting	Transportation Fund; General Fund
Town of Castle Rock	Management Plan Development	Conservation Trust Fund
Town of Castle Rock	Maintenance and Management of Protected Properties	Transportation Fund; General Fund; Stormwater Fund; Water Fund; Sewer Fund; Water Resource Fund and Conservation Trust Fund
Town of Parker	Road and Bridge Projects	Capital Projects Fund, General Fund [†]
Town of Parker	Trail Projects	Park and Recreation Fund, Conservation Trust Fund, General Fund
Town of Parker	Stormwater and Other Projects	Stormwater Utility Fund, General Fund
Town of Parker	Monitoring and Reporting	Capital Projects Fund; and Parks and Recreation Fund, General Fund
Town of Parker	Management Plan Development	Parks and Recreation Fund, General Fund
Town of Parker	Maintenance and Management of Protected Properties	Parks and Recreation Fund, General Fund

[†]Salaries for the Town of Parker’s staff are taken out of the General Fund. Non-salary costs for the Town of Parker are taken out of the other funds associated with the various funding categories.

7.2.2 Funding for Mitigation

As discussed in Chapter 5, mitigation required under the DCHCP is provided through impact avoidance, minimization, rectification, and habitat preservation and management. Avoidance, minimization and rectification of impacts are performed by each Applicant when conducting a covered activity by using best management practices and project design criteria. These elements are incorporated into the project design, scope, and budget for each covered activity. Therefore, the associated costs of the avoidance, minimization and rectification of impacts will be calculated, approved and funded by the jurisdiction conducting the covered activity as part of the total budget for that activity.

Table 7-2 above provides a list of the categories of covered activities by Applicant and the potential sources of funding for each project type. For example, trail projects conducted by Douglas County may be funded using revenues from one or a combination of the County's General Fund, monies allocated from the Conservation Trust Fund, or the County's Open Space, Trails and Parks Sales and Use Tax Fund (Appendix 7). Table 7-1 illustrates the availability of funding by providing annual budget projections for each of the identified revenue sources. From a funding assurances perspective, it is important to note that individual covered activities will only be conducted if adequate budget allocations are approved by the Applicant conducting the activity. Therefore, if an Applicant does not allocate the necessary funding to perform a particular covered activity, the covered activity will not be conducted and the associated impacts will not occur.

In addition to performing mitigation through avoidance, minimization, and rectification of impacts, the Applicants will offset the impacts of activities covered by the DCHCP with the preservation of 1,132 acres of the RCZ. The Applicants proactively preserved the needed 1,132 acres as land acquisition opportunities presented themselves subsequent to initiation of the HCP planning effort (see Table 5-1). Much of the protected habitat area was acquired using funds from the Douglas County open space, parks and trails sales and use tax, which was approved in 1994 and sunsets in 2023. Other properties were acquired through the development review process or through deed transfers. Regardless of the acquisition tool used, none of the Applicant-owned preserved properties requires additional funds to secure Applicant ownership. Therefore, funding assurances related to the acquisition of the preserved RCZ have been met.

7.2.3 Funding for Management of Protected Properties

As part of the DCHCP, the Applicants commit to the management of the protected properties. This task includes developing management plans for all Applicant-owned mitigation lands within 2 years following implementation of the DCHCP. The management plans will address the habitat needs for Preble's and identify areas needing habitat restoration and/or enhancement. Each management plan will identify appropriate management practices to sustain, restore, or enhance riparian habitat contained within the managed property, and will be implemented upon completion of the management plan.

The Applicants have already completed management plans that address the habitat needs of Preble's on 9 of the 29 Applicant-owned protected properties to be used as

mitigation land. Many of the protected properties that do not have specific management plans that identify the needs of Preble’s have general management plans. Based upon experience in developing of the 9 management plans that address Preble’s and its habitat, the Applicants estimate the costs associated with developing the additional management plans will be between \$340 and \$1340 per plan as indicated in Table 7-3 below.

In addition to developing management plans for the protected properties, the Applicants will manage the protected properties to address habitat needs for Preble’s as identified in the management plans. The estimated management costs identified in Table 7-3 reflect the reasonable range of per acre costs associated with annual maintenance and needed enhancement/restoration activities identified in the site specific management plans. Accordingly, the lower end of the range represents annual maintenance of an acre of RCZ that is in good condition needing no enhancement. The upper range represents intensive restoration and/or enhancement efforts that may include for example revegetation, and weed spraying (DCHCP Rationale for Costs Associated with Management of Protected Property).

Each Applicant commits to provide the necessary funding to develop management plans and conduct management on properties it owns. Sources of funding for the development of the management plans and conducting management activities are identified in Table 7-2 above.

Table 7-3. Costs Associated with Management of Protected Properties.[†]

1. Protected Property Management Plan Development	\$340.00 to \$1,340.00 per management plan per protected property
2. Management of Protected Properties Range of Annual per acre cost of Management of Protected Properties	\$24.50 to \$2,000.00 per acre depending upon identified enhancement/restoration needs

[†]Estimated costs for developing management plans were developed from the experience of conducting the nine previously drafted management plans for the protected property.

7.2.4 Funding for Monitoring and Reporting

Douglas County and the Towns will work together to develop procedures to perform monitoring and reporting tasks in a cost efficient, consistent and non-duplicative manner. Some tasks, such as keeping records of covered activities will be the responsibility of each jurisdiction; however, efforts will be made to standardize and simplify record keeping in an effort to facilitate cost savings to the Applicants and provide one annual report to the Service. Table 7-4 describes the tasks, staff time and costs associated with monitoring tasks. Table 7-2 identifies the Applicants’ funding sources for the monitoring and reporting portions of the DCHCP, and Table 7-1 provides revenue projections for each of the identified funding sources.

At this time, the Applicants believe that many of the tasks required to properly implement the DCHCP can be incorporated into existing and already funded staff positions. In anticipation of the DCHCP’s final approval, Douglas County has hired a staff person within the Department of Community Development whose responsibility, in part, will be to oversee implementation and monitoring components of the DCHCP on

behalf of the County. The County anticipates that this staff person will oversee DCHCP covered activities during the planning, construction and post-construction phases of each covered activity. This staff person will also coordinate the necessary monitoring and reporting requirements and provide information to the Service as required under the DCHCP.

Table 7-4. Costs Associated with Monitoring DCHCP Requirements for Each Covered Activity.[†]

Covered Activity Monitoring Activity/Cost Item	Estimated Staff-Hours per Project
Locate RCZ within project impact area	1
Conduct initial assessment using maps and other resources	.5
Conduct habitat assessment site visit	3
Identify and plan impact minimization measures	3
Develop project plan per DCHCP requirements	5
Conduct additional meetings or site visits as necessary	3
Conduct pre-construction inspection	3.5
Conduct construction phase inspection(s)	2
Conduct revegetation installation oversight site visit/inspection	7
Conduct annual revegetation inspections – success monitoring	5
Prepare necessary project reports	2
Total Staff-hours per project [‡]	35
Total Estimated Cost of Monitoring per Covered Activity	\$1,000

[†]The estimated staff-hours depicted in this table represent the Applicants’ best estimate of the level of effort required to perform the necessary monitoring needed to ensure BMPs and success criteria will be met, and to conduct the necessary reporting requirements.

[‡]As required in BMPs in Appendix 3 and the Revegetation Guidelines in Appendix 4, some monitoring tasks are conducted more than once during a 2-year period. Table 7-4 includes total staff hours required to fulfill requirements of each task.

Table 7-5. Annual DCHCP Reporting Costs.[†]

Annual DCHCP Reporting Activity/Costs Items	Estimated Staff or Project Cost
Coordination among Towns and County to complete annual DCHCP reporting requirements (45 hours @ \$40.00 per hour)	\$1,800
Preparing and reviewing annual DCHCP report (35 hours @ \$40.00 per hour)	\$1,400
Copying and other associated costs with report submission	\$100
Total Estimated Costs of DCHCP Reporting	\$3,300

[†]The Applicants anticipate streamlining the annual reporting requirements and costs associated with developing the annual report by utilizing a data stream from the project monitoring reports to develop a reporting workbook. This approach will help conserve time and resources by automatically calculating impacts, tracking monitoring and mitigation data and other annual report requirements. The costs described in the Annual DCHCP Reporting Costs portion of Table 7-5 are based on the concept of creating a standard workbook approach while taking advantage of significant time and cost savings over the term of the permit.

In summary, the necessary funding assurances for DCHCP implementation are provided for by the Applicants in the following ways: 1) the habitat preservation to be used for compensatory mitigation has already been secured and paid for; 2) mitigation associated with avoidance, minimization and restoration of temporary impacts is project specific and will be included in and approved as part of the budgeted costs of each covered activity; 3) the management cost for the protected lands (including the development of management plans) is supported through the funding sources identified in Table 7-2⁷; and 4) administrative costs related to monitoring and reporting is supported through the funding sources identified in Table 7-2. The financial obligations of the Applicants shall extend only to monies duly and lawfully appropriated and budgeted by the Applicants and encumbered for the purpose set forth in the DCHCP, pursuant to Section 29-1-110, C.R.S., as amended, and are subject to the requirements of Article 10, Section 20 of the Colorado Constitution.

7.3 Changed Circumstances

The ESA's implementing regulations define "changed circumstances" as "changes in circumstances affecting a species or geographic area covered by a conservation plan that can reasonably be anticipated by plan developers and the Service and that can be planned for" (50 CFR § 17.3). In developing the DCHCP, the Applicants and the Service have identified the potential "changed circumstances" that can reasonably be anticipated to affect the species and geographic area covered by the DCHCP, and have agreed upon the Applicants' responsibility under the DCHCP to implement conservation and mitigation measures to respond to such changed circumstances should they occur during the term of the DCHCP. The reasonably anticipated changed circumstances, and the Applicants' obligations connected thereto, are described in Table 7-6 below.

So long as the terms of the DCHCP and associated ITPs are being implemented, the Service will not require any mitigation or conservation measures or funding in addition to the measures and funding specified in this section to address changed circumstances. Other than the "changed circumstances" specifically identified in this section, all other changes in circumstances affecting species covered by the DCHCP shall be deemed "unforeseen circumstances," and shall be addressed as provided in Section 7.4.

⁷ The collection of revenues from the open space, parks and trails sales and use tax that are specifically earmarked for operation and maintenance will extend beyond the 10 year permit life of the DCHCP since the sales and use tax will not sunset until 2023.

Table 7-6. Anticipated Changed Circumstances.

Event	Location	Occurrence	Impacts	Response	Cost
Floods, prolonged drought, fire, or other naturally occurring events or processes.	RCZ	Temporary loss of vegetation at naturally occurring intervals (10 to 50 years)	May alter, destroy, and renew habitats within the RCZ. On balance not expected to have long-term detrimental effects on Preble's.	If impacts rise to a level that prevents the Applicants from meeting their mitigation commitments in Section 7.1, Applicants will revise the management plans for properties affected by the event or re-implement the existing plans as appropriate for the circumstances in consultation with the Service.	\$700 - \$2000 Management plan revision depending upon size of the property and the complexity of the plan revision.
Change in taxonomic status of Preble's (remains listed).	RCZ	Unknown	DCHCP remains in effect.	No action.	Costs outlined in DCHCP.
Additional or revised critical habitat designation for Preble's.	RCZ and potentially areas outside of RCZ	Unknown	No additional impact provided designation is consistent with RCZ.	No additional measures by the Applicants (see Section 7.8.2).	No cost
Impact minimization measures in the DCHCP for covered activities are ineffective.	RCZ	Not expected	Creates unanticipated impacts to the RCZ.	Applicants will work with the Service to revise minimization measures and monitor effectiveness.	\$2500

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Event	Location	Occurrence	Impacts	Response	Cost
Impacts to RCZ from covered activities exceed impact allowances.	RCZ	Not expected. The Applicants have committed that the covered activities will not exceed the impact threshold.	Impacts above total impact thresholds.	The Applicants will notify the Service if monitoring indicates that impacts of covered activities have the potential to exceed the designated total impact threshold, and will seek an amendment to the DCHCP to address increased impacts if necessary.	\$15,000
Non-Participation by one or more of the Towns.	N/A	Unknown.	No impact. Fulfillment of the County's commitments to address covered take is not dependent upon participation by any of the Towns. Each of the Towns also can demonstrate adequate funding, implementation, and mitigation for the DCHCP within its respective jurisdiction, provided the County remains a participant under the DCHCP.	No additional measures will be required of the County or remaining Town, provided the County remains a participant under the DCHCP.	No cost.

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Event	Location	Occurrence	Impacts	Response	Cost
<p>Covered activities occur in areas of the RCZ protected by existing HCPs or other Service decisions that precede the DCHCP.</p>	<p>RCZ</p>	<p>See Table 4-2</p>	<p>Importance unknown, but permanent impacts would not exceed 59.2 acres of the RCZ based on a review of known potential conflicts</p>	<p>Provide mitigation on a 1:1 basis above and beyond the mitigation ratios specified by the DCHCP and debited from the Applicant's accounting of lands preserved for mitigation for the DCHCP. The Applicants will coordinate with the Service to determine the locations of previous Service decisions that protect the RCZ. The Applicants have set aside 147 acres of the RCZ preservation for adaptive management and mitigation of covered activities that may impact lands used for mitigation in Service decisions that predate the DCHCP.</p>	<p>\$1,000–\$2,500</p>

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Event	Location	Occurrence	Impacts	Response	Cost
Future non-covered activities by non-participants in the DCHCP are proposed to occur within lands used, or proposed to be used, by the Applicants for mitigation for impacts associated with covered activities.	RCZ	Numbers unknown.	Unknown.	If requested by the Service, the Applicants will coordinate with the Service to help determine effects to the DCHCP. The Service, in coordination with the Applicants, will develop conservation measures for these activities to assure that the activities will not interfere with implementation of the DCHCP.	\$1,000–\$2,500

7.4 Unforeseen Circumstances

In the event that significant “unforeseen circumstances”⁸ occur during the life of the DCHCP, adjustments to the DCHCP may be proposed by either the Applicants or the Service to address those circumstances. The Service and the Applicants would work together to redirect resources to address unforeseen circumstances. Notwithstanding the foregoing, however, provided Applicants are in good faith implementing the DCHCP, the Service shall not:

- a) Require the commitment of any additional land, water, or financial compensation by the Applicants; or
- b) Impose additional restrictions on the use of land, water, or natural resources otherwise available for use by the Applicants under the original terms of the DCHCP.⁹

7.5 Implementing Agreement

In consultation with the Service, the Applicants prepared and executed Implementing Agreements (IAs) to ensure the implementation of the DCHCP. The signed IAs are provided in Appendix 6.

7.6 DCHCP Modifications and ITP Amendments

7.6.1 Modifications

Minor modifications to the DCHCP can be accomplished without amending the associated ITPs. Minor modifications include technical revisions, RCZ mapping revisions, substitutions of covered activities, and additions, transfer of ownership and substitutions of mitigation lands, as described below in this Section. Minor modifications

⁸ “Unforeseen circumstances” are defined as “changes in circumstances affecting a species or geographic area covered by a conservation plan that could not reasonably have been anticipated by plan developers and the Service at the time of the conservation plan’s negotiation and development, and that result in a substantial and adverse change in the status of the covered species” (50 CFR § 17.3).

⁹ In the event that any judicial decision or determination may hold that the Department of Interior’s “No Surprises” assurances rule (or similar successive rule) is vacated, unenforceable or enjoined for any reason or to any extent, the assurances in Sections 7.3 and 1.1 shall be enforceable only to the degree allowed by any such decision or determination, provided that the remainder of the DCHCP and its provisions shall remain in full force and effect to the maximum extent permitted by law. In the event that the “No Surprises” assurances rule may be vacated, unenforceable, or enjoined by such decision or determination but is later reinstated, the provisions in Sections 7.3 and 1.1 shall likewise be automatically reinstated and apply to the entire term of the HCP. If, in response to any such judicial decision or determination, the “No Surprises” assurances rule is revised, these provisions shall be automatically amended in a manner consistent with the revised rule so as to afford the maximum protection to the Applicants consistent with the revised rule.

also include certain adjustments that may need to be made as a result of adaptive management under the DCHCP. To the extent those and other modifications do not adversely affect Preble's in a manner significantly and quantifiably different from that analyzed in the DCHCP and associated biological opinion and NEPA documents, the Service shall approve such modifications and no change in the ITPs shall be required.¹⁰

When the Applicants determine that modification to the DCHCP is required, supporting documentation will be prepared and submitted to the Service. The documentation will include a description of the reason for the modification and an assessment of its impacts. The proposed modification also will detail any proposed changes to the avoidance, minimization, mitigation, and monitoring measures to ensure that Preble's and its habitat will be appropriately protected. Within 60 days of the Service's receipt of the notice of the proposed modification, the Service shall notify the Applicants in writing if it determines that the proposal will require an amendment to the permits. Otherwise, the Service shall approve the modification within that 60-day period. Modifications will be documented in the DCHCP annual report submitted to the Service.

7.6.1.1 Technical Revisions

Technical revisions to the DCHCP and its supporting documents (e.g., RCZ mapping) may include corrections of typographic, grammatical, and similar editing errors; correction of any maps or figures to eliminate errors; or other revisions to the DCHCP that do not diminish the level or means of mitigation or increase the impacts to Preble's or its habitat.

7.6.1.2 RCZ Mapping Revisions

The Applicants may revise the RCZ mapping, subject to approval from the Service, to address factual inaccuracies in the mapping that affect the RCZ boundaries. Examples include, but are not limited to: substantial changes in channel morphology that significantly change the location of the RCZ; landslides, slope failures, and debris flows that significantly change the location of the RCZ; obvious inclusions of non-habitat within the RCZ such as parking lots and buildings; or other significant changes in the RCZ that occur after the date of remote sensing on which the RCZ mapping was based.

7.6.1.3 Substitutions of Covered Activities

The ITPs are based on the total impacts associated with covered activities for the term of the DCHCP. The Applicants may substitute a different project for a covered activity provided the established impact threshold is not exceeded, the project is similar to the covered activities listed in Appendix 3 (e.g., substitution of a road project for a bridge project, or a bridge in a different location), and the Service approves the substitution. The Service will approve the substituted project as a minor modification under this Section provided it is consistent with the type and magnitude of impacts originally anticipated by the DCHCP. For example, most of the covered activities involve the

¹⁰ Flexibility exists under the DCHCP to accommodate minor adjustments in conservation practices and implementation strategies for Preble's (e.g., revegetation decisions for a specific parcel of land). Adjustments such as these will occur on a day-to-day basis under the DCHCP and require no revision to the Plan.

widening and/or replacement of roads and bridges that occur within the RCZ. Subject to Service approval, the Applicants could substitute a bridge widening project not originally listed as a covered activity provided the type and magnitude of impacts are similar to the original covered activity subject to the substitution. The substituted activity will be subject to all of the requirements and benefits of the DCHCP.

7.6.1.4 Additions, Transfers of Ownership or Substitutions of Mitigation Lands

The Applicants have protected nearly 16 stream miles and 1,132 acres of the RCZ as part of the development of the original Regional HCP. These protected lands will provide mitigation for impacts associated with the covered activities. The DCHCP establishes a total impact threshold and ratios of mitigation lands to impacts (see Chapter 5). Based on the total impact threshold and the mitigation ratios, the DCHCP is estimated to use 986 acres of the 1,132 acres of the RCZ protected by the Applicants. The Applicants will be able to add to or use the unused acreage of the mitigation lands for other purposes including but not limited to: 1) adaptive management; 2) to substitute for mitigation lands; 3) to mitigate additional covered activities; 4) to mitigate underestimated impacts for covered activities; or 5) to mitigation covered activities that may be associated with an extension of the DCHCP (see Section 7.6.3).

The Service shall approve the addition, transfer of ownership or substitution of mitigation lands as a minor modification pursuant to the provisions of Section 7.6.1 provided the addition, transfer of ownership or substitution of lands afford a level of mitigation benefits consistent with those of the original lands, are within the RCZ, and do not adversely affect Preble's.

7.6.2 Amendments

All amendments to the ITPs proposed by the Applicants shall be approved by the Service in accordance with applicable laws and regulatory requirements. The circumstances under which an amendment to the DCHCP and ITPs may occur include but are not limited to:

- Additions of species to be covered by the DCHCP and/or ITPs
- Changes in the scientific classification of Preble's covered by the DCHCP
- Changes in the geographical area covered by the DCHCP
- Changes in the anticipated or actual levels of take authorized by the ITPs
- Changes in the participation in the DCHCP by the Applicants
- Increases in the total impact threshold for covered activities
- Increases in the duration of the DCHCP and renewal of the ITPs

7.6.3 Renewal of ITPs

The Applicants may apply for a renewal of their ITPs prior to their expiration date in accordance with the provisions of 50 CFR § 13.22. The Applicants will have the ability to carry forward any unused portion of their mitigation and total impact threshold under

the initial ITPs into the next renewal time period. The Service and Applicants agree to renewals of up to 10 years, subject to mutual review and agreement by the parties. Such review shall commence at least 1 year prior to the expiration of the initial ITPs.

7.7 Permit Enforcement, Suspension and Revocation

7.7.1 Enforcement

The provisions of the DCHCP are enforceable through the terms and conditions of the ITPs issued by the Service. Any lawsuit brought pursuant to the citizen suit provision of the ESA against an Applicant to enforce an activity's compliance with the ESA within one or more of the Applicants' planning jurisdictions shall have no effect on the provisions of the DCHCP and ITPs or on other covered activities not subject to such proceeding, which shall remain in full force and effect.

7.7.2 Suspension

The Service may suspend all or part of the privileges authorized by an ITP pursuant to the provisions of 50 CFR § 13.27, if the Applicant is not in compliance with the conditions of the ITP or with any applicable federal laws or regulations governing the conduct of the permitted activity. Prior to proposing any suspension of an ITP, the Service will meet and confer informally with the Applicants in an effort to resolve any grounds for concern. If these attempts at informal resolution are unsuccessful, the Service will then follow the procedures at 50 CFR § 13.27 prior to making a final decision to suspend the permit. A suspension shall remain in effect until the Service determines that the Applicants have corrected the deficiencies.

A partial suspension of an ITP may apply to only a portion of the permit area or permitted activities. In the event of a partial suspension, the portion of the ITP not subject to the suspension shall remain in full force and effect. The ITPs of the other Applicants implementing the DCHCP also shall remain in full force and effect and shall be unaffected by any such permit suspension procedures.

7.7.3 Revocation

The Service shall not revoke an ITP for any reason except those listed in 50 CFR § 13.28(a)(1)-(4), or unless the permitted activities would be inconsistent with the criteria set forth in 16 USC § 1539(a)(2)(B)(iv) and this inconsistency has not been remedied. Prior to proposing any ITP revocation, the Service will meet and confer informally with the Applicants in an effort to resolve any grounds for concern. If these attempts at informal resolution are unsuccessful, the Service will then follow the procedures provided in 50 CFR § 13.28 prior to making a final decision to revoke. An ITP will only be revoked if the Service and the Applicants have not been successful in remedying the causes for revocation through other means.

A partial revocation of an ITP may apply to only a portion of the permit area or permitted activities. In the event of a partial revocation, the portion of the ITP not subject to the revocation shall remain in full force and effect. The ITPs of the other Applicants

implementing the DCHCP shall also remain in full force and effect and be unaffected by any such revocation.

Incidental take coverage and ESA compliance for activities that have been implemented pursuant to the minimization and mitigation measures in the DCHCP shall continue and be unaffected in the event of any subsequent revocation of an ITP. In the event of any such revocation, no subsequent protection or management of habitat lands shall be required of the Applicants unless it is necessary to mitigate for take of Preble's that occurred pursuant to the terms of the ITP before its revocation, as determined by the Service in collaboration with the Applicants.

7.7.4 Withdrawal of Participation

At any time during the term of the DCHCP, Implementing Agreements, and ITPs, an Applicant may choose to discontinue its participation in the DCHCP, and its respective agreement and permit by surrendering its permit in accordance with 50 CFR § 13.26.¹¹ Except as provided in subsection 7.7.4.1 below, the requirements of 50 CFR § 17.32(a)(7) shall apply to any withdrawal of participation. These standards apply to subsections 7.7.4.1 and 7.7.4.2 below.

7.7.4.1 Withdrawal Based on Delisting of Preble's Due to Error

If the withdrawal is based on delisting of Preble's due to error in its original listing, unrelated to recovery efforts or conservation measures in place at the time of delisting, Permittee shall at its option be relieved of all obligations under the DCHCP and permit. Should the Service finalize its proposal to delist due to error, the DCHCP will continue until such time as Permittee elects to discontinue the DCHCP and surrender its permit in accordance with 50 CFR §13.26. Permittee may contact the Service to discuss future conservation opportunities that may make use of the DCHCP prior to terminating activities under the DCHCP.

7.7.4.2 Withdrawal Based on Circumstances Other Than Listing Error

In the event of a withdrawal due to any circumstances other than those in 7.7.4.1 above, no subsequent protection or management of habitat lands shall be required of the Permittee except as required by 50 CFR § 17.32(a)(7), as determined by the Service after consulting with the Permittee.

¹¹ The DCHCP assumes participation by each of the three Applicants, and Implementing Agreements (IAs) and have been finalized with each Applicant as part of the permitting process. Nevertheless, the Applicants considered and made provision for circumstances in which participation by one or more of the Applicants is terminated or withdrawn. Douglas County and the Town of Parker have independently demonstrated compliance with the section 10 issuance criteria and an ability to satisfy implementation, mitigation and funding requirements to address impacts associated with their activities covered under the HCP. Accordingly, withdrawal of one or more of the other participants will not affect the validity of the DCHCP and the respective IA and permit as to either Douglas County or the Town of Parker provided that entity remains a participant in compliance with its requirements under the DCHCP and its respective IA and permit.

7.7.5 Non-Waiver of Rights

By participating in the DCHCP, no Applicant shall be deemed to have waived or relinquished any right to challenge the legal, scientific, or technical validity of the Service's actions or determinations including but not limited to the listing status, critical habitat designations, habitat needs, or conservation and recovery standards applicable to Preble's.

7.8 Relationship to Other ESA Policies and Requirements

7.8.1 Future Section 7 Consultations

The section 7 consultation and biological opinion on issuance of Applicants' ITPs will evaluate the impacts associated with covered activities, and will evaluate the DCHCP conservation measures and any reasonable and prudent measures, if necessary, to address the impacts and authorized take of Preble's associated with such activities. This biological opinion will contain the Service's determination whether the covered activities would likely jeopardize the continued existence of Preble's or result in the destruction or adverse modification of any designated critical habitat for such species under section 7(a)(2) of the ESA. Accordingly, from a procedural standpoint, when an Applicant undertakes an individual covered activity that involves a federal action subject to section 7 of the ESA, the Service and action agency will determine whether the impacts of the proposed federal action associated with the covered activity on Preble's have already been analyzed by the Service and authorized as part of the DCHCP. If they have, the Service will respond to the request for formal consultation with a letter explaining that no further consultation is necessary as the effects to Preble's have already been analyzed in the BO on the DCHCP, and that the Applicant is in possession of an ITP that covers take from the project.

The Applicants need to move forward with planning, design, and permitting on several of the covered activities so that the Applicants can implement these covered activities on schedule in the near future (see Section 6.2.1 and Table 6-1). As the Applicants move forward with permitting the activities, they will initiate ESA compliance to address potential impacts to Preble's and its habitat. It is anticipated that most of these projects will require some form of authorization from the U.S. Army Corps of Engineers and a Biological Assessment (BA) will likely be prepared to address potential impacts to Preble's and its habitat. The Applicants encourage the action agency to include in the BA a reference to the DCHCP and its mitigation for impacts associated with covered activities using the following language:

“Douglas County and the Towns of Castle Rock and Parker (Towns) are currently developing the Douglas County Habitat Conservation Plan (DCHCP) in support of Incidental Take Permits from the U.S. Fish and Wildlife Service for specified activities that will occur within habitat for the Preble's meadow jumping mouse. The DCHCP provides programmatic incidental take coverage and ESA compliance regarding

Preble's and its habitat for these activities, including impact mitigation. It is anticipated that the DCHCP will be approved by the Service and implemented by the County and Towns in 2006. This activity/project [name and DCHCP identifier] is included as a covered activity in the DCHCP. The Applicant intends to rely on the DCHCP to provide the necessary habitat mitigation for potential impacts to Preble's and its habitat for this project. Should the DCHCP not be implemented by [date], then the County will provide the following mitigation [describe alternative mitigation measures].”

The BA also will provide an optional mitigation approach to be implemented if the DCHCP is not implemented. It is anticipated that the Service will incorporate the mitigation provided by the DCHCP and the optional mitigation measures in their Biological Opinion for the project.

7.8.2 Critical Habitat

Critical habitat for Preble's has been designated (see Section 3.2.9). The critical habitat in Douglas County occurs only on federal lands in the Upper South Platte Unit (SP 13). The DCHCP addresses only non-federal lands in Douglas County and, thus, does not include the areas designated as critical habitat for Preble's. The DCHCP addresses impacts to the primary constituent habitat elements for Preble's throughout its potential and occupied range of non-federal lands in Douglas County. Any future designation of critical habitat for Preble's will not present different habitat or species impacts than those already addressed in development of the DCHCP, and will not require any additional measures by the Applicants.

7.8.3 Recovery Plans

The Preble's Recovery Team has developed a Draft Discussion Document on a recovery plan for Preble's (Service 2002). The Draft Discussion Document identifies specific criteria for reaching recovery and the delisting of Preble's. Elements of the draft document may change prior to finalization of a recovery plan. The draft document was used as a source of information and guidance in preparation of the DCHCP. However, because it is in draft form, the recommendations are not the official position of the Service.¹²

The Draft Discussion Document identifies the need for a specified number, size, and distribution of wild, self-sustaining Preble's populations across the known range of Preble's. To recover Preble's to the point where it can be delisted, the distribution of these populations is intended both to reduce the risk of multiple Preble's populations

¹² The Service has relied on the concepts in the Preble's Meadow Jumping Mouse Recovery Team's February 27, 2002 Draft Discussion Document on a recovery plan for Preble's to develop its proposed designation of critical habitat for Preble's (67 Fed. Reg. 47160 (July 17, 2002)) and on the March 11, 2003 Working Draft of the recovery plan for the final rule on critical habitat (68 Fed. Reg. 37280 (June 23, 2003)).

being negatively affected by natural or man-made events at any one time and to preserve the existing genetic variation within Preble's.

The DCHCP is required by law to ensure that the incidental take under the ITPs "will not appreciably reduce the likelihood of the survival and recovery of the species in the wild" (16 USC § 1539(a)(2)(iv); 50 CFR § 17.22(b)(2); Service and NMFS 1996). The DCHCP meets this criterion by permanently protecting habitat that is important to the long-term viability and recovery of Preble's as discussed in Chapter 5.

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GLOSSARY

Amendment: Changes to the DCHCP and the ITP(s) that require prior approval from the Service in accordance with applicable laws and regulatory requirements.

Adaptive Management: Adaptive management is a systematic process for continually improving and modifying programs in response to changes in environmental conditions and new information. Because of the biological uncertainty associated with some management decisions it is necessary to monitor, evaluate, and adjust actions as appropriate based on new information consistent with Applicants' commitments under the DCHCP.

Adjacent: Bordering, contiguous, or neighboring.

Area of Potential Effect (APE): The portion of the RCZ disturbed by the covered activity.

Applicants: Douglas County and the Towns of Castle Rock and Parker. The Applicants are the holders of the incidental take permit(s) supported by the DCHCP.

Best Management Practices (BMPs): For the purposes of the DCHCP, best management practices (BMPs) are measures undertaken to avoid, minimize and/or rectify potential adverse impacts to the RCZ for a covered activity.

County: Douglas County.

Covered Activities: Those activities undertaken by the Applicants pursuant to the DCHCP.

Critical Habitat (CH): Defined in the Endangered Species Act of 1973 to include the area occupied by a species at the time it is listed, specific areas in the vicinity of the occupied habitat, and specific areas away from the occupied habitat considered essential for the conservation of the species and that may require special management considerations or protection.

Cumulative Impact: Under NEPA regulations, the incremental environmental impact or effect of the action together with impacts of past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions (40 CFR § 1508.7). Under ESA section 7 regulations, the effects of future state or private activities not involving federal activities, that are reasonably certain to occur within the action area of the federal action subject to consultation (50 CFR § 402.02).

Douglas County Habitat Conservation Plan (DCHCP): A habitat conservation plan covering activities conducted by the Applicants, which was submitted to the Service as part of the application package supporting issuance of one or more incidental take permits under section 10 of the Endangered Species Act of 1973, as amended (16 USC § 1539). Pursuant to section 10(a)(1)(B) of the ESA, the permit is to address the incidental take of the federally listed Preble's meadow jumping mouse (*Zapus hudsonius preblei*) associated with otherwise lawful activities specified by the DCHCP that need to

occur within Preble's meadow jumping mouse habitat (also referred to as the RCZ). The DCHCP provides measures to avoid, minimize and mitigate, to the maximum extent practicable, the effects of the potential impact on the RCZ, and to ensure that any incidental take of the covered species will not appreciably reduce the likelihood of their survival and recovery in the wild.

Effectiveness Monitoring: Periodic monitoring undertaken by the Applicants to determine the effectiveness of impact avoidance and minimization, BMPs, and mitigation measures associated with the covered activities.

Endangered Species Act (ESA): Federal Act of 1973, as amended, 16 USC §§ 1531-1543.

Environmental Assessment (EA): A document prepared in accordance with the National Environmental Policy Act (NEPA) to describe and analyze the environmental impacts of a proposed federal action. For this document, the EA and HCP have been integrated.

ESA Compliance: For purposes of the DCHCP, actions taken to comply with sections 7 and 9 of the Endangered Species Act. Section 7 of the ESA provides for consultation between federal agencies and the Service to ensure that any action authorized, funded, or carried out by federal agencies is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat of such species. Section 9 of the ESA prohibits the "take" of any listed species. Section 10(a)(1)(B) is an amendment to the ESA that allows for permits for incidental taking of federally listed species.

Essential Elements of Preble's Habitat: The RCZ contains the following components that are the essential elements of Preble's habitat: active stream channel, alluvial floor, upland side slopes adjacent to the channel and/or alluvial floor, and a component of the upland vegetation adjacent to the upland side slopes (generally 25-feet to 100-feet wide depending on potential habitat quality). These essential elements provide for feeding, breeding, rearing of offspring, nesting, cover, hibernation, refugia from flooding, and movement habitat for Preble's.

Federal Nexus: A project that is potentially subject to federal control and responsibility, for example, federal approvals or funding assistance.

GESC Manual: Douglas County's "Grading, Erosion, and Sediment Control Manual." (see www.douglas.co.us)

Habitat Conservation Plan (HCP): An implementable program for the long-term protection and benefit of a species in a defined area; required as part of a section 10(a)(1)(B) permit application under the Endangered Species Act.

Habitat Improvement. An activity that results in a net benefit to the RCZ, which is defined as: 1) an increase in native woody vegetation cover and/or diversity, a reduction in undesirable non-native species and/or weedy species, or in the case of existing grasslands that adjoin riparian areas, an increase in vegetation cover and/or diversity of

native grassland species; and/or 2) improvements to aquatic habitats that, when completed, will not degrade the adjoining terrestrial habitats of the RCZ.

Habitat Loss: The permanent impact to the RCZ associated with a covered activity that replaces existing habitat within the RCZ with a feature that is not habitat (e.g., roads, trails, and other features that remove vegetation permanently).

Habitat Preservation: The protection of portions of the RCZ from future development in a manner that maintains the long-term viability of the habitat to potentially support the covered species (e.g., County or Town open space, conservation easements, deed restrictions, restrictive covenants, plat notes, or other actions that conserve the RCZ such as ownership and management by state or local governments).

Habitat Protection: See *Habitat Preservation*.

Habitat: The combination of environmental conditions of a specific place occupied by a species or a population of such species.

Harass: Defined in Department of Interior regulations implementing the ESA as “an intentional or negligent act or omission which creates the likelihood of injury to listed wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, and sheltering” (50 CFR § 17.3). See definition of *Take*.

Harm: Defined in Department of Interior regulations implementing the ESA as an act “which kills or injures” listed wildlife; harm may include “significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering” (50 CFR § 17.3). See definition of *Take*.

Impact Thresholds: The DCHCP designates thresholds for permanent and temporary impacts to the RCZ associated with the covered activities. Also referred to in the DCHCP as an impact cap.

Incidental Take Permit (ITP): A permit that exempts the Applicants from the take prohibition of section 9 of the ESA issued by the Service pursuant to section 10(a)(1)(B) of the ESA. Also referred to as a section 10(a)(1)(B) or section 10 permit.

Incidental Take: The taking of a federally listed wildlife species, if such taking is incidental to, and not the purpose of, carrying out otherwise lawful activities. Also see “take” below.

Indirect Impact or Effect: For purposes of the DCHCP, indirect impacts or effects are those impacts to the covered species and their associated habitat that are associated with covered activities that occur outside the RCZ.

Listed Species: Species, including subspecies and distinct vertebrate populations, of fish, wildlife, or plants listed as either endangered or threatened under section 4 of the ESA.

Local Governments: Douglas County, Castle Rock, and Parker.

Minimum: The BMPs use the term “minimum” or “minimal” (e.g., minimum duration and minimum amount). Use of the term “minimum” indicates that the least quantity or amount practicable be used to accomplish the activity and minimize impacts to the RCZ. The minimum quantity or amount will vary with the type and scope of the project (see “practicable”).

Mitigation: One or more of the following actions: 1) avoiding the impact to the extent practicable; 2) minimizing the impact; 3) rectifying the impact; 4) reducing or eliminating the impact over time; or 5) compensating for the impact (e.g., enhancement or preservation).

Modification: Minor modifications to the DCHCP that can be accomplished without amending the associated ITPs. Minor modifications for the purpose of the DCHCP include technical revisions, RCZ mapping revisions, substitutions of covered activities, and additions, transfer of ownership and substitutions of mitigation lands meeting the criteria set forth in Section 7.6.1.

Monitoring: The process of collecting information to document implementation of mitigation measures and to evaluate whether the objectives of the habitat conservation plan are being realized.

Naturally Functioning: For purposes of the DCHCP, “naturally functioning” refers to the dynamic natural processes that maintain and reshape the RCZ (e.g., flooding, fire, drought, succession, changes in channel morphology, and beaver activity). The disturbances and changes to habitat associated with these naturally occurring events and processes are expected to periodically occur throughout the term of the DCHCP and are not considered to render portions of the RCZ insufficient for mitigation.

Original Regional Habitat Conservation Plan (original Regional HCP or DCRHCP): A regional habitat conservation plan covering all non-federal lands in Douglas County that was initiated and submitted to the Service prior to the Service’s proposal to delist Preble’s. The original Regional HCP was set aside in favor of the scaled down DCHCP.

Permanent Barrier: A permanent barrier is any permanent obstacle, structure, or area of non-habitat that Preble’s is highly unlikely to move across. For the purposes of the DCHCP, stream channels with continuous barriers that exceed 300 linear feet in a side-by-side configuration on both sides of the stream channel are considered permanent barriers. Examples of permanent barriers include, but are not limited to: exposed unvegetated riprap, concrete, asphalt, and permanently unvegetated areas that exceed 300 linear feet on both sides of the stream channel. Naturally occurring events and processes are expected to occur throughout the term of the DCHCP and are not considered a permanent barrier to species movements. See *Naturally Functioning*.

Permanent Impact: See *Habitat Loss*.

Plan Area: Lands and other areas encompassed by specific boundaries that are affected by an HCP and ITP. For the purposes of the DCHCP, the plan area is all of Douglas County excluding federal lands.

Population: A collection of individuals that share a common gene pool.

Potential Habitat: Habitat that possesses the characteristics to support a species, but has not been demonstrated to be occupied habitat.

Practicable: Available and capable of being done, considering cost, logistics, and the overall project purpose. The BMPs in Appendix 3 use the term “practicable” to indicate implementation of a BMP or specific measure as feasible considering cost, logistics, and existing technology. Logistics, existing technology, and unreasonable costs may modify implementation of the BMP; however, the BMP is to be implemented to the fullest degree practicable.

Preble’s Recovery Team: A group of citizens and scientists assembled by the Service to develop a recovery plan for Preble’s meadow jumping mouse. In 2002, the Preble’s Recovery Team developed a preliminary recovery plan referred to as the Draft Discussion Document.

Recovery Plan: A plan approved by the U.S. Fish and Wildlife Service to provide for the conservation and survival of federally listed species.

Recovery Population: A population needed to help recover a listed species. The Draft Discussion Document for the Preble’s recovery plan designates a large recovery population in the West Plum Creek watershed and a medium population in the Cherry Creek watershed in Douglas County. A large population is estimated to have 2,500 adult Preble’s that inhabit at least a 50-mile connected network of streams that provide Preble’s habitat. Medium populations have an estimated 500 to 2,499 Preble’s that inhabit at least a 10-mile connected network of streams that provide Preble’s habitat.

Riparian Area: Those portions of the riparian conservation zone that occur within the valley floor. Riparian areas have one or both of the following characteristics: 1) distinctively different vegetative species than adjacent areas; and 2) species similar to adjacent areas but exhibiting more vigorous or robust growth forms. Riparian areas are usually transitional between wetland and upland.

Riparian Conservation Zone (RCZ): For purposes of the DCHCP, areas of mapped potential Preble’s habitat along about 283 miles of streams in Douglas County. The RCZ mapping incorporates land form and vegetation to delineate potential Preble’s habitat. The RCZ includes the active channel, alluvial floor, upland side slopes adjacent to the channel or alluvial floor, and a component of the upland vegetation adjacent to the upland side slopes.

Riparian Vegetation: Vegetation that grows along the banks of streams, lakes, ponds or other water bodies and is the core component of the RCZ.

Preble’s Science Team: A team of scientists convened by the Colorado Department of Natural Resources in 1998 and 1999 as part of its collaborative conservation planning process to evaluate scientific information and formulate conservation recommendations for Preble’s.

Secondary Impact or Effect: For the purposes of the DCHCP, secondary impacts or

effects are those impacts to the RCZ that are caused by covered activities that occur within the RCZ, but the impacts occur later than or farther away from the direct impact of the covered activity.

Species of Concern: Species that have been determined to be rare in Colorado, that have unusually small or declining populations, or whose probability for long-term survival is in question.

Species: Any distinct population of wildlife that interbreeds when mature.

Take: As defined in the ESA and implementing regulations, take means “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect a species [listed as threatened or endangered], or attempt to do so.” “Harass” and “harm” are further defined in federal regulations and case law as follows:

“Harass” means an intentional or negligent act or omission that creates the likelihood of injuring wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns that include, but are not limited to, breeding, feeding, or sheltering.

“Harm” means an act that actually kills or injures wildlife. Such acts may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.

Temporary Impact: An impact associated with a covered activity that does not permanently replace existing habitat within the RCZ with a feature that is not habitat (e.g., roads, trails, and other features that remove vegetation permanently). Permanent changes to vegetation are considered a permanent impact (e.g., permanent changes from woody vegetation to herbaceous vegetation). Disturbances resulting in the loss of habitat for more than 5 years are considered a permanent impact.

Threatened Species: Any species or subspecies listed under ESA that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Towns: Castle Rock and Parker.

Unforeseen Circumstances: Changes in circumstances affecting a species or geographic area covered by a conservation plan that could not reasonably have been anticipated by plan developers and the Service at the time of the conservation plan’s negotiation and development, and that result in a substantial and adverse change in the status of the covered species (50 CFR § 17.3).

Uplands: Areas beyond the alluvial floor and riparian areas of the riparian conservation zone (RCZ) that are typically dominated by vegetation characteristic of uplands. The RCZ typically has an upland component. Also referred to in the DCHCP as upland habitat.

Upper Cherry Creek: Cherry Creek and its tributaries that include the RCZ from the Douglas County-El Paso County line to where Highway 86 crosses Cherry Creek.

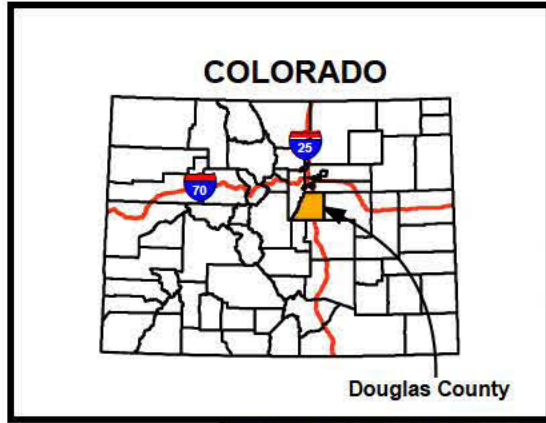
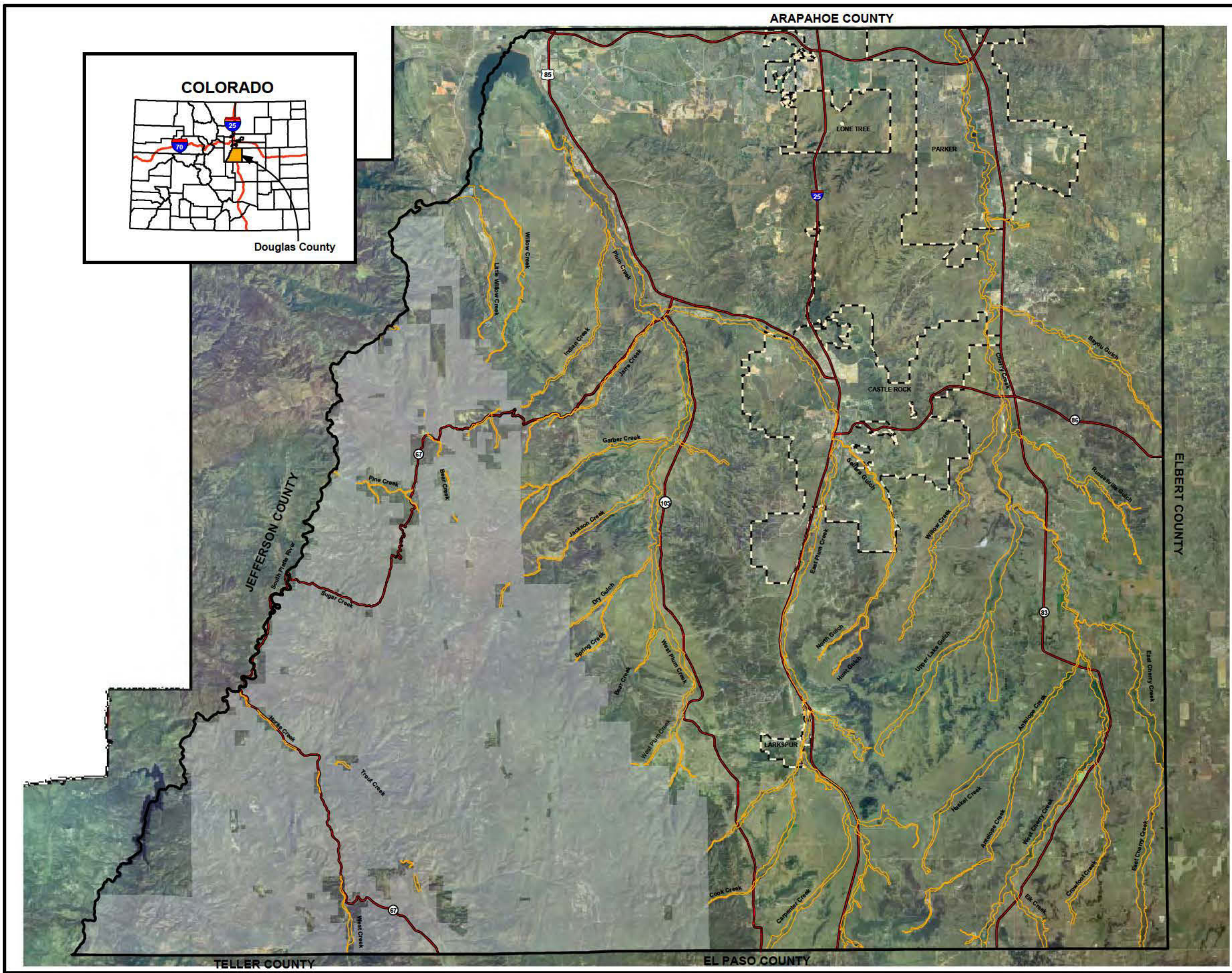


Figure 1
Riparian Conservation Zone Mapping
Douglas County Habitat Conservation Plan

DRAFT

Riparian Conservation Zone (RCZ)
 Highway
 Incorporated Towns
 Douglas County Boundary
 Pike National Forest

0 1 2 Miles

Prepared for:
DOUGLAS COUNTY
 100 Third Street
 Castle Rock, CO 80104
 (303) 660-7495

Prepared by:
ERO
 ERO Resources Corp.
 1842 Clarkson Street
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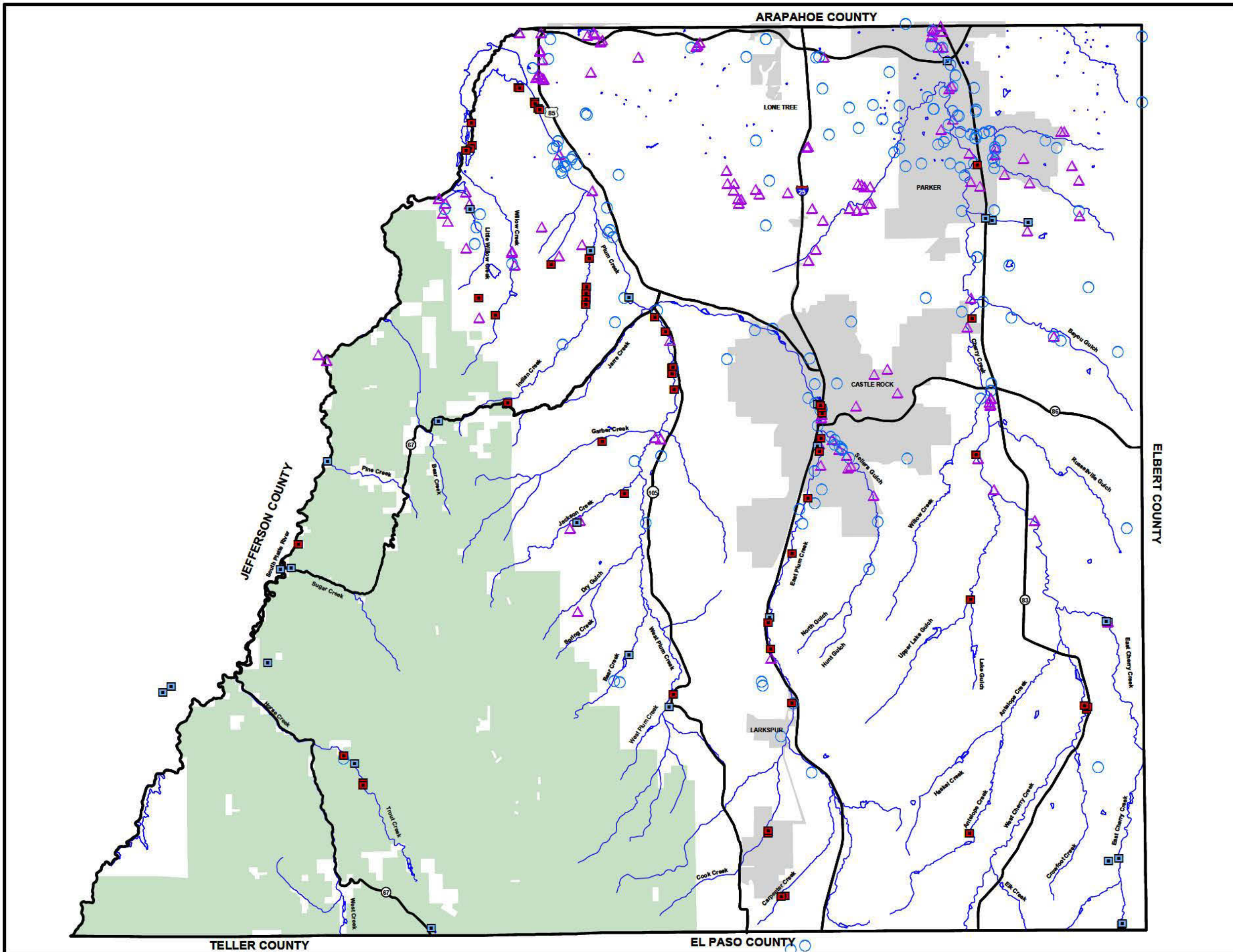


Figure 2
 Known Locations of Preble's Meadow Jumping Mouse
 in Douglas County
 Douglas County Habitat Conservation Plan

DRAFT

- Trapped and Found (2000 through 2004)
- Trapped and Found (1994 through 1999)
- ▲ Trapped and Not Found
- Evaluated - Not Trapped
- Stream
- Highway
- Incorporated Towns
- Douglas County Boundary
- Pike National Forest

0 1 2 Miles

N

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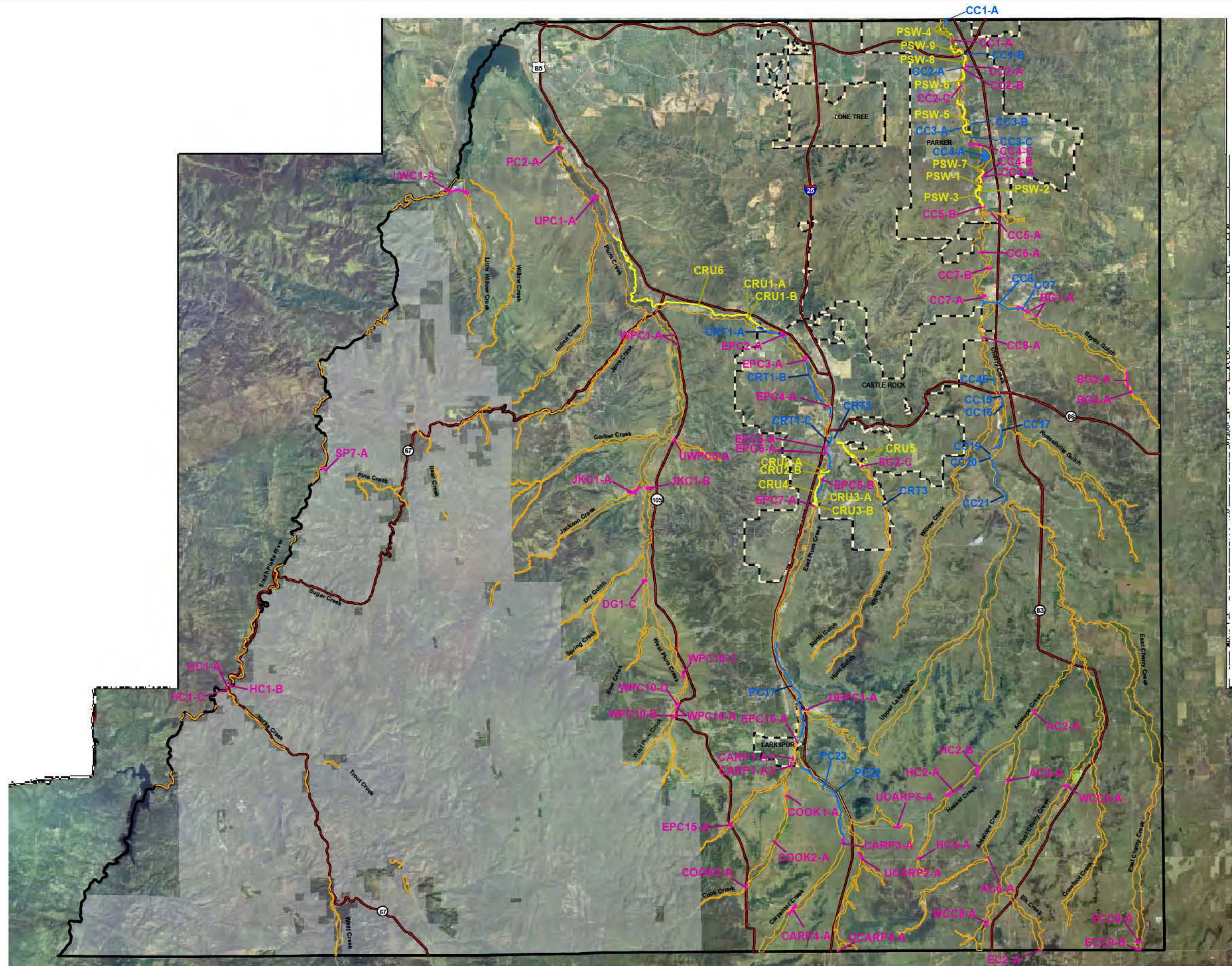


Figure 3
Locations of Applicant Activities
Douglas County Habitat Conservation Plan

DRAFT

- Road Construction within RCZ
- Stormwater and other Activities within RCZ
- Trail Construction within RCZ
- Riparian Conservation Zone (RCZ)
- Highway
- Town Boundary
- Douglas County Boundary
- Pike National Forest

0 1 2 Miles

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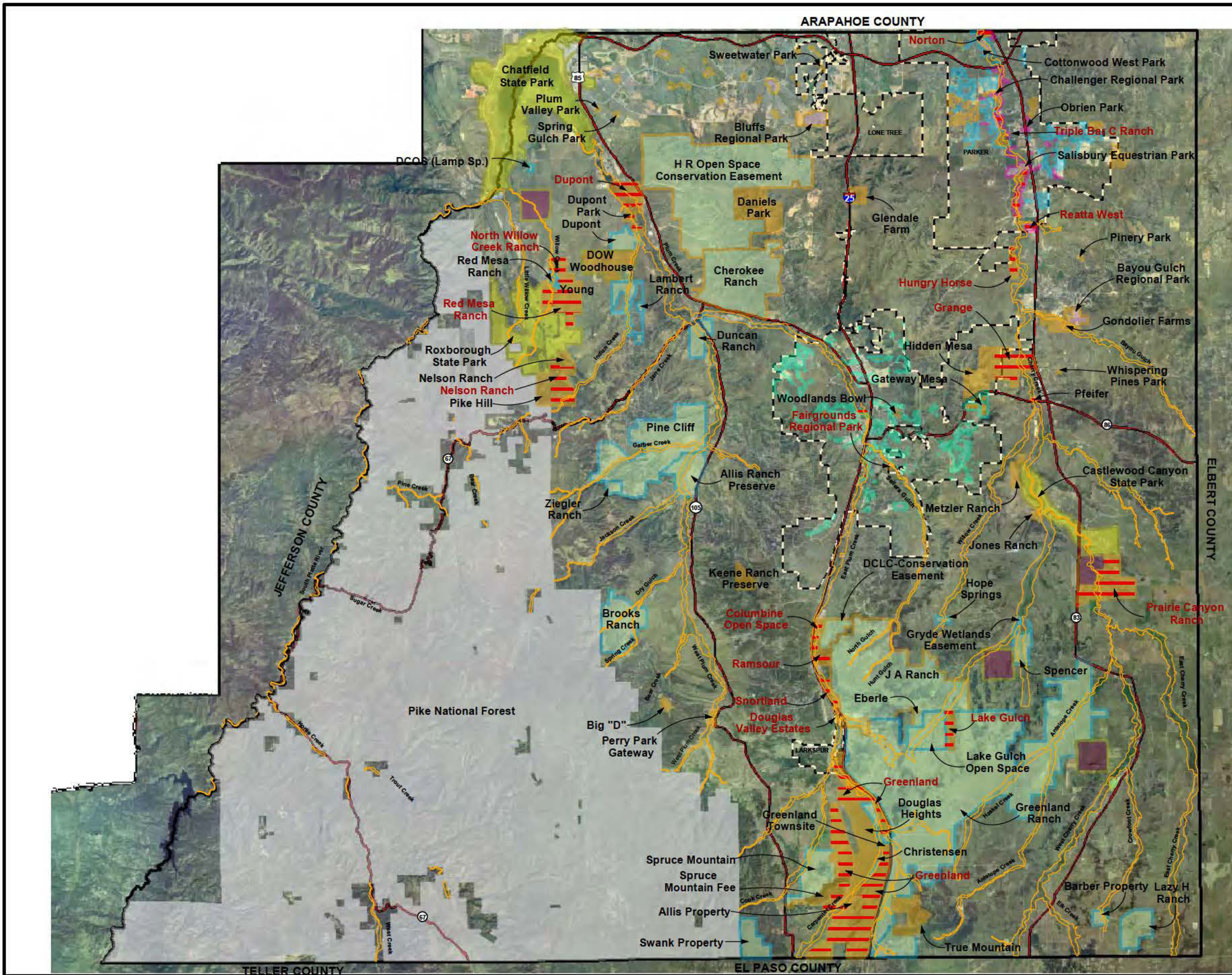
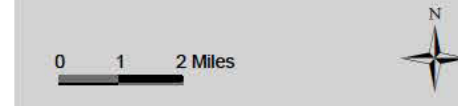


Figure 4a
Applicant-Protected Lands Benefiting Preble's
Douglas County Habitat Conservation Plan

DRAFT

- Properties Owned by the Applicants that will be Managed to Maintain, Restore, or Enhance the RCZ
- Conservation Easement
- Open Space
- Regional Park
- State Park
- State Land Board
- Douglas County
- Town of Castle Rock
- Town of Parker
- Private
- State
- Riparian Conservation Zone (RCZ)
- Highway
- Incorporated Towns
- Douglas County Boundary
- Pike National Forest



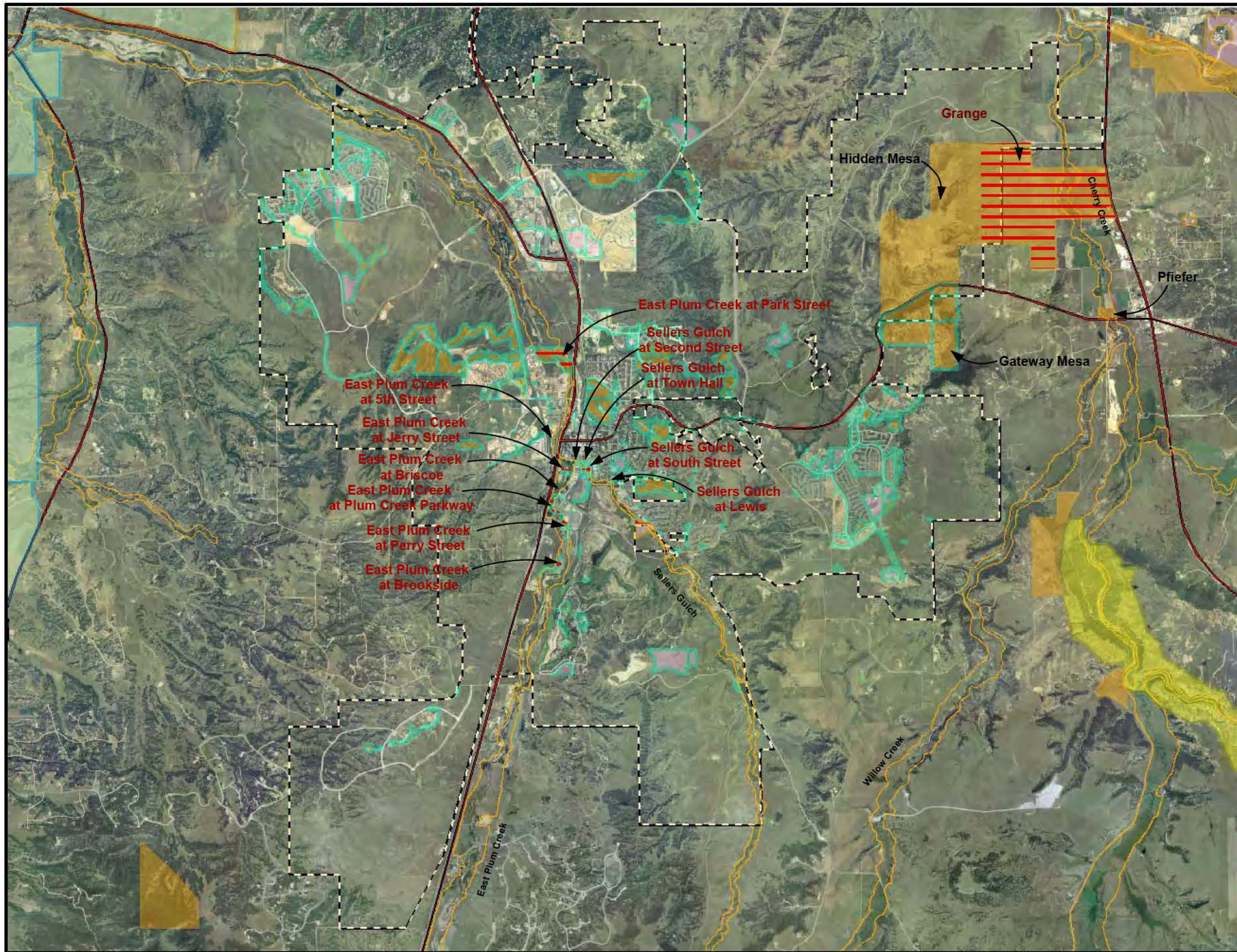
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Figure 4b
 Castle Rock-Protected Lands Benefiting Preble's
 Douglas County Habitat Conservation Plan

DRAFT



- Properties Owned by the Applicants that will be Managed to Maintain, Restore, or Enhance the RCZ
- Conservation Easement
- Open Space
- Regional Park
- State Park
- State Land Board
- Douglas County
- Town of Castle Rock
- Town of Parker
- Private
- State
- Riparian Conservation Zone (RCZ)
- Highway
- Incorporated Towns
- Douglas County Boundary
- Pike National Forest



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Appendix 1: Preble's Habitat Mapping

Background

Appendix 1 provides greater detail of how the habitat mapping for the DCHCP was done, the basis for the mapping, and how the habitat mapping was evaluated. The habitat mapping for Preble's for the DCHCP (referred to as the riparian conservation zone, or RCZ) was developed for the original Regional HCP. The RCZ developed for the original Regional HCP has not been altered for its use for the DCHCP.

Goals and Objectives

The goal of habitat mapping for the original Regional HCP was to identify potential riparian habitat for conservation in Douglas County for development of a regional HCP that will not appreciably reduce the likelihood of survival and recovery of the covered species. To meet this goal, the Applicants began identifying and mapping the habitat most frequently used by Preble's along drainages known to support or with a high likelihood to support Preble's in Douglas County and:

- Include habitat needed for all aspects of Preble's life cycle (e.g., water, cover, breeding, nesting, foraging, movement, and hibernation)
- Be reproducible and capable of being accurately located on the County's existing aerial photography (scale 1 inch = 500 feet) and GIS database
- Identify and delineate the minimum width of habitat needed to conserve the habitat most frequently used by Preble's
- Be based on the best available scientific information
- Be biologically defensible
- Be implementable
- Make sense to participants in the HCP
- Meet public expectations based on the HCP/NEPA scoping meetings

Approach

Preliminary Mapping

In 2000, Douglas County's HCP consultant (ERO Resources) began mapping Preble's habitat (referenced in the DCHCP as the riparian conservation zone or RCZ) using what was known about Preble's habitat at the time. The RCZ mapping is landscaped based (i.e., the limits of the RCZ vary with vegetation and land form) and uses the best information available to the County. This approach more accurately maps the habitat than a generic approach establishing a set distance from a landscape feature. The preliminary RCZ mapping was broad based and focused on all major drainages within the County with the potential to support Preble's. The preliminary RCZ mapping included the main perennial and intermittent drainages in the County. All of the main drainages were included in the first phase of the mapping as Preble's had been found in a variety of drainages within Douglas County since listing of Preble's in 1998. In order to include all components of Preble's habitat within all reaches mapped as the RCZ, all of

the stream reaches were mapped to include:

- The active channel
- Alluvial floor
- Upland side slopes adjacent to the channel or alluvial floor
- A component of the upland vegetation adjacent to the upland side slopes (generally 25 feet to 100 feet wide depending on habitat quality)

The active channel was evidenced by flowing water and/or a defined bed and bank. The alluvial floor is the relatively flat topographic area that encompasses the active channel. It generally was evident on the aerial photography (see *Mapping Sources and Methods* section) as a dark green, densely vegetated zone. The channel and valley floor typically are bordered by upland side slopes. In some instances, the side slopes are gently sloping, and in others they are sheer cliffs. The side slopes can be interrupted by natural or man-made features. Natural features such as small washes, drains, and dry gullies cut through the side slopes. In those cases, the top of the upland side slope was interpolated across those features and the width of the adjoining upland was measured from the interpolated top of slope. Man-made features that interrupt the side slopes include trails, roads, railroads, and buildings. When these man made features were encountered they generally formed the edge of the RCZ. The final landscape component of the RCZ is the adjoining upland area beyond the upland side slopes.

Adjacent uplands with high quality habitat (such as grasslands intermixed with woodlands and/or shrublands) were mapped at the maximum width of about 100 feet. Poor quality upland habitat, including monocultures of weedy non-native grasslands, was typically mapped at the minimum width of about 25 feet. Moderate quality upland habitat was typically mapped to a width of about 50 to 75 feet. Adjoining uplands of poor habitat were typically mapped to not less than 25 feet, or to the edge of the non-habitat feature. Those features that do not provide habitat include paved areas (parking lots, roads, and trails), disturbed areas such as gravel mines, severely weedy or overgrazed lands, structures, and formal landscaping. Upland areas adjacent to extensive riprap, sheer cliffs, or walls also were not included as adjacent upland habitat. In all instances the mapped RCZ maintains a corridor of sufficient width to provide habitat connectivity and Preble's movements through the mapped habitat.

Mapping Sources and Methods

The RCZ was mapped on digital rectified color aerial photography obtained from Douglas County (July 1999), and printed at a scale of 1 inch = 500 feet. The County also provided open space, park, National Forest, town, and county boundaries. These boundaries are approximate. All data and information contained on the RCZ mapping are for informational purposes only. The mapping is provided on an "as is" basis without warranties of any kind.

The RCZ mapping was preliminarily done in the fall of 2000. Accessible areas were field-verified and inaccessible areas were interpreted using the aerial photographs. In all instances, the RCZ was mapped to include the active stream channel, alluvial floor, adjacent side slopes, and portions of adjacent uplands as previously described. To

maintain connectivity, the RCZ mapping includes bridges and roads that cross the mapped drainages.

Mapping Revisions Based on Preble's Movement Observations

As part of the RCZ mapping in 2000, the three Douglas County Preble's movement study sites (Maytag Open Space, Pinecliff Ranch, and Woodhouse Ranch) were mapped. The teams performing the habitat delineations were unaware of the Preble's movement studies performed on these sites. This approach facilitated a comparison during the winter of 2001 between the mapped habitat and three years of Preble's movement data (1998, 1999, 2000) at the three study sites.

Preliminary visual comparisons between the preliminary ("blind") mapping and mapped observations of Preble's movements indicated that the preliminary habitat mapping captured at least 90 percent of the observed Preble's movements and habitats used by Preble's except in some instances the following areas sometimes used by Preble's were not included:

- Upland water sources (e.g., seasonal ponds)
- Dry tributaries
- Upland areas of trees and/or shrubs that extended beyond the adjacent upland side slopes
- Upland wildlife habitat improvement plots

Based on these observations, the entire preliminary RCZ mapping was subsequently revised and expanded to include seasonal upland water sources (primarily ponds) adjacent to or within about 200 feet of the previously mapped RCZ.

The entire preliminary RCZ mapping was also revised and expanded to include upland areas of trees and shrubs that were adjacent to but extend beyond the adjacent upland side slopes. The RCZ mapping revisions were not expanded to include additional dry tributaries or upland wildlife habitat improvement plots. Of the three study sites, only one dry tributary (Maytag Open Space) that contained Preble's movement observations was not included in the blind preliminary RCZ mapping. This dry tributary was not included in the RCZ mapping because it did not meet the mapping criteria and was about 1,200 feet from East Plum Creek, where as the habitat boundary for the remainder of the Maytag site was 500 to 600 feet from East Plum Creek. The other dry tributary where Preble's movement observations occurred (Pinecliff Ranch) was included in the blind preliminary RCZ mapping as it met the mapping criteria. At the three study sites, there were six dry tributaries that did not have Preble's movement observations. Therefore, for the three study sites, there were eight dry tributaries and only one dry tributary that supported Preble's was not included in the preliminary RCZ mapping. Within these areas, the RCZ encompasses nearly 98 percent of the mouse movement observation points.

Wildlife habitat improvement plots are not common in Douglas County and occurred at only one of the study sites (Woodhouse Ranch). Wildlife habitat improvement plots were not observed in making the mapping revisions and the mapping was not revised to include wildlife habitat improvement plots.

Public Review of Preliminary RCZ Mapping

Following the revisions based on Preble's movement observations, the preliminary RCZ mapping was presented to the public on April 16, 2001 at an HCP/NEPA public scoping meeting. The public meeting had a work station format that allowed the interested public to review the preliminary RCZ mapping, ask questions regarding the mapping, and submit a request for specific reviews of the mapping. The mapping was done on July 1999 color aerial photos at a scale of 1 inch = 500 feet, which allowed the public to easily identify landmarks and areas of interest. The preliminary RCZ maps were organized by watersheds into six books with keys to the location of each map related to the watershed.

The preliminary RCZ mapping was made available for public review and comment from April 16, 2001 through May 21, 2001 at the Douglas County Division of Open Space and Natural Resources. All reviewers were provided the opportunity to request mapping review and revisions (Attachment 1-A). About 30 requests for reviews and mapping revisions were received and processed.

Mapping Revisions Based on Public Comment

Each mapping revision request was reviewed on-site with the person requesting the review during the summer of 2001 by a single reviewer to maintain consistency. All requested revisions were reviewed to ensure that any revisions made were consistent with the goals, objectives, and methods for mapping the RCZ. Requested revisions that were made included requests to have the RCZ boundary be consistent with existing conservation easement boundaries and eliminate areas that were obviously not habitat (e.g., parking lots, building pads, and buildings).

Mapping Changes Made to Eliminate Stream Reaches Unlikely to Provide Habitat for Preble's

Following the review of requested revisions, the RCZ mapping was reviewed to eliminate drainages or segments of drainages that are not currently occupied by Preble's or are unlikely to be occupied by Preble's during the term of the DCHCP. Drainages or segments of drainages eliminated from the RCZ mapping included:

- Unnamed tributary to Plum Creek (near Dupont Facility)
- Newlin Gulch (tributary to Cherry Creek)
- Pine Creek (tributary to Cherry Creek)
- Upper Sulphur Gulch (tributary to Cherry Creek)
- Tallman Gulch (tributary to Cherry Creek)
- Four unnamed eastern tributaries to West Plum Creek
- An unnamed tributary to upper East Cherry Creek
- The South Platte River and its tributaries upstream of Cheesman Reservoir Dam

The drainages or segments of drainages were eliminated from the RCZ mapping because they lack Preble's habitat and/or are typically dry throughout the year (e.g., Newlin Gulch, Tallman Gulch, and upper Sulphur Gulch). The lower portions of some drainages were retained (e.g., Sulphur Gulch) because the lower portions of the drainages support water or remain moist throughout most of the year and support potential Preble's

habitat. The upstream limit of the RCZ mapping on partially mapped drainages is noted on the maps by "end of delineation" to indicate that the drainage continues, but does not have habitat farther upstream included in the RCZ.

Following these revisions, a set of the 1 inch = 500 feet RCZ maps and a composite 1 inch = 2 miles RCZ map were provided to the Service on April 10, 2002 for its review.

Evaluation of RCZ Mapping Relative to Preble's Movement Data

In 2002, Douglas County decided to use two approaches to evaluate further the RCZ mapping relative to the observed Preble's movements. Preble's movements had been observed by the Colorado Division of Wildlife at three sites in Douglas County (Shenk and Sivert 1999). One evaluation approach used a geographic information system (GIS) to delineate a boundary that enclosed 90 percent, 95 percent, and 99 percent of the Preble's observations closest to the stream for each of the three Douglas County sites. Another evaluation involved a statistical analysis of the observed Preble's movements relative to various landscape features.

GIS Evaluation

ERO Resources used ArcInfo to generate a series of polygons to encompass percentages of three years of combined Preble's movement observations for each of the three Douglas County sites. Using ArcMap 8.2, the centerline of each stream was digitized using a digital orthophoto backdrop (July 1999 photography). These shapefiles were converted to ArcInfo 8.2 coverages. The ArcInfo NEAR command was used to attribute each of the Preble's observations with the distance to the centerline of the stream. The Preble's observations file was brought back into ArcMap. The table of distance measurements for each Preble's observation was sorted in descending order in the distance field. The top 90 percent, 95 percent, and 99 percent of the records were selected using the selection tool. For example, the Maytag Open Space site (now referred to as Columbine Open Space) had 6,594 total records after being sorted in descending order; the first 5,935 records were selected to capture 90 percent of the observations closest to the stream centerline; the first 6,264 records were selected to capture 95 percent of the observations closest to the stream centerline; and the first 6,528 records were selected to capture 99 percent of the observations closest to the stream centerline. To be conservative, the selected records (Preble's observation points) were buffered by 50 feet using the Buffer Wizard. An enclosure boundary was delineated by connecting the outside of the buffered observations. Delineation of the enclosure boundary was defaulted to the upland extent of riparian mapping if the buffering of a Preble's observation was not present in the area.

Maps were generated that allowed comparisons of the percent enclosure boundary with the blind preliminary RCZ mapping at the three Douglas County study sites (Figures 1-A, 1-B, and 1-C). Generally, the preliminary blind RCZ boundary included most of the 90 percent and 95 percent enclosure boundary generated by the GIS evaluation.

At the Maytag Open Space site, the 99 percent enclosure boundary extends beyond portions of the 95 percent enclosure boundary to include Preble's observations in a dry tributary about 1,200 feet from East Plum Creek (Figure 1-A).

At the Pinecliff Ranch site, the preliminary blind RCZ corresponds well to the 90

percent and 95 percent enclosures. The RCZ also includes much of the 99 percent enclosure boundary except for a few observations in isolated shrubs and a few observations in upland grasslands that extend beyond the upland side slopes (Figure 1-B).

At the Woodhouse Ranch site, the preliminary blind RCZ corresponds well to the 90 percent and 95 percent enclosures, except for some isolated areas of upland shrubs and wildlife habitat improvement plots (Figure 1-C).

Statistical Evaluation

Douglas County's HCP consultant worked with Dr. Bruce Lubow, a biometrician with the Department of Fishery and Wildlife Biology at Colorado State University, to statistically analyze the 3 years of Preble's movement data for the three Douglas County study sites. The analysis had the following objectives:

- Define the upland limits of habitat most frequently used by Preble's in a way that could be used for regional conservation planning.
- Describe the physical region that encompasses most of the Preble's observed movement locations (individual Preble's observations) at most of the sites likely to be occupied by Preble's.
- Use the data and analysis to extrapolate to other sites occupied by Preble's and to determine criteria that would define areas enclosing similar proportions of the observed Preble's movement locations at sites throughout the County.

Vegetation was focused on as a key parameter in the analysis based on the findings of previous studies. Ryon (1996) determined that Preble's exhibits an affinity for complex riparian communities with shrub, tree, grass, and forb species. White and Shenk (2000) concluded:

“With the limited data available, 82 percent of the variation in Preble's density is explained by a model that includes riparian shrub, tree, and open water (ha/km stream). Most of the variance (78 percent) can be explained by just shrub and tree cover. These results suggest that habitat quality of Preble's can be predicted by the shrub and tree cover available on site.”

The statistical analysis of the Preble's movement data builds on the findings of these previous studies. Vegetation at each of three study sites was mapped in the field on color orthophotography (scale: 1 inch = 500 feet, July 1999) and digitized using a digital orthophoto backdrop. Vegetation units as small as 167 square feet (0.004 acre) were delineated. Vegetation map units were based on the dominant vegetation within the community (Table 1-A).

Vegetation map units were divided into upland or riparian. The upland vegetation map units were further divided into:

- Forest/Woodlands
- Shrublands
- Grasslands

- Wildlife Habitat Improvements
- Other Seasonal Water Features
- Not Vegetated

The riparian vegetation map units were divided into:

- Woodland/Shrublands
- Herbaceous
- Not Vegetated

For the purposes of this analysis, “riparian” was defined as those vegetation map units that occur within the valley floor (i.e., toe of side slope to toe of side slope). Therefore, in some instances, the riparian area included plant species that also occur in uplands (e.g., smooth brome and sand dropseed). The vegetation types mapped as riparian closely adhere to the proposed Agency Riparian Standard developed by the Service:

“Riparian areas are plant communities contiguous to and affected by surface and subsurface hydrologic features of perennial or intermittent lotic and lentic water bodies (rivers, streams, lakes, or drainage ways). Riparian areas have one or both of the following characteristics: 1) distinctively different vegetative species than adjacent areas; and 2) species similar to adjacent areas but exhibiting more vigorous or robust growth forms. Riparian areas are usually transitional between wetland and upland.”

For each of the three study sites, a GIS database was created from the observed Preble's locations. Using this database and the vegetation mapping, the distance from each Preble's location in an upland vegetation type to the nearest of each of the following landscape features was determined:

- Riparian area
- Shrubs, woodlands, and seasonal ponds
- 100-year floodplain

Only upland locations of Preble's were analyzed; all Preble's observations with riparian areas were considered core habitat. Defining the extent of upland habitat most frequently used by Preble's was the objective.

Distances to the three landscape features were compared individually and in combination to determine the one feature or combination of features that provided the most efficient distance for a given level of enclosure of upland Preble's locations. Only the combination of distance to riparian area and distance to shrub, woodland, or pond habitat provided a reduction in distance over distances for individual features (Lubow 2000; Attachment 1-B).

Other findings of the Lubow analysis include:

- 95 percent of the Preble's observations in upland locations occur within about 20 meters (66 feet) to 55 meters (182 feet) of the riparian vegetation (see interpolations shown in Figure 1 Riparian in Attachment 1-B).
- 95 percent of the Preble's observations in upland locations occur within about 9 meters (30 feet) to 30 meters (99 feet) of shrub, woodland or seasonal pond habitats (see interpolation shown on Figure 1 Shrub, Woodland or Seasonal Pond in Attachment 1-B).
- To include 95 percent of the upland Preble's observations at 90 percent of the various stream reaches occupied by Preble's (sites) one would need to delineate a boundary about 30 meters (99 feet) from riparian, shrubs, woodlands and seasonal ponds (see interpolation shown on Figure 6 in Attachment 1-B).

The enclosure percentages in Lubow's analysis are for upland Preble's locations and, therefore, enclose more total mice than the stated percentage because most of the Preble's movements occur within riparian areas that are bordered by uplands. Therefore, a boundary that encloses 95 percent of the upland Preble's will also enclose all of the Preble's observed in riparian habitats. For example, 84 percent of all Preble's observed at the Maytag study site occurred in riparian habitats, therefore at the Maytag study site, 95 percent of all observed Preble's locations are contained by enclosing 69.4 percent of upland Preble's locations, as enclosure of the upland Preble's locations also encloses the riparian Preble's locations. Thus, the percent enclosure distances in the Lubow report described above are conservative as they are for upland Preble's movements.

Conclusions of Statistical Analysis

Delineating a line 100 feet (about 30 meters) from riparian, woodland, shrub, or seasonal ponds (upland water sources) will enclose at least 95 percent of the upland Preble's locations at 90 percent of the sites supporting Preble's (Figure 6 of Attachment 1-B). Such an approach will enclose more than 95 percent of all Preble's locations because enclosure of upland locations will automatically enclose riparian locations (Lubow 2000).

An enclosure boundary was delineated using 100 feet from riparian, woodland, shrub, or seasonal ponds for the three Douglas County study sites using the ArcMap function in ArcInfo (Figures 1-D, 1-E, and 1-F). In ArcMap, the vegetation layer was queried for "riparian woodland, riparian unvegetated and riparian herb." A second query was run from the first to find upland shrub, woodland, and seasonal ponds within 100 feet of the first query. This procedure found upland shrub, woodland, or seasonal ponds "nearby" the riparian communities. All the polygons from the two queries were buffered by 100 feet using the buffer wizard in ArcMap. "Nearby" was defined as upland units that are adjacent to riparian units, are within 100 feet of riparian units, or upland units adjacent to riparian units.

The preliminary blind RCZ mapping done in 2000 compares favorably with the 95 percent enclosure boundary except for seasonal ponds and some upland areas of trees

and/or shrubs that extend from the adjacent side slopes.¹

Conclusions

The blind preliminary RCZ mapping done in 2000 was compared with 3 years of Preble's movement data at three sites in Douglas County to determine if the RCZ mapping was including the habitat most frequently used by Preble's. The visual comparisons of the blind preliminary RCZ mapping with plotted Preble's movement observations resulted in revising and expanding the preliminary RCZ mapping in 2001 to include additional upland tree and shrub cover that extends beyond the upland side slopes and nearby upland water sources similar to those that were observed to be used by Preble's at the three study sites.

The GIS and statistical analysis in 2002 indicated that the preliminary blind mapping (i.e., unrevised mapping) enclosed more than 95 percent of the Preble's movement observations. When using the revised expanded mapping to predict the enclosure rates throughout the County, the statistical analysis predicts that the RCZ encloses 95 percent or more of the Preble's movement observations by including additional upland trees and shrubs and upland seasonal water sources.

The best available scientific information for sites supporting Preble's in Douglas County indicates that the RCZ as mapped for the DCHCP encompasses 95 percent or more of Preble's movements, and therefore reliably delineates Preble's habitat. The RCZ:

- Is site-specific and landscape-based mapping that uses recent high resolution orthophotography to map the limits of Preble's habitat.
- Uses vegetation as a key element in determining the distribution of Preble's habitat. The best available scientific information (Lubow 2002 and White and Shenk 2000) indicates that vegetation (riparian vegetation, tree and shrub cover) is the primary predictor of Preble's habitat.

Implementation of the DCHCP, based on the RCZ will not appreciably reduce the likelihood of survival and recovery of Preble's.

References

- Lubow, B.C. 2002. Analysis of Preble's meadow jumping mouse locations. Unpublished report.
- Ryon, T. R. 1996. Evaluation of the historic capture sites of the Preble's meadow jumping mouse in Colorado. MS thesis, University of Colorado, Denver, CO.

¹ Subsequent to the preliminary RCZ mapping, all the maps, except the three study sites, were revised to include upland water sources adjacent to or within 200 feet of the previously mapped RCZ, and the preliminary RCZ mapping was expanded to include upland trees and shrubs that were adjacent to but extended beyond the adjacent upland sideslopes.

- Service (U.S. Fish and Wildlife Service). 2002. Guidance on Ditch Maintenance Activities. Ecological Services, Colorado Field Office.
- Shenk, T.M. and M.M. Sivert. 1999. Movement patterns of Preble's meadow jumping mouse (*Zapus hudsonius preblei*) as they vary across time and space. Unpublished report (interim progress report) to the Colorado Division of Wildlife.
- White, G.C. and T.M. Shenk. 2000. Relationship of Preble's meadow jumping mouse densities to vegetation cover. Submitted for publication.

Table 1-A.
Map units and vegetation types for Preble's movement studies.

Map Unit	Vegetation Type
UPLAND	
<i>Forest/Woodlands</i>	
1	Gambel oak/ponderosa pine
2	Ponderosa pine
<i>Shrublands</i>	
6	Snowberry (short upland shrubland)
9	Locust
10	Three-leaf sumac
11 [†]	Hawthorn
13	Mixed upland shrub
14	Gambel oak
<i>Grasslands</i>	
5	Mixed upland grassland
7 [†]	Western wheatgrass
15	Mixed upland tallgrass
16	Shortgrass
17	Smooth brome upland grassland
27	Cheatgrass/weeds
<i>Wildlife Habitat Improvements</i>	
18	Planted shrubs and native grasses
19	Plowed areas with small grains
<i>Other Seasonal Water Features</i>	
24 [†]	Seasonal ponds
25	Irrigation ditches
<i>Not Vegetated</i>	
34	Not vegetated
RIPARIAN	
<i>Woodland/Shrubland</i>	
3	Coyote willow
4	Cottonwood/coyote willow
12	Cottonwood
20	Golden willow
21	Cottonwood/peach leaf willow
22	Alder/coyote willow
26	Mixed willow
28	Coyote willow/sedge/grass

APPENDIX 1:
PREBLE'S HABITAT MAPPING

Map Unit	Vegetation Type
30	Mixed woody riparian (alder, box elder, and willow)
31	Snowberry (short riparian shrubland)
<i>Herbaceous</i>	
23	Dry bottomland grasslands
29	Cattail marsh
32	Smooth brome bottomland grassland
33	Baltic rush
<i>Not Vegetated</i>	
8	Not vegetated

†These units could also occur in riparian settings.

**Table 1-B.
RCZ Mapping, Douglas County HCP, Plum Creek Watershed.**

Watershed/Drainage	Stream Miles	Acres
Plum Creek (lower)		
Plum Creek Mainstem	9.99	1,199.96
Indian Creek	10.54	405.04
Jarre Creek	5.56	179.37
Unnamed tributary to Plum Creek	0.19	3.82
Total Plum Creek Watershed (lower)	26.28	1,788.19
West Plum Creek		
West Plum Creek Mainstem	20.21	1,547.54
Garber Creek	7.80	314.94
Jackson Creek	6.70	352.76
Dry Gulch	3.65	118.34
Spring Creek	2.20	69.65
Bear Creek	2.32	137.07
Metz Canyon	2.03	64.85
Unnamed West Plum Creek 5	2.41	100.21
Total West Plum Creek Watershed	47.32	2,705.36
East Plum Creek		
East Plum Creek Mainstem	27.61	1,927.37
Carpenter Creek and tributaries	16.93	1,268.72
Cook Creek	5.32	320.39
Hunt Gulch	2.46	72.04
North Gulch	2.27	62.07
Sellers Gulch and tributaries	6.83	227.90
Unnamed East Plum Creek 1&2	0	272.77
Total East Plum Creek Watershed	61.42	4,151.26
Total Plum Creek Watershed	135.02	8,644.81

**Table 1-C.
RCZ Mapping, Douglas County HCP, Cherry Creek Watershed.**

Watershed/Drainage	Stream Miles	Acres
Upper Cherry Creek		
Cherry Creek Mainstem (north of Highway 86)	10.54	504.28
Antelope Creek	11.93	684.64
Crowfoot Creek	5.60	370.39
East Cherry Creek	13.49	1,373.39
Elk Creek	2.36	219.74
Haskel Creek	5.94	479.09
Lake Gulch	7.36	991.50
Russellville Gulch	10.20	375.97
Upper Lake Gulch	5.13	737.21
West Cherry Creek	15.11	1,177.83
Willow Creek - CC	9.66	709.34
Total Upper Cherry Creek Watershed	97.32	7,623.38
Lower Cherry Creek		
Cherry Creek Mainstem (Highway 86 to Arapahoe County line)	16.86	1,145.27
Bayou Gulch	7.59	432.85
Kinney Creek	1.73	77.12
Total Lower Cherry Creek Watershed	26.18	1,655.24
Total Cherry Creek Watershed	123.50	9,278.62

Table 1-D.
RCZ Mapping, Douglas County HCP,
South Platte River Watershed, Exclusive of Pike National Forest.

Watershed/Drainage	Stream Miles	Acres
South Platte River	8.02	252.06
Bear Creek	1.15	31.45
Horse Creek	1.33	47.63
Little Willow Creek	2.68	180.26
Pine Creek	2.42	60.78
Sugar Creek	0	0.01
Trout Creek	1.31	61.56
West Creek	2.14	114.28
Willow Creek	5.72	156.42
Total South Platte River Watershed	24.77	904.45

Total RCZ Stream Miles = 283.29

Total RCZ Acres = 18,827.88

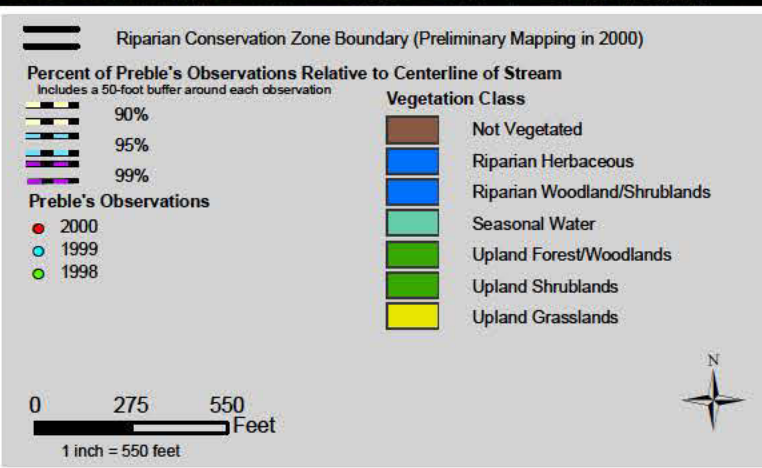
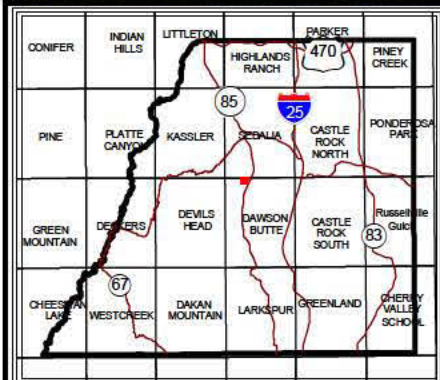
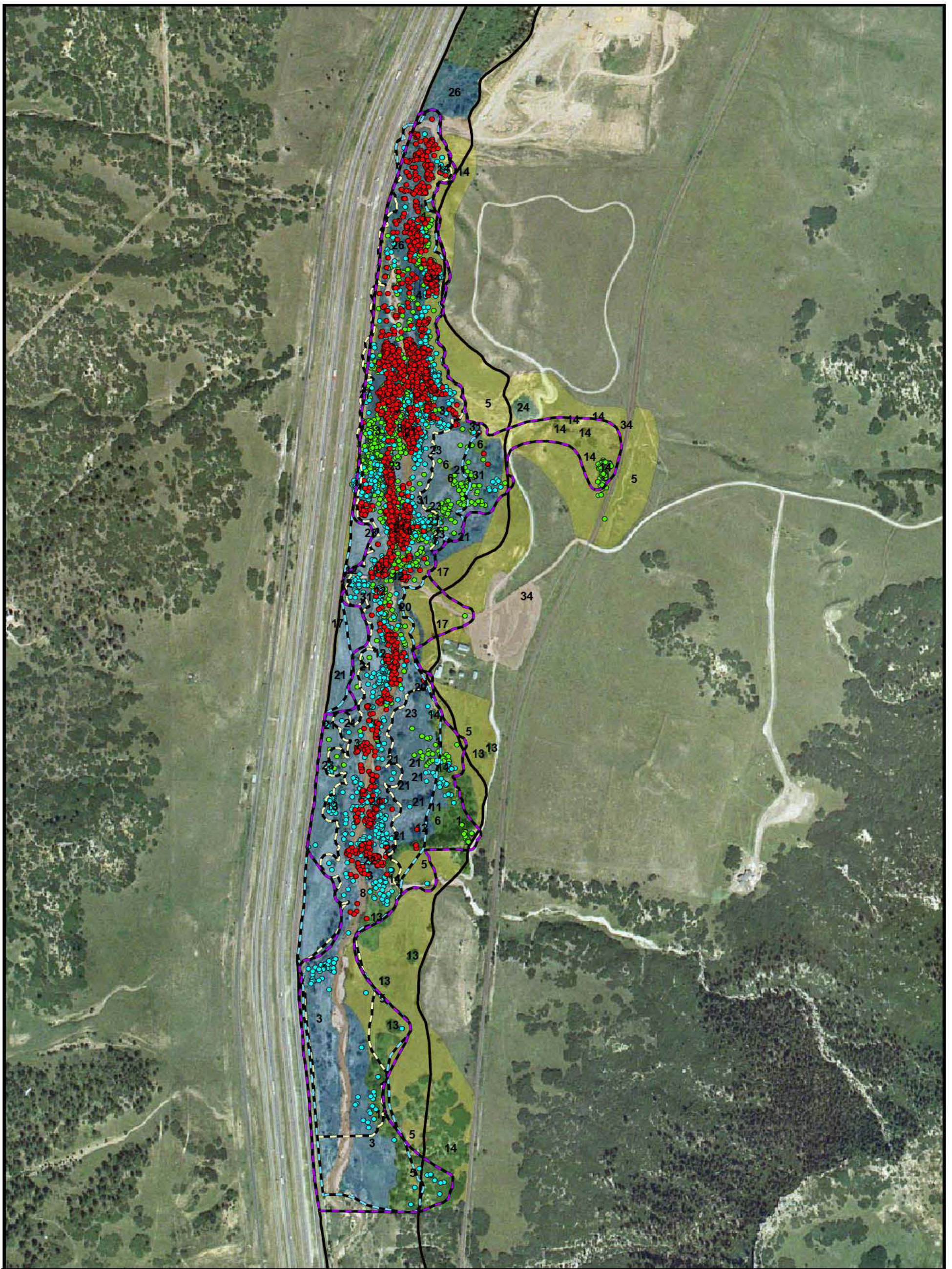


Figure 1-A
Douglas County Habitat Conservation Plan
Percent of Preble's Meadow Jumping Mouse
Observations Relative to the Centerline of the Stream
and Vegetation Classes
Columbine (Maytag) Property
Prepared for:
DOUGLAS COUNTY
100 Third Street
Castle Rock, CO 80104
(303) 660-7495

Prepared by:
ERO
ERO Resources Corp.
1842 Clarkson Street
Denver, CO 80218

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Date of Photography: July 1999
Date of plot: 07/06/2005
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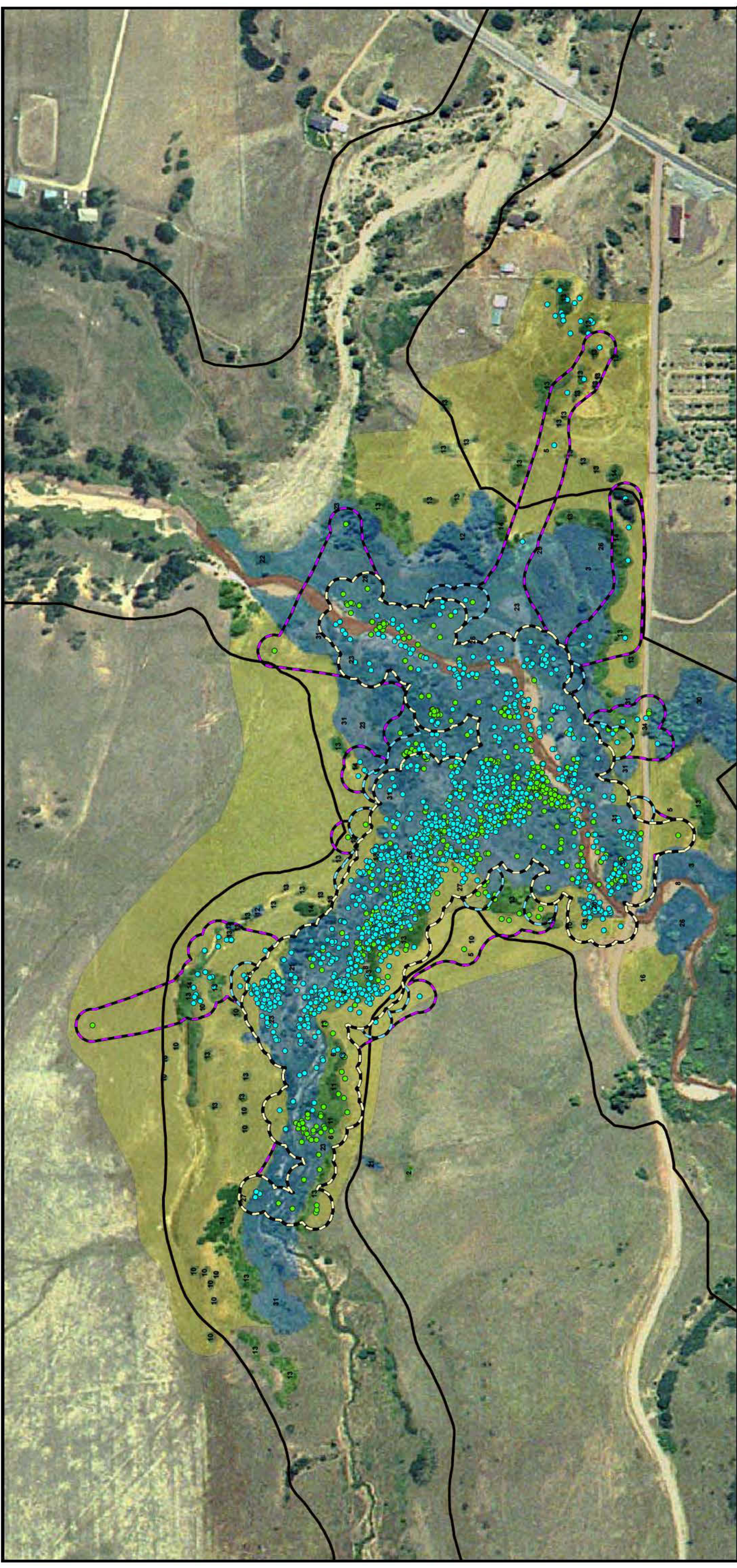
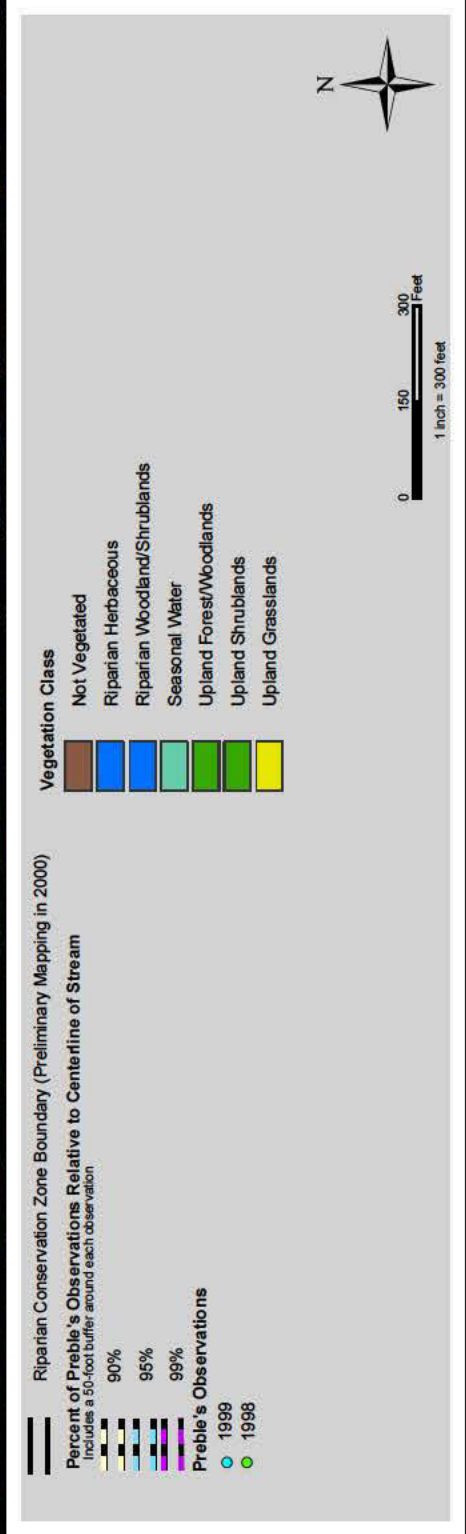
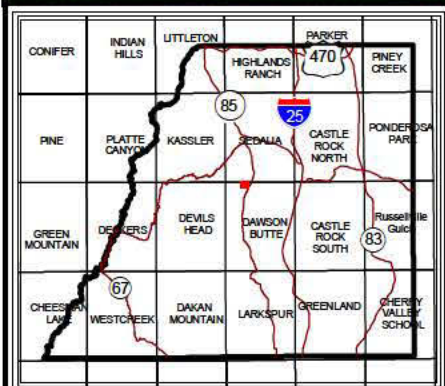
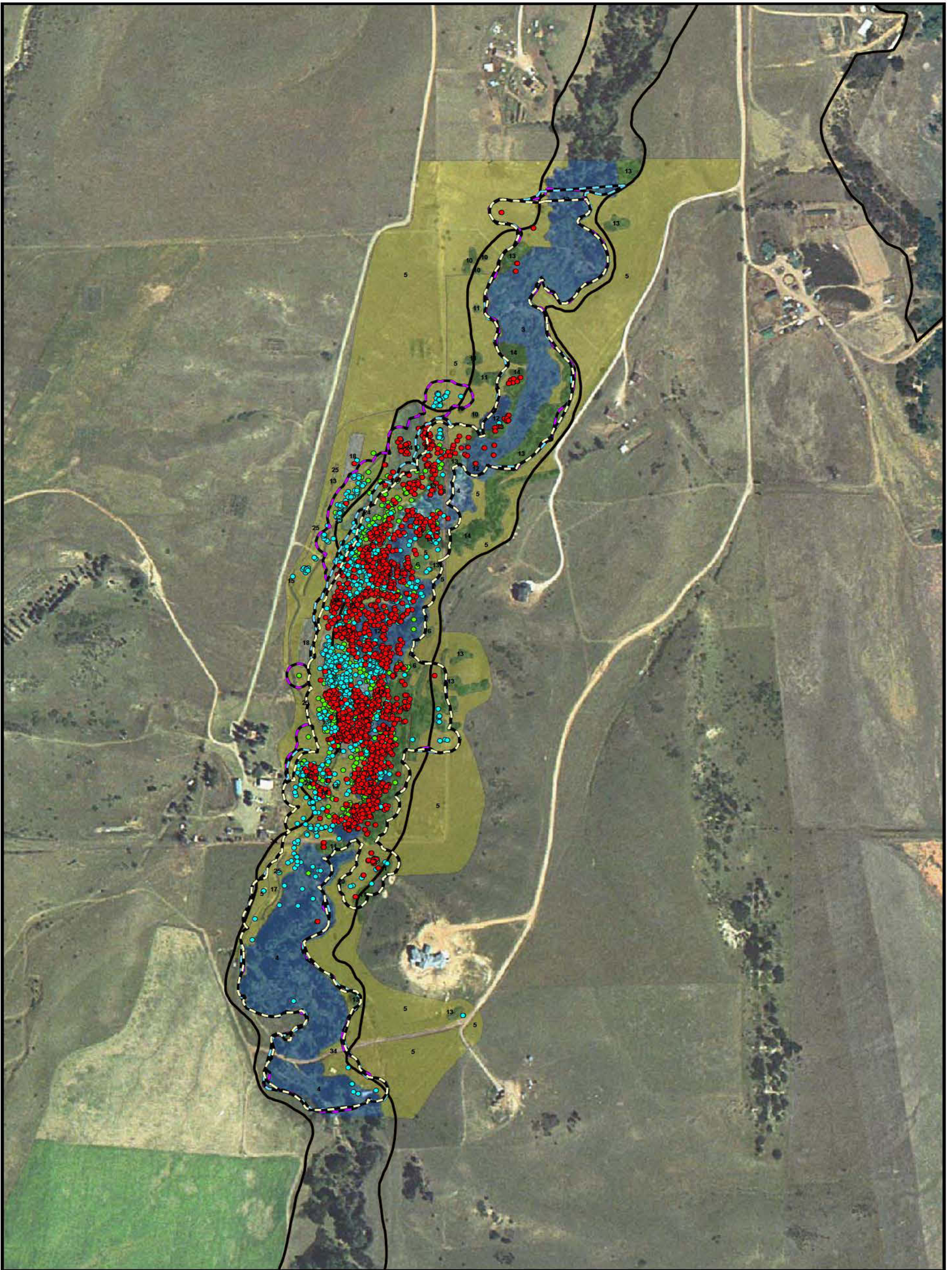


Figure 1-B
 Douglas County Habitat Conservation Plan
 Percent of Preble's Meadow Jumping Mouse Observations
 Relative to the Centerline of the Stream and Vegetation Classes
 Pinecliff Property
 Prepared for:
 DOUGLAS COUNTY
 100 Third Street
 Castle Rock, CO 80104
 (303) 660-7495

Prepared by:
 ERO
 ERO Resources Corp.
 1842 Clarkson Street
 Denver, CO 80218

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Date of Photography: July 1999
 Date of plot: 07/06/2005
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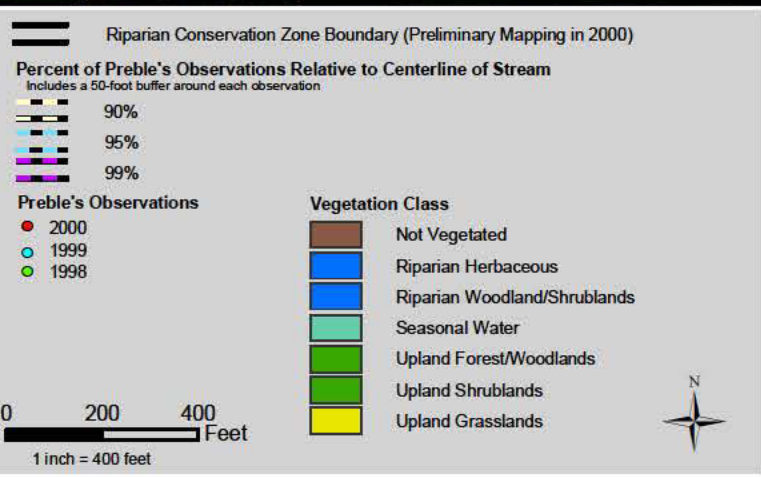
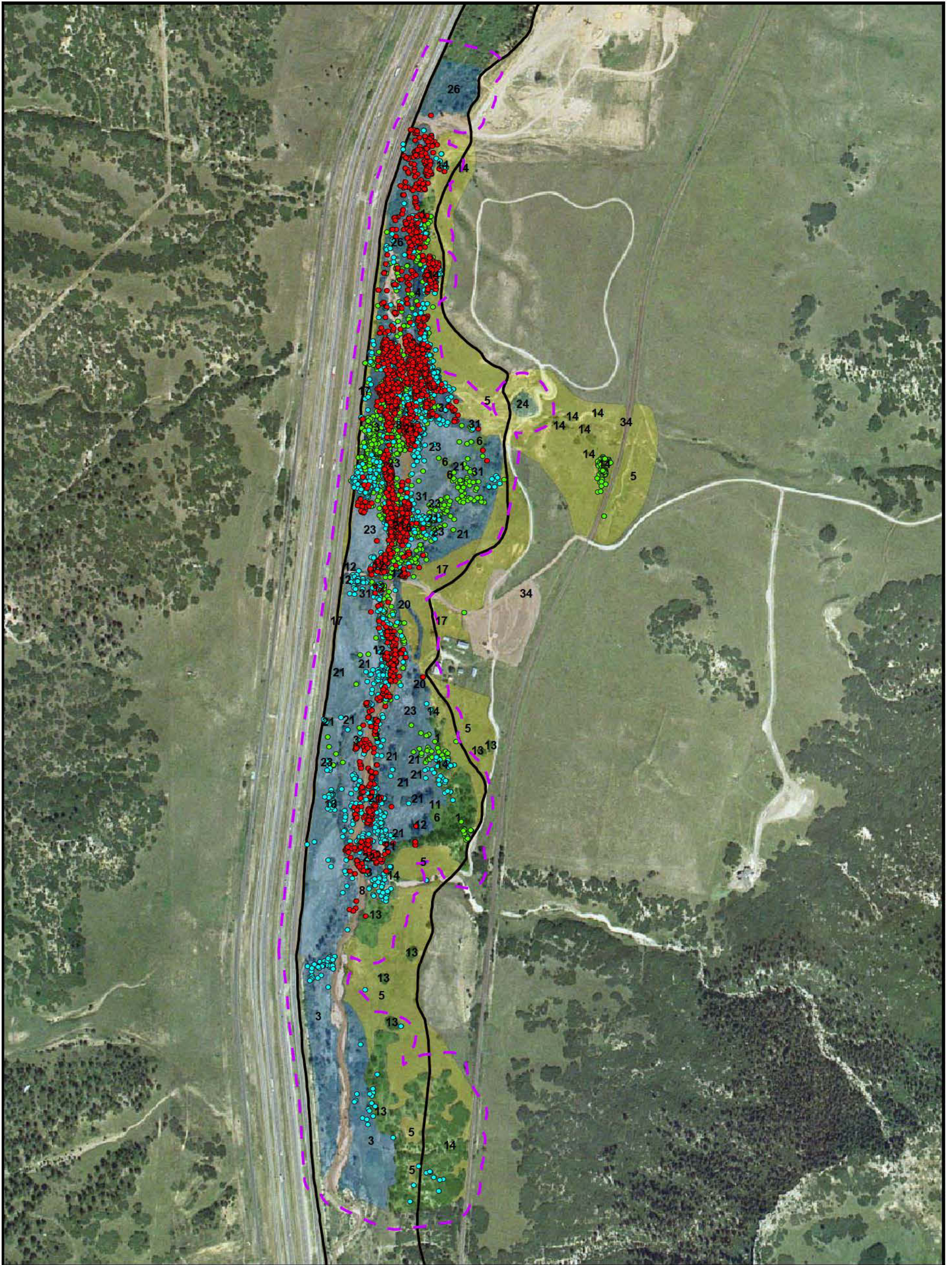


Figure 1-C
 Douglas County Habitat Conservation Plan
 Percent of Preble's Meadow Jumping Mouse Observations
 Relative to the Centerline of the Stream and Vegetation Classes
 Woodhouse Property

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Date of Photography: July 1999
 Date of plot: 07/06/2005
 File: 328-EA-11x17 maytag_100ft_veg.mxd (SR)

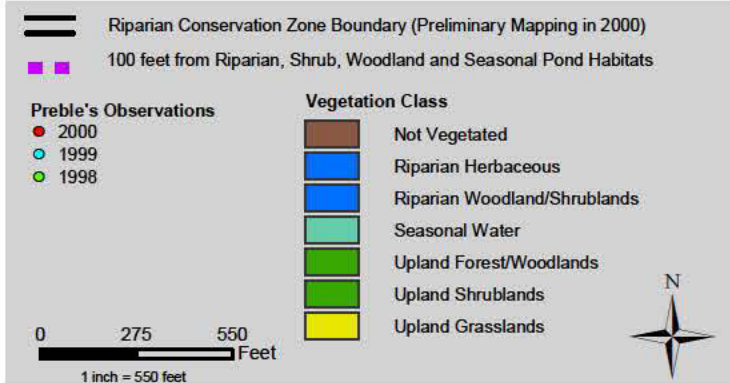


Figure 1-D
 Douglas County Habitat Conservation Plan
 100-foot from Riparian, Shrub, Woodland
 and Seasonal Pond Habitats
 Columbine (Maytag) Property
 Prepared for:
 DOUGLAS COUNTY
 100 Third Street
 Castle Rock, CO 80104
 (303) 660-7495

Prepared by:
 ERO
 ERO Resources Corp.
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 Denver, CO 80218

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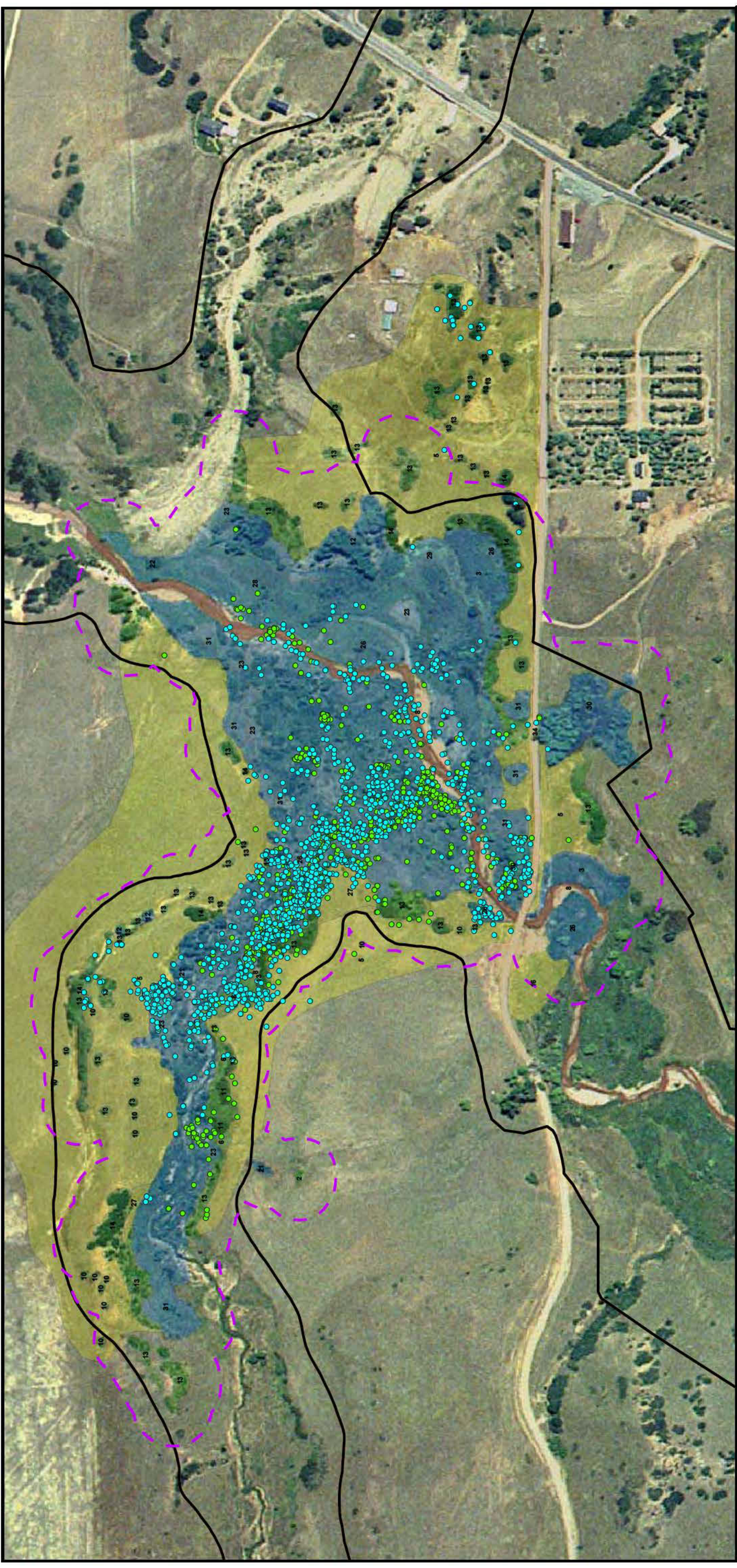


Figure 1-E
Douglas County Habitat Conservation Plan
100-foot from Riparian, Shrub, Woodland and Seasonal Pond Habitats
Pinecliff Property

Prepared by:
ERO
ERO Resources Corp.
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DOUGLAS COUNTY
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Riparian Conservation Zone Boundary (Preliminary Mapping in 2000)

100 feet from Riparian, Shrub, Woodland and Seasonal Pond Habitats

Preble's Observations

1999
1998

Vegetation Class

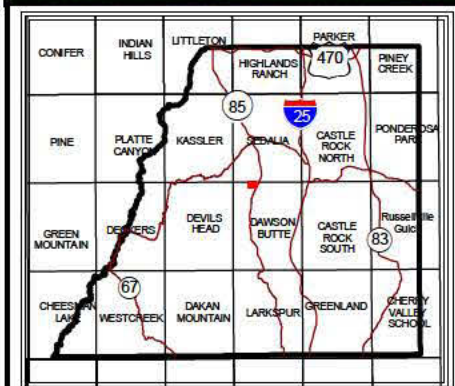
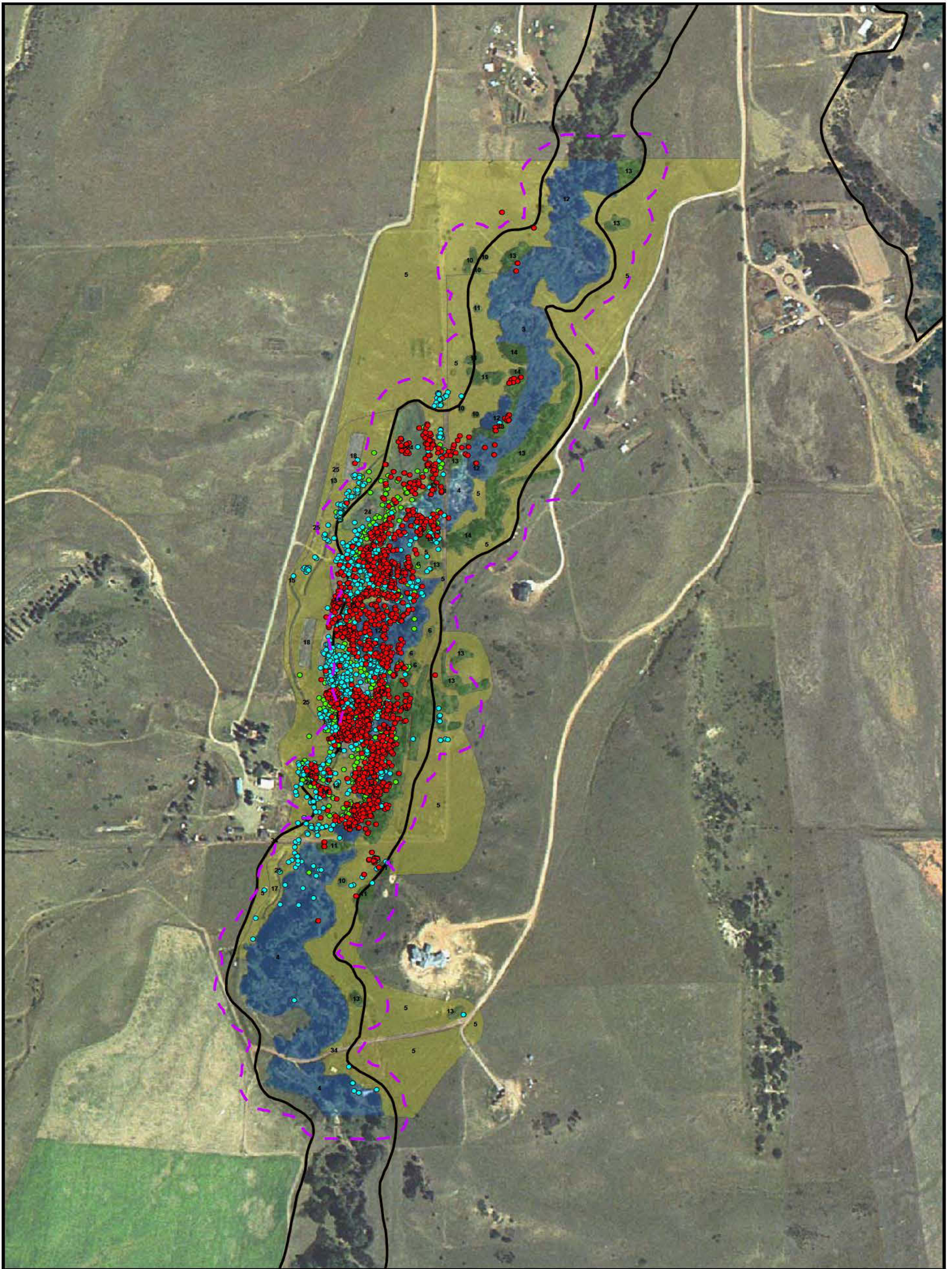
- Not Vegetated
- Riparian Herbaceous
- Riparian Woodland/Shrublands
- Seasonal Water
- Upland Forest/Woodlands
- Upland Shrublands
- Upland Grasslands

0 150 300 Feet
1 inch = 300 feet

N



Date of Photography: July 1999
Date of plot: 01/20/2005
File: 328-HCP-11x17 pine_100ft_veg.mxd (SR)



Date of Photography: July 1999
 Date of plot: 07/06/2005
 File: 328-EA-11x17 wh_100ft_veg.mxd (SR)

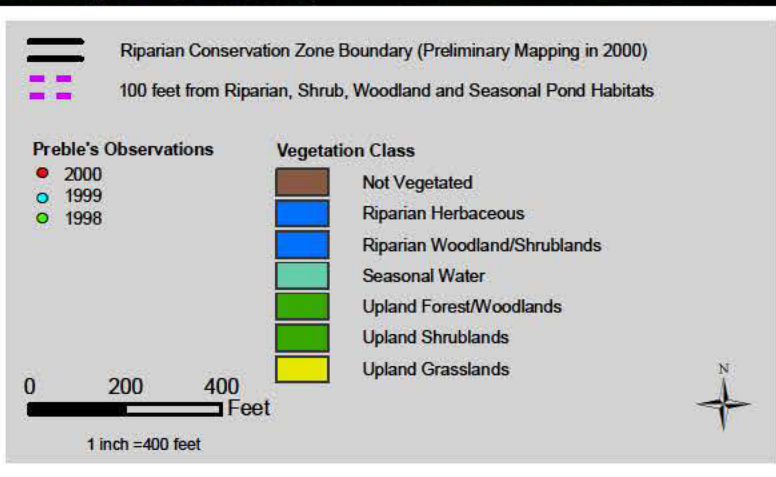


Figure 1-F
 Douglas County Habitat Conservation Plan
 100-foot from Riparian, Shrub, Woodland
 and Seasonal Pond Habitats
 Woodhouse Property

Prepared for:
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ATTACHMENT 1-A:
RIPARIAN CONSERVATION ZONE MAPPING
REQUESTED REVISION FORM

Riparian Conservation Zone Mapping Requested Revision Form

1.1 Revision Request #1.

Map Name: _____

Drainage: _____

Suggested Revision (please draw on map with the pens provided and describe; place the revision number above by your proposed revision for our reference): _____

Reason for requested revision: _____

Name of person requesting revision: _____

Address: _____

Phone: _____

If the requested mapping revision is on your private property, can the County or its contractor enter your property to review the requested mapping revision? Yes No

Please feel free to use the back of this sheet for additional comment space

ATTACHMENT 1-B:
ANALYSIS OF PREBLE'S MEADOW JUMPING MOUSE LOCATIONS
JULY 8, 2002
BY DR. BRUCE LUBOW
COLORADO STATE UNIVERSITY

Analysis of Preble's Meadow Jumping Mouse Locations

July 8, 2002

Preble's meadow jumping mouse (PMJM, *Zapus hudsonius preblei*) occurs only in Colorado and Wyoming, and was listed as threatened under the Endangered Species Act (ESA) on May 13, 1998 (63 FR 26517). In Colorado, *Z. h. preblei* exhibits an affinity for complex riparian communities with shrub, tree, grass, and forb species (Ryon 1996). Development along riparian areas and associated uplands, predation by both wild and domestic predators, destruction of wetland areas, grazing, and gravel-mining probably all have had a detrimental effect on local populations (Fitzgerald et al. 1994, Ryon 1996). White and Shenk (2000) have identified correlations between the abundance of various landscape features and densities of PMJM. However, specific guidelines defining PMJM habitat directly based on biological data have not been developed. Such guidelines would presumably provide a clear rule defining the landscape features and distances around these features that are used by PMJM.

This analysis addresses this question by examining radiolocation data from telemetry studies at 3 sites in Douglas County (Tanya Shenk, Colorado Division of Wildlife). Mouse location data were collected during 3 summers (1998-2000) at all sites except one in 2000 (Table 1). A GIS database was created with these locations. Additional data layers for topography and vegetations features at each site were added to the database (Sadie Russo, ERO Resources Corp.). Various vegetation types were delineated and classified. All classified vegetation types were considered either riparian or upland. All locations within the riparian vegetation zone were assumed to be core PMJM habitat. This analysis sought to define the upland limits of habitat most frequently used by PMJM for habitat conservation planning. Therefore, only those locations within upland habitat were analyzed. Classes of upland landscape features hypothesized to be important to Preble's meadow jumping mice were defined. These were (1) riparian vegetation, (2) shrubs, woodland, and seasonal ponds, and (3) the 100-year floodplain.

Using this database, the distance from each mouse location in an upland vegetation type to the nearest of each of these 3 habitat features was determined. One set of these 3 distance measurements was generated for each study site. The analysis that follows is based entirely on these 3 sets of distance measurements.

The study design that produced these data constitutes 3-levels of nested sampling; sites were selected (presumably randomly) from all possible sites, mice are selected within sites, and locations are sampled within mice. The objective is to describe the physical region that encompasses "most" of the locations of "most" of the mice at "most" of the sites. Data were not available identifying the individual mouse observed for each location recorded. Consequently, I treated each location observation and its associated distance measurement as an independent and random sample from a conceptual population of all locations used by all mice at a particular site.

The analysis proceeds by first describing the distribution of upland locations relative to the given landscape features at each site to provide criteria for defining the region encompassing any proportion of the upland locations used by PMJM. The 3 sites are then treated as a random sample of sites used by PMJM and used to extrapolate to other randomly selected sites to

determine criteria that would define regions enclosing similar proportions of mouse upland locations at given proportions of such sites.

A plot (Figure 1) of the cumulative proportion of distances as a function of increasing distance from each of the 3 types of habitat approximates a cumulative probability function representing the probability of a random upland location of a random mouse being located at or closer than a given distance. I fit 3 alternative cumulative parametric distribution functions -- lognormal, gamma, and logistic -- to the 3 sets of distance measurements at each of the 3 sites using least squares regression. I computed AICc (Burnham and Anderson, 1998) for each and selected the most strongly supported model for each of the 9 data sets (Figure 1). The same process was used for combinations of the habitat features (Figure 2). Combinations of habitat features use the minimum distance to any of the combined features.

From the cumulative distribution functions, I then determined the distances that enclosed several selected proportions of PMJM upland locations. For example, the distance required to enclose 90% of the upland mouse locations at Maytag is 30 m (Figure 1). Next, I assumed that these distance criteria at each of the 3 sites were random observations from a family (one for each value of the proportion of upland locations) of lognormal distributions of similar enclosure distances at all possible sites. I estimated the mean and variance of these lognormal distributions from the observed values at the 3 sites. These distributions are plotted with the corresponding observations in Figure 2 for the individual habitat features. These distributions provide an estimate of the distance criteria required to enclose a given proportion of upland locations at a given proportion of sites.

When habitat features were combined, enclosure distances could only be less or equal to the individual distances because the minimum of these was used for the combined case. Thus, one would expect the distances to never be larger in the combined cases than for the component individual distances. However, this is not necessarily true for the fitted lognormal distribution. The distances for combined criteria must be smaller on average, but they may be more dissimilar than the component distances; thereby increasing the variance of the lognormal distribution for the combined criteria. The result is that the distance required to ensure a high probability of achieving a given enclosure rate for a site can be much larger for the combined criteria. However, this phenomenon is an artifact of fitting distributions to very sparse ($n=3$) site observations. A larger dataset would not produce this result. Consequently, I used the minimum distance obtained from the lognormal distribution for the combined criterion or those for its component criteria as the final distance criteria (Figure 4).

I compared the 3 individual criteria and all possible combinations of these criteria to identify the one that required the smallest distance to provide a given level of upland location enclosure. Only the combination of distance to riparian habitat and distance to shrub, woodland, or pond habitat provided an improvement (reduction in distance) over the individual distances. Thus, the minimum distance to one of these landscape features offers the most efficient criteria for defining PMJM habitat (Figure 5). In other words, any point within the given distance to any one of these areas would be included in PMJM critical habitat.

This criteria is summarized in Figure 6 which provides a simple means to select a particular proportion of upland locations criteria and a proportion of sites for which that distance would be adequate and looking up the corresponding distance criteria. There is currently no

objective basis for choosing the proportions of upland locations to exclude within sites and the proportions of sites to exclude from meeting this criterion. Ideally, these estimates would be related to population parameters such as survival or reproductive rates, and ultimately to estimates of population and species persistence probability. Knowledge of this species is far from adequate for such an analysis at this time. However, it is probably prudent to provide greater protection at fewer sites than to provide only marginal protection at more sites; in other words, an emphasis on quality over quantity. This logic suggests that the proportion of upland locations within site that is excluded should be smaller than the proportion of sites ensured adequate protection. For example, choosing to exclude 0.1% of upland locations within sites but to exclude 1% of sites from this assurance might be a reasonable combination. For this example, a buffer zone about 150 m wide around all of these habitat features is required (Figure 6). A less protective combination would be to protect all but 1% of upland locations at all but 10% of sites; this would reduce the buffer distance to 50 m. A more stringent criterion of 0.01% of upland locations and 0.1% of sites would require close to 400 m.

Another approach to specifying the limits of core PMJM habitat would be to consider the percentage of all locations, not just upland locations. Upland locations represent similar fractions of all locations at 2 sites, but a far higher proportion of the locations at Woodhouse (Table 1). For example, at Maytag, 95% of all locations are enclosed if 69.4% of upland locations are enclosed in addition to all riparian locations (Figure 7). However, at Woodhouse, 92.5% of upland locations would have to be included along with all riparian locations to achieve the same total proportion of 95%. With only these 3 sites, it is difficult to say how best to extrapolate the proportion of upland habitat use to other sites. It might be safe to assume that Woodhouse is a worst case and use the proportions observed there. Or, to be particularly cautious, it might be best to assume that all locations are in upland habitat and simply use the enclosure distances in this analysis without further adjustment. In fact, the distance criterion is very insensitive to this choice. In the 3 examples given in the previous paragraph, the required distance for the most stringent criteria is reduced by 5% by using the Woodhouse proportions, and by 8% for the Maytag proportions. The less stringent criteria barely altered at all, changing by < 1 m in each case).

Acknowledgements. – Tanya Sherk of the Colorado Division of Wildlife collected the telemetry data for this analysis from studies at several sites in Douglas County, CO. Sadie Russo and Steve Dougherty of ERO Resources Corp., Denver, CO conducted GIS analyses to compute distances from mouse locations to various habitat features. Funding for the analysis reported here was provided by ERO Resources Corp., Denver, CO.

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Burhnam, K. P., and D. R. Anderson. 1998. Model selection and inference – a practical information theoretic approach. Springer, New York, NY.

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Ryon, T. R. 1996. Evaluation of historical capture sites of the Preble's meadow jumping mouse in Colorado. M. S. Thesis, University of Colorado, Denver.

White, G. C., and T. M. Shenk. 2000. Relationship of Preble's Meadow Jumping Mouse Densities to Vegetation Cover. <???? Journal ????>

Table 1. Total number and percentage within upland habitat of observed PMJM locations over 3 years at 3 study sites in Douglas County, Colorado (Tanya Shenk, Colorado Division of Wildlife).

	1998		1999		2000		All Years	
	Total	% Upland	Total	% Upland	Total	% Upland	Total	% Upland
Maytag	1778	19.9%	1935	20.2%	2881	11.5%	6594	16.3%
Pinecliff	827	8.9%	1630	20.6%	0	0.0%	2457	16.6%
Woodhouse	899	74.0%	1545	72.3%	2219	58.9%	4663	66.3%

Figure 1. Cumulative percent of PMJM upland location distances from 3 different habitat features for 3 study sites. The three graphs represent distances of PMJM locations from 3 different habitat features: (a) riparian vegetation; (b) shrubs, woodland, or seasonal ponds; and (c) 100-year floodplain. Symbols are observed locations. Lines are best fitting curves for all distances >0 for each site chosen from three alternative cumulative probability distribution shapes examined: Lognormal (LN), Gamma (G), or Logistic (L). For each distribution, an additional parameter is estimated to account for the percentage of locations at <0 distance from the given habitat feature (i.e., those located within it). Data based on radio telemetry data from 3 sites in Douglas County, Colorado (Tanya Shenk, Colorado Division of Wildlife).

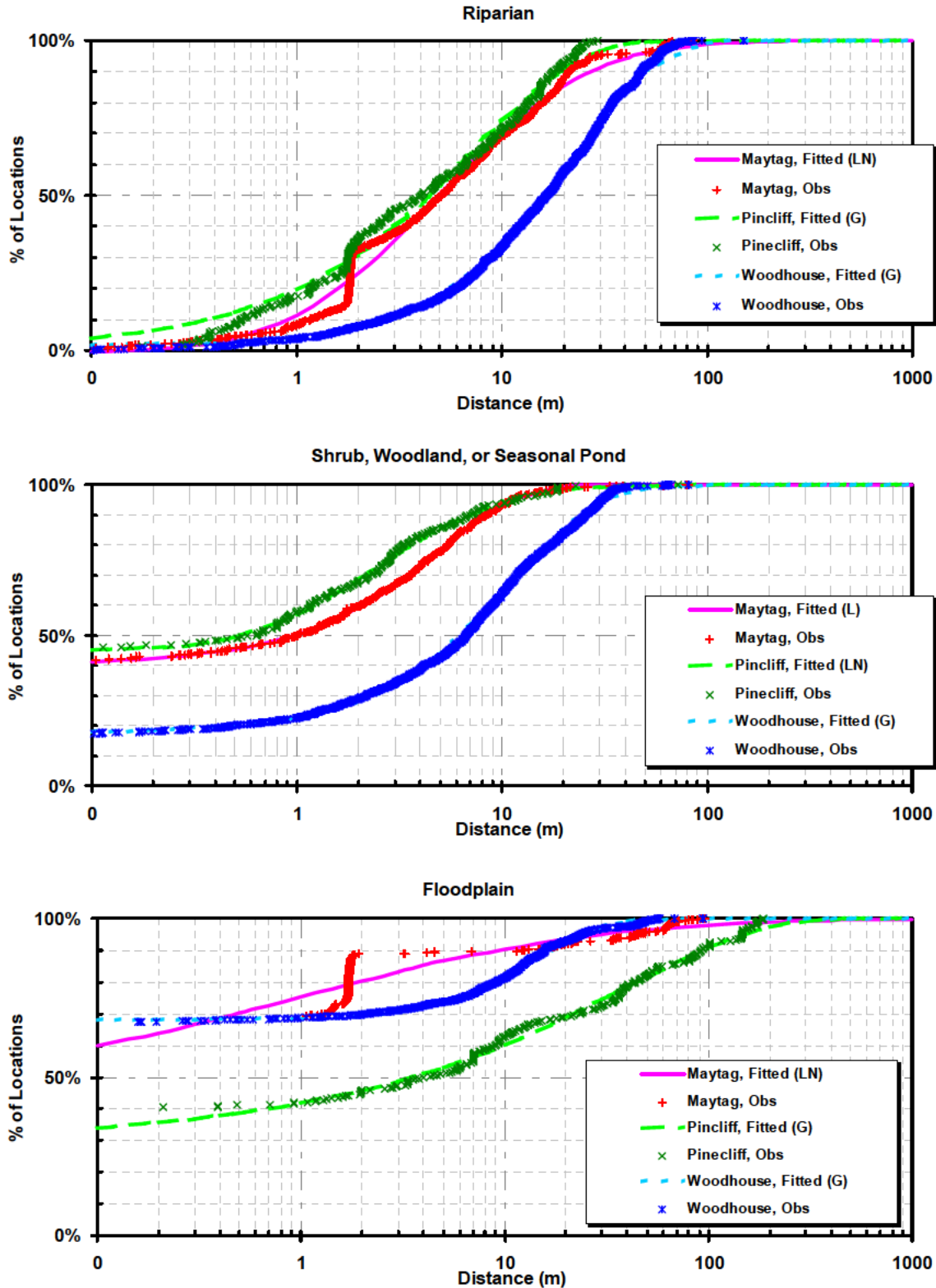


Figure 2. Cumulative percent of PMJM upland location distances to the closest of 4 combinations of 3 different habitat features for 3 study sites. The 4 graphs represent different combinations of habitat features, as listed in the heading. Symbols are observed locations. Lines are best fitting curves for all distances >0 for each site chosen from three alternative cumulative probability distribution shapes examined: Lognormal (LN), Gamma (G), or Logistic (L). For each distribution, an additional parameter is estimated to account for the percentage of locations at <0 distance from the given habitat feature (i.e., those located within it). Data based on radio telemetry data from 3 sites in Douglas County, Colorado (Tanya Shenk, Colorado Division of Wildlife).

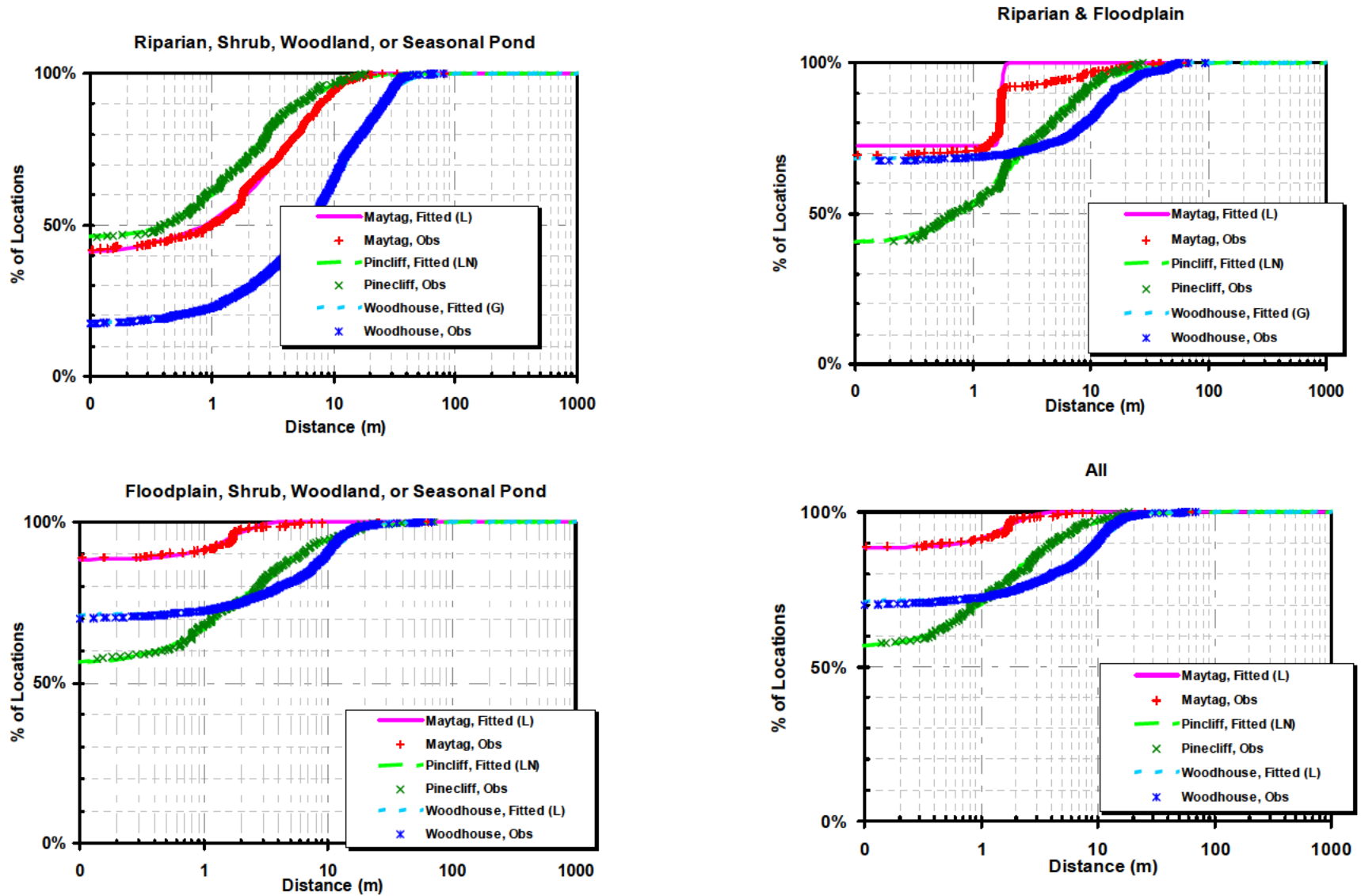


Figure 3. Cumulative distribution of study sites with distances to habitat features encompassing various percentages of PMJM upland locations at those sites. The three graphs represent distances of PMJM locations from 3 different habitat features: (a) riparian vegetation; (b) shrubs, woodland, or seasonal ponds; and (c) 100-year floodplain. Symbols are observations after smoothing. Lines are lognormal curves with the same mean and variance as each set of 3 observed points. Data based on radio telemetry data from 3 sites in Douglas County, Colorado (Tanya Shenk, Colorado Division of Wildlife).

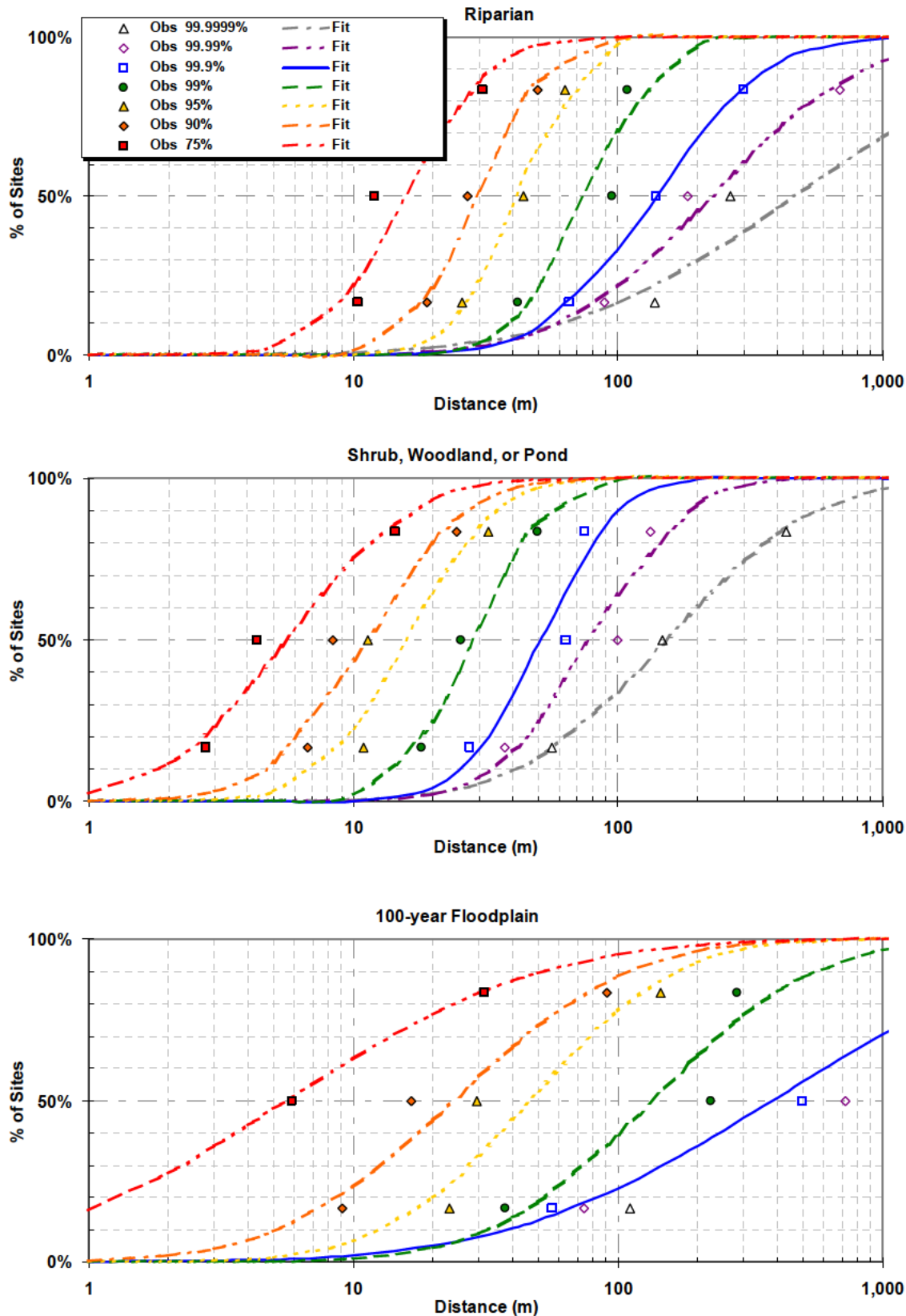


Figure 4. Cumulative distribution of study sites with distances to combinations of habitat features encompassing various percentages of PMJM upland locations at those sites. The 4 graphs represent distances of PMJM locations to the closest of 4 combinations of 3 different habitat features. Symbols are observations after smoothing. Lines are lognormal curves with the same mean and variance as each set of 3 observed points. Data based on radio telemetry data from 3 sites in Douglas County, Colorado (Tanya Shenk, Colorado Division of Wildlife).

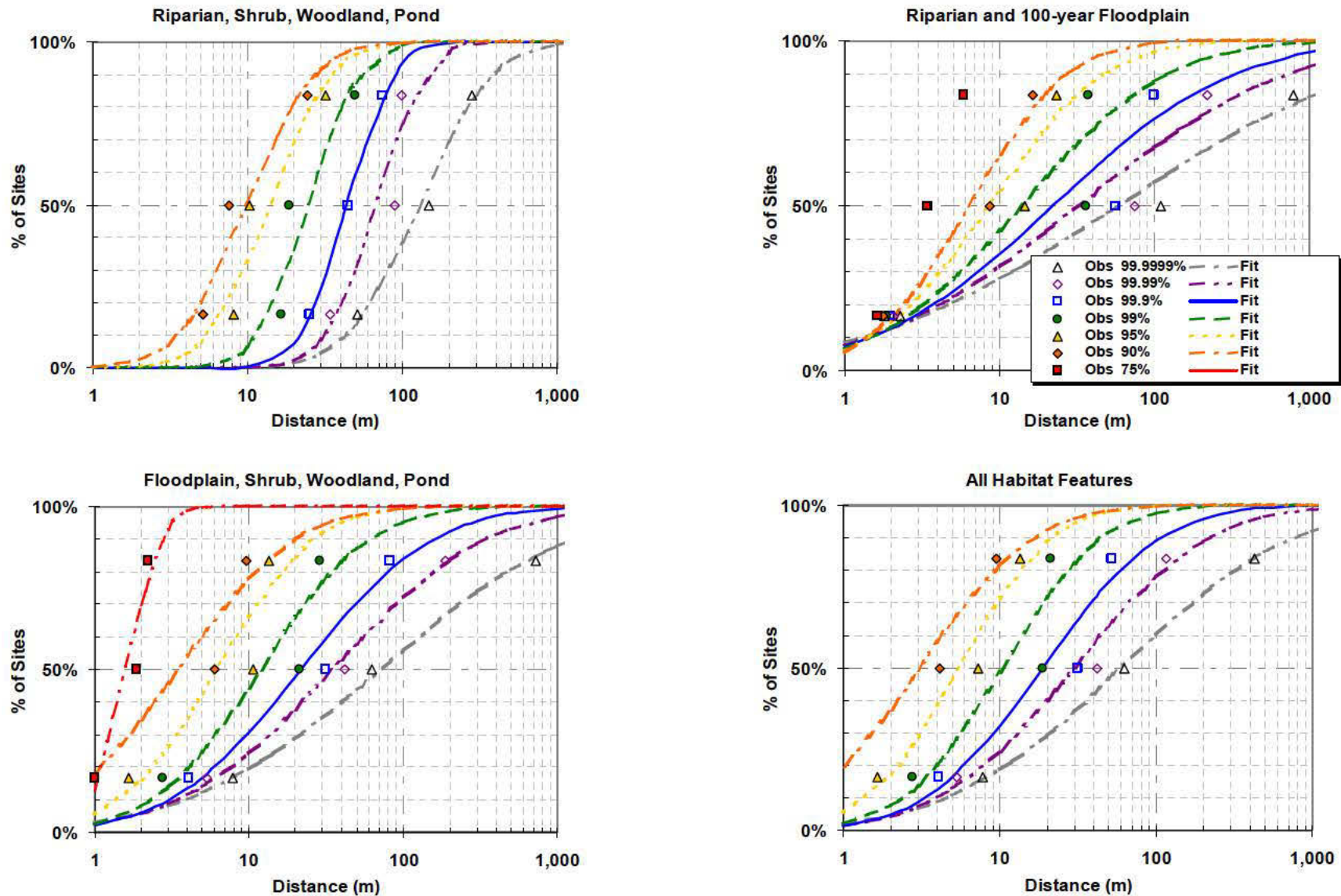


Figure 5. Buffer zone widths required to enclose all but the given percentage of PMJM upland locations at 4 different percentages of sites. Lines in each graph represent different combinations of habitat features PMJM; distances are measured from PMJM locations to the given habitat feature. For example, to enclose all but 0.1% of mouse locations at 99% of sites using the best combination of habitat features, the solid line on the upper right graph indicates that a 100 m buffer around riparian vegetation, shrub, woodland, and seasonal pond habitats should be maintained. Results are based on models fitted to radio telemetry data from 3 sites in Douglas County, Colorado (Tanya Shenk, Colorado Division of Wildlife).

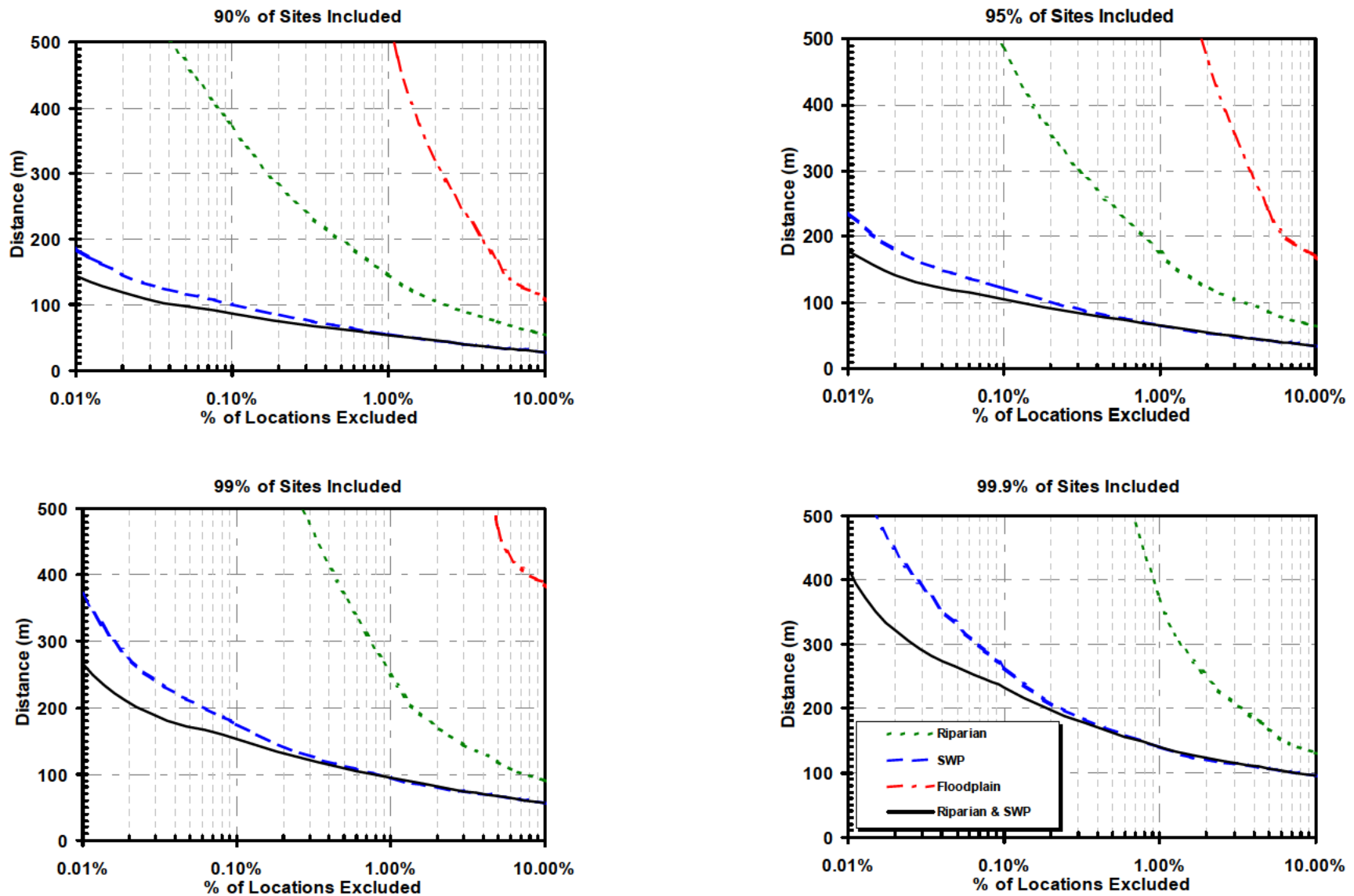


Figure 6. Buffer zone widths required to enclose all but a percentage of upland PMJM locations (x-axis) at all but a given percentages of sites (y-axis). Two graphs are identical except for scales. Buffers are around any of the following habitat features: riparian, shrub, woodland, or seasonal pond habitats. For example, to enclose all but 0.1% of mouse locations at all but 1% of sites, a buffer zone about 150 m wide around all of these habitat features is required. Results are based on models fitted to radio telemetry data from 3 sites in Douglas County, Colorado (Tanya Shenk, Colorado Division of Wildlife).

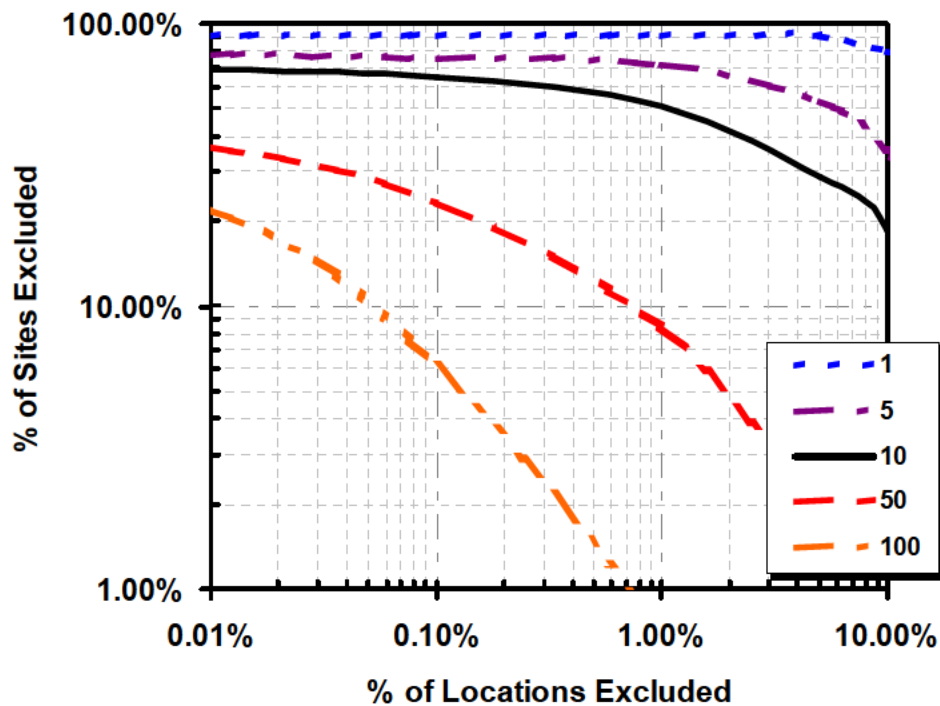
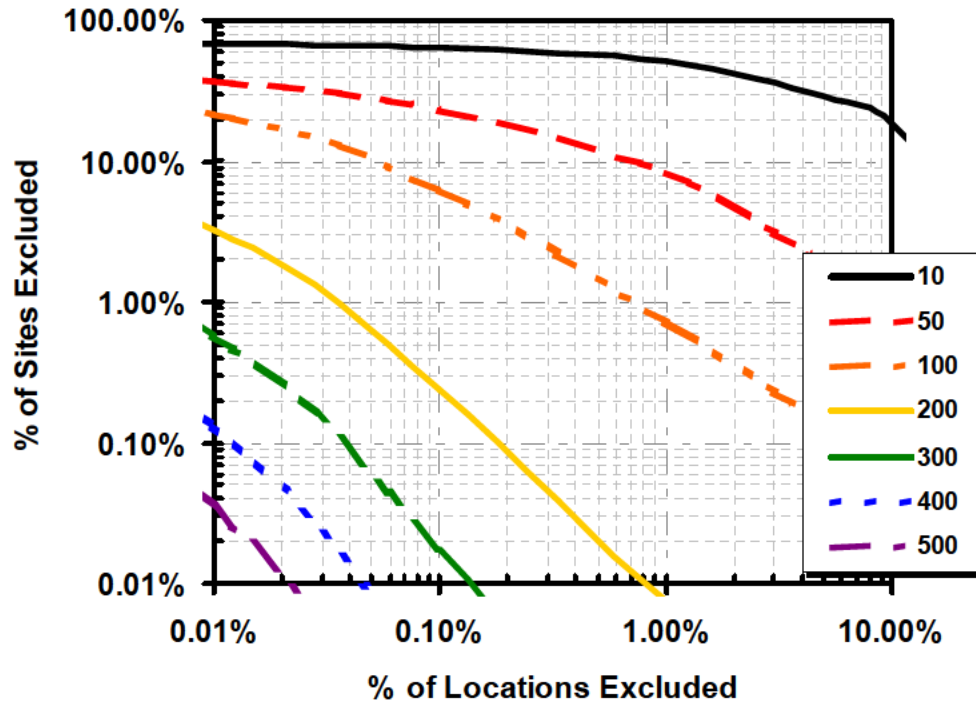
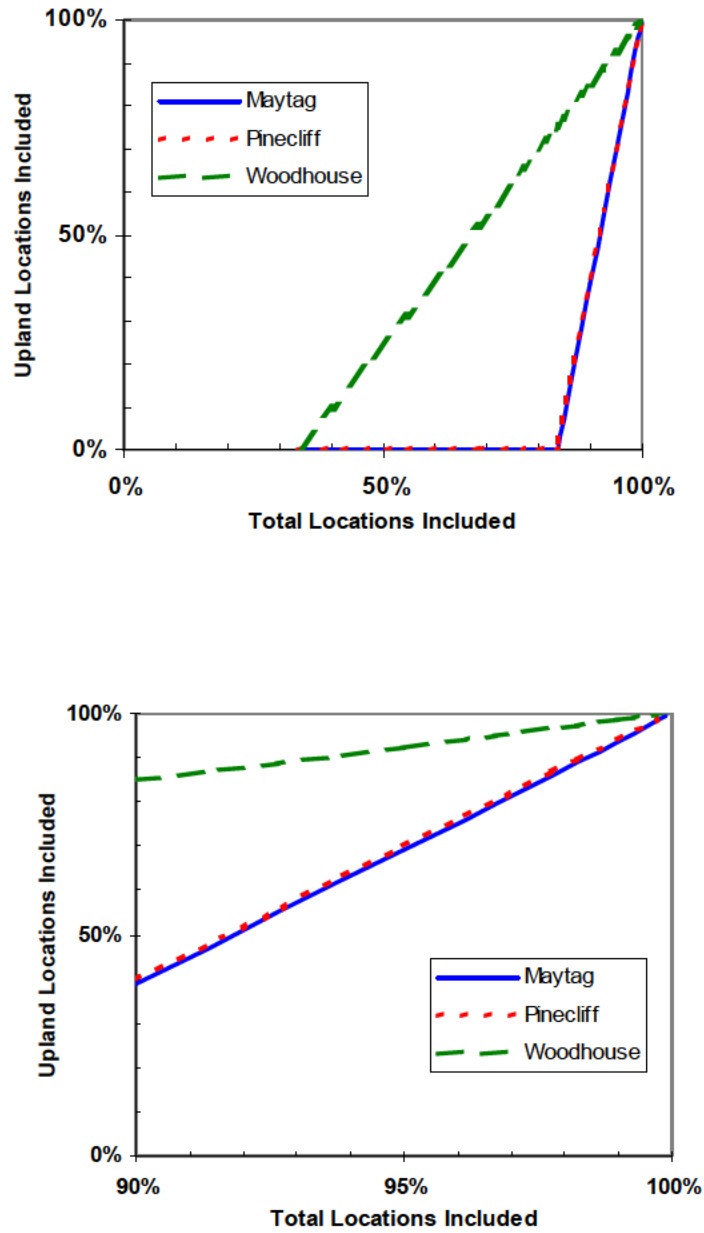


Figure 7. Percentage of upland locations that must be included along with all riparian locations in order to include a given percentage of total locations of PMJM at each of 3 study sites in Douglas County, Colorado. Data are combined of 2-3 years of radio telemetry observations at these sites (Tanya Shenk, Colorado Division of Wildlife).



Appendix 2: Public Involvement for the Original Regional HCP*

Date	Audience	Subject
02/19/1998	Douglas and Elbert Counties Subarea Stakeholder Planning Meeting	Initial Collaborative Planning Effort Meeting
03/19/1998	Douglas and Elbert Counties Subarea Stakeholder Planning Meeting	Discussion of Preble's locations; general factors affecting Preble's and its habitat, identification of potential strategies
09/08/1998	Douglas and Elbert Counties Subarea Stakeholder Planning Meeting	Presentation of existing policies, programs and regulations that affecting Preble's habitat, discussion of potential conservation strategies
12/22/1998	Douglas County and Elbert County Core Group Meeting	Population estimates and viability; habitat acreage, Recovery;
02/17/1999	Senator Allard's office	Plum Creek Waste Water
04/06/1999	Stakeholders - Department of Transportation	General information and coordination
04/08/1999	Stakeholders - Town of Castle Rock	General Background
04/20/1999	Stakeholders - Chamber of Commerce	General information
05/13/1999	Stakeholders - Colorado State Parks	General Coordination; identification of common issues
06/21/1999	General Public	Status of DC planning effort; alternatives considered; public input; and HCP process
07/28/1999	Stakeholders - Douglas County Development Review Committee (Planning and Engineering)	General ESA background, HCP planning process
09/29/1999	General Public	NEPA Scoping Meeting
01/31/2000	Public Meeting - Town of Larkspur	General background on Preble's issues, and proposed County HCP
04/17/2000	Stakeholders – Water Providers, Utilities, and Metropolitan Districts	Presentation of activities to be covered by HCP and proposed BMPs
04/17/2000	Stakeholders –Developers	Presentation of activities to be covered by HCP and proposed BMPs
04/18/2000	Stakeholders – Agriculture	Presentation of activities to be covered by HCP and proposed BMPs
04/18/2000	Stakeholders – Open – General Public	Presentation of activities to be covered by HCP and proposed BMPs
04/19/2000	Stakeholders –State Agencies	Presentation of activities to be covered by HCP and proposed BMPs
04/19/2000	Stakeholders – Towns	Presentation of activities to be covered by HCP and proposed BMPs

* Input during the original Regional HCP assisted in formulating the basis of the DCHCP. Additional public input will be sought once the DCHCP has been submitted to the Service.

APPENDIX 2:
PUBLIC INVOLVEMENT FOR THE ORIGINAL REGIONAL HCP

Date	Audience	Subject
04/19/2000	Stakeholders –Environmental Interests	Presentation of activities to be covered by HCP and proposed BMPs
01/04/2001	Stakeholders - Douglas County	HCP status and strategy issues; general organization and information
01/29/2001	Preble’s Steering Committee	General Status and review of DCRHCP
04/16/2001	General Public	Presentation of RCZ Maps
05/07/2001	Stakeholders - Douglas County Community Development and Engineering	Status of HCP; HCP issues strategy development; troubleshoot plan and implementation issues
05/14/2001	Public meeting - Town of Parker	General Status and review of DCRHCP
08/01/2001	Stakeholders - Douglas County	
08/13/2001	Preble’s Steering Committee	
08/27/2001	Public meeting - Town of Larkspur	Proposed covered activities; covered town activities; RCZ mapping and other HCP issues
09/19/2001	Stakeholders – Douglas County Engineering	
10/26/2001	Stakeholders - Douglas County	Implementation and enforcement issues
04/11/2002	Stakeholders – Developers	Meeting to discuss impact of HCP on potential development
04/18/2002	Preble’s Steering Committee	
04/25/2002	Stakeholders – Town of Castle Rock	
05/01/2002	Local Government meeting	Discuss range-wide issues
05/22/2002	Public meeting - Town of Castle Rock	General meeting – overview and status of DCRHCP
05/22/2002	Stakeholders – Douglas County	
06/10/2002	Preble’s Steering Committee	
06/25/2002	Stakeholders - Town of Castle Rock	HCP status and timeline; discussion of public works projects
7/12/2002	Preble’s Steering Committee	
07/24/2002	Stakeholders - Town of Castle Rock	Best management practices; mitigation issues; local government review of projects
07/24/2002	Stakeholders – Castle Rock	Discuss best management practices for proposed covered activities
08/23/2002	Stakeholders - Douglas County	Land Use issues
04/02/2003	Stakeholders - Douglas County	Habitat Zones and Delineation; Critical Habitat; Mitigation; Enforcement; Reinitiation; Covering Multiple Species
03/04/2004	Stakeholders - Douglas County	DCRHCP Status

Scoping Announcement

Environmental Assessment or Environmental Impact Statement for Douglas County Habitat Conservation Plan for Preble's Meadow Jumping Mouse

The Preble's meadow jumping mouse was listed as a threatened species on May 11, 1998 and is protected by the Endangered Species Act. In Douglas County, the mouse is known to occur in and adjacent to riparian habitats in the Plum Creek and Cherry Creek watersheds. The County currently is in the process of developing a habitat conservation plan (HCP) that would balance land use and development activities with conservation of mouse habitat. This announcement briefly discusses the HCP process, compliance with the National Environmental Policy Act, HCP alternatives, issues, and how to get involved.

The HCP Process

Douglas County is preparing to apply for a permit pursuant to Section 10(A)(1)(b) of the Endangered Species Act. This Section 10 Permit would authorize the incidental take of Preble's meadow jumping mouse (PMJM) during the course of conducting otherwise lawful land use or development activities in the County. Prior to applying for a Section 10 Permit, the County is required to develop a habitat conservation plan (HCP), which addresses specific strategies for conserving PMJM habitat in the County, how these strategies would be implemented, monitored, and funded, and which identifies the land use and development activities that would be authorized by a Section 10 Permit.

A decision by the U.S. Fish and Wildlife Service (FWS) regarding Douglas County's Section 10 Permit application is a federal action that requires compliance with the National Environmental Policy Act (NEPA). Compliance with NEPA requires preparation of either an environmental assessment (EA) or an environmental impact statement (EIS).

The EA/EIS Process and Scoping

The FWS is the federal agency responsible for NEPA compliance for the County HCP. As mentioned above, NEPA compliance will involve the preparation of an EA or EIS. FWS may contract with a third party to assist with preparation of the EA or EIS. FWS also will be responsible for preparing a Biological Opinion, which will discuss the effects of the HCP and Section 10 Permit on PMJM and other species listed or proposed for listing as federally endangered or threatened. The EA/EIS process will be concurrent with preparation of the HCP and, to the extent feasible, will be integrated with development of the HCP.

The environmental analysis phase of the EA/EIS process will begin after the public provides input during scoping. The EA/EIS will present an analysis of physical, biological, social, and economic effects of the proposed HCP and its reasonable alternatives. The FWS will fully consider information developed in the EA/EIS to evaluate the proposed HCP and its alternatives and to render a decision on whether to issue a Section 10 Permit to Douglas County.

Developing the HCP and EA/EIS is a public process. Identifying potential alternatives to the HCP, as well as significant environmental issues related to the HCP, is called *scoping*. Scoping for the EA/EIS is one component of the public's involvement in the HCP.

The Proposed Alternatives

The NEPA process requires a review of alternatives to the proposed action, including a “no action” alternative. FWS and Douglas County have identified five possible HCP alternatives for analysis in the EIS.

Alternative 1 — Develop a County HCP that Addresses County-as-Actor Activities and Commonly Occurring Private and Local Government Activities (Proposed Alternative)

Under this alternative, the County would be the applicant for a Section 10 Permit that would address activities to be undertaken by the County as well as specific local government and private activities. Local government and private activities addressed by the HCP would focus on commonly occurring development and land use activities that unavoidably need to occur in or adjacent to riparian habitat.

Alternative 2 — Develop a County-as-Actor Only HCP

This alternative involves the County developing an HCP and applying for a Section 10 Permit only for activities that are conducted by the County. Activities conducted by others (private and local governments) would not be addressed by the County HCP; however, those entities would be free to develop their own HCPs and apply for Section 10 Permits.

Alternative 3 — Develop a Comprehensive County-wide HCP that Addresses all County, Local Government, and Private Actions

Under this alternative, the County would apply for a Section 10 Permit and develop an HCP that anticipates all development and land use activities throughout the County that likely affect PMJM and its habitat. These activities would occur within and adjacent to PMJM habitat, or outside PMJM habitat, but potentially would affect the habitat. The HCP would need to define the conditions under which such activities would be allowed to proceed, estimate the likely impacts of those activities on PMJM and its habitat, and would need to develop measures to mitigate those impacts.

Alternative 4 — Single Statewide HCP

This alternative would involve the County participating in the development of a single HCP for the seven Front Range counties in which PMJM is currently known to occur. The Section 10 Permit likely would be applied for by the State. Participation in the HCP likely would be through implementing agreements, intergovernmental agreements, certification of inclusion, or other methods.

Alternative 5 — No County Action

This alternative involves the County electing to not participate in developing a County-wide HCP or applying for a County-wide Section 10 Permit. The County would continue to conserve PMJM habitat as part of its integrated approach to land use planning and open space conservation, but would not focus resources on PMJM conservation. The requirements of the Endangered Species Act (ESA) for protection of PMJM would still apply to land use and development activities within the County.

Questions and Issues

Questions regarding the County’s proposed HCP and the alternatives thus far identified, which would be considered in the EA/EIS, include—

- How would an HCP affect existing and future land use and development in the County?
- Would the HCP offset the effects to PMJM and its habitat authorized by the Section 10 Permit?

- Would an HCP provide habitat conservation for the continued long-term existence of PMJM in Douglas County?
- What kinds of activities would be addressed by an HCP and authorized by the Section 10 Permit?
- What would be the geographic extent of the County HCP?
- Who would be affected by a County HCP?
- Who would be required to participate in the County HCP?
- What will be the process for complying with the HCP?
- Will other species be addressed by the HCP?
- How will the HCP be funded?
- How will the HCP be enforced?
- How will habitat be conserved?
- Will habitat conservation involve public and private lands?
- To what extent should resources be adaptively managed under the HCP to accommodate new information and adjustments to conservation strategies?
- What regulatory assurances should be given to participants in the HCP of long-term compliance with the Endangered Species Act?
- Would an HCP address requirements applicable to federal agency actions under Section 7 of the ESA?

The EIS also will consider the direct, indirect, and cumulative effects of the HCP and alternatives on other resources and values such as historic and cultural resources, fisheries and aquatic biology, visual resources, open lands, and soils.

How To Get Involved

FWS and Douglas County welcome your comments on the issues you believe should be considered in the EA/EIS and encourage your participation in the EA/EIS process. Please submit your verbal or written comments at the public scoping meeting or submit your comments by October 30, 1999 using the form on the last page of this announcement to Kathleen Linder, Fish and Wildlife Biologist, U.S. Fish and Wildlife Service, 755 Parfet, Suite 361, Lakewood, Colorado 80215; Phone: (303) 275-2730; Fax: (303) 275-2371. After the publication and distribution of the Draft EA/EIS, FWS will solicit public comments. A Final EA/EIS will address all substantive public comments.

The U.S. Fish and Wildlife Service and Douglas County will hold a public scoping meeting to solicit comments on the scope of the EA/EIS. You are invited to attend this meeting to help identify issues for the EA/EIS. The meeting will be held on September 29, 1999 from 9:00 A.M. to 11:00 A.M. at the Phillip S. Miller Building, Douglas County Building, Commissioners' Hearing Room, 100 3rd Street, Castle Rock, Colorado.

Comment Sheet
(Please Be Specific)

Name: _____

Address: _____

City/State/Zip: _____

Representing: _____

Please comment on the issues identified on the previous pages.

Are there other environmental, social, or economic issues that you believe should be addressed?

What alternatives should the agencies consider in the environmental analysis?

Do you wish to remain on the mailing list to receive additional information on this project as it progresses?

Yes, I would like to remain on the mailing list. No, I would not like any additional information.

Mailing Instructions: *Remove this page from the first page along the perforated line. Please fold with the reserve side out, staple or tape, and a 33¢ stamp, and mail to Kathleen Linder, Fish and Wildlife Biologist, U.S. Fish and Wildlife Service, 755 Parfet, Suite 361, Lakewood, Colorado 80215. You are invited to send additional pages if desired.*

If you have received more than one copy of this announcement, please notify the FWS so the duplicate listing in the mailing list can be removed.

Kathleen Linder
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
755 Parfet Street, Suite 361
Lakewood, Colorado 80215

Appendix 3: Covered Activities

Appendix 3 provides:

- A listing of all Applicant Activities
- Best Management Practices for all Applicant Activities

Covered Activities

Covered activities are those undertaken by the Applicants pursuant to the DCHCP. Most covered activities involve construction and maintenance of roads, bridges, and trails (Tables 3-A through 3-E). Impacts to the RCZ associated with covered activities will not exceed the impact threshold established for the term of the DCHCP.

Best Management Practices for All Applicant Activities

The following best management practices (BMPs) are applicable to all covered activities occurring within the designated Riparian Conservation Zone (RCZ):

- All areas of temporary disturbance within the RCZ will be restored to pre-disturbance grades and will be revegetated per the DCHCP revegetation guidelines (Appendix 4). Changes to the predisturbance grade are acceptable if it can be demonstrated to be a benefit to the RCZ and Preble's habitat, or if the intention of the work is to return the area or facility to designed grades (e.g., the removal of sediment from man-made drainage channels, ditches, storm outfalls, and detention ponds). Excess material shall be disposed of at a location outside the RCZ approved by the County or Towns.
- Disturbance to the RCZ will be limited to the minimum amount necessary and the minimum duration possible to accomplish the work.
- Topsoil depths will be identified and topsoil will be salvaged from areas within the RCZ to be excavated or graded then revegetated. Salvaged topsoil will be stockpiled outside the RCZ and not mixed with non-topsoil. The salvaged topsoil will be placed in the same relative position as it was excavated. If the soils will not be returned within 30 days, the stockpiles should be temporarily seeded with a sterile cover crop or the seed mix listed in Table 4-A of Appendix 4.
- Stockpiled materials should be placed outside the RCZ and the stream channel and protected from transport from streamflows or runoff by using erosion and sediment controls. For utility line crossings, excavated material can be sidecast within the RCZ for up to 7 days.
- Temporary construction fence will be used to deter unauthorized access to portions of the RCZ that will not be disturbed but lie within or adjacent to the work area.
- Revegetation will occur as soon as practicable after the activity (or each phase of a multiphase activity) has been completed in accordance with the recommended seasons for revegetation and with practices conducive to success. Disturbed areas will have sediment and erosion control devices installed and maintained per the Douglas County GESG Manual until revegetation has been completed and

determined successful by Douglas County/Town. Follow the recommendations of Section 3 in the GESC Manual. Revegetation will meet the success criteria for revegetation listed at the beginning of Appendix 4.

- Trees and shrubs removed from the RCZ due to temporary impacts shall be replaced as practicable per the Woody Riparian Vegetation Guidelines (Appendix 5).
- All practicable measures shall be taken to avoid excess application and introduction of chemicals into aquatic ecosystems. Use of chemicals such as soil stabilizers, dust palliatives, sterilants, growth inhibitors, fertilizers, deicing salts, etc., during construction and maintenance operations shall be limited to application rates recommended by the manufacturer or County- or Town-approved rates. (See GESC Manual for further guidance.)
- Measures shall be taken to prevent spilled fuels, lubricants, or other toxic materials from entering the RCZ in accordance with the GESC Manual.
- Materials storage and cleaning equipment maintenance will not be allowed within the RCZ and will follow the general construction practices of the GESC Manual (Section 5).
- Minimize temporary disturbance to and permanent loss of woody vegetation within the RCZ following the guidelines for minimal disturbance and revegetation of woody vegetation (Appendix 5). In all cases possible, avoid blading and grubbing of woody vegetation in areas of temporary disturbance. Woody vegetation within the RCZ should be cut to ground level in areas of temporary disturbance without removing the root mass following the guidelines for activities in woody vegetation in Appendix 5.
- Staging areas will not be placed within the RCZ. Measures should be taken to minimize surface runoff from the staging areas into the RCZ per the Douglas County GESC Manual.
- The maintenance and repair of existing structures and facilities do not expand the original footprint of the structure or facility.
- All road and bridge maintenance and repair activities must occur within the original footprint (e.g., pavement, shoulders, backslopes, and sideslopes) of the exiting road.
- Emergency repairs and cleanups within the RCZ shall limit disturbance to the minimum amount of area necessary to accomplish the repair or cleanup.
- The activity will not form a permanent barrier to species' movements within the RCZ.
- All construction area foremen will be given a standard informational packet regarding construction activities within the RCZ and compliance with the DCHCP.

Tracking Impacts

The Applicants will track covered activities using the database created for estimating impacts associated with covered activities. For each activity, the Applicants will track: location, start date, completion date, total permanent impacts estimated for this activity

for the DCHCP, total temporary impacts estimated for this activity for the DCHCP, actual permanent impacts, actual temporary impacts, BMPs utilized, remediation required, remediation implemented, date of revegetation completion, and dates of monitoring (Table 6-F).

Covered activities also include maintenance of existing structures and facilities, habitat improvements, and emergencies. These activities differ from other activities because their timing, location, and quantification of impacts is difficult to predict. All of these activities are estimated to have minimal impacts on the RCZ for the following reasons:

- BMPs associated with all covered activities will minimize impacts to the RCZ.
- Activities that will occur commonly during the term of the DCHCP involve maintenance of existing facilities (facilities that predate the DCHCP or are covered by the DCHCP). These maintenance activities will occur in previously disturbed areas and will generally occur within the footprint of the existing facilities.
- Emergency activities will occur infrequently and are limited to only the work that is needed immediately to address the emergency.
- Habitat improvement activities, by definition, will result in a net benefit to the RCZ.
- As part of the annual monitoring report, the Applicants will report on all impacts to the RCZ associated with emergency activities.

Emergency Activities

Emergency activities are those activities that must be done by the County and Towns immediately due to pressing safety concerns, the eminent loss of life or significant property loss, or significant environmental damage. A significant property loss is a loss of property, facilities, or structures exceeding \$2,000. Significant environmental damage is damage that is unlikely to be readily avoided or reversed if emergency actions are not taken. Additional work not immediately needed as part of the emergency activity is not covered by the DCHCP unless it is an approved covered activity. Examples of emergency activities include, but are not limited to:

- Repairs of broken utility lines
- Repairs of significant property and/or structures damaged by floods or fire where such repairs cannot be delayed due to the imminent loss of life or property
- The cleanup of spilled hazardous materials and/or waste
- The repair, replacement and/or removal of failed structures including wells and utility lines and associated facilities
- The repair of structures that are in imminent danger of serious damage or failure
- Protection of structures and property from fire or flooding
- Repair of utility failures

- Repair of ditch failures
- Cleanup and stabilization of landslides, slope failure, and debris flows
- Fire suppression and mitigation and related activities, including prescribed fires and back fires for wildfire containment
- Pumping and dipping of water for fire suppression
- Snow removal activities outside of road rights-of-way when necessary related to snow plowing only (e.g., the stacking or disposal of snow during unusually large snow events)
- Response to accidents or other emergencies (e.g., removal of vehicles from the RCZ)
- Emergency road closures and reroutes
- Cleanup of tree blow downs
- Removal of beaver dams that will cause flooding of facilities (e.g., flooding onto roads and flooding of buildings)
- Emergency repair of buildings and replacement of head gates
- Emergency repair and replacement of dams
- Emergency sedimentation and erosion control activities
- Emergency repair of failed drainage structures such as storm sewers, outfalls, drops and grade control structures, drainage energy dissipaters (riprap or other hard armor), outlet structures and culverts

Habitat Improvement Activities

Habitat improvement includes the restoration, rehabilitation, enhancement, and maintenance of wildlife habitat within the designated RCZ that results in a net benefit to the RCZ and Preble's habitat. Habitat improvements may include:

- Planting
- Seed bed preparation (discing, plowing, tilling)
- Seeding (mechanical and/or by hand)
- Weed control
- Prescribed burns
- Exclusionary fencing
- Recontouring
- Adding deflector structures in the stream
- Revetments
- Channel realignment
- Buried geotextile
- Drop structures and check dams

In order to be considered an improvement to Preble's habitat, the activity must result in a net benefit to the RCZ, which is defined as an increase in native woody vegetation

cover and/or diversity, a reduction in undesirable non-native species and/or weedy species, or in the case of existing grasslands that adjoin riparian areas, an increase in vegetation cover and/or diversity of native grassland species. Habitat improvements or mitigation measures approved by the Service to benefit Preble's meadow jumping mouse are also included in this activity.

Maintenance and Repair Activities

The DCHCP covers the operation, maintenance and repair of existing structures and facilities by the County and Towns including, but not limited to, the maintenance and repair of drainage facilities such as drop/grade control structures, storm sewers/outfalls, man-made drainage channels/ditches, detention ponds, culverts, and drainage energy dissipaters, the operation, maintenance and repair of water wells, maintenance of parks, open space, roads, and bridges. The maintenance and repair of parks and open space facilities include but are not limited to the following facilities:

- Trails
- Trailheads
- Overlooks
- Drainages
- Picnic areas
- Signage
- Restrooms
- Foot bridges
- Shelters, benches, tables, buildings, and other structures
- Roads and bridges
- Culverts

Maintenance also includes the following activities:

- Turf mowing, irrigation, weed and insect pest control, fertilization, and aeration of existing landscaped areas
- Tree and shrub planting (replacement)
- Tree and shrub pruning
- Removal of trees that are safety concerns, obstruct trails or threaten the integrity or operation of existing facilities including drainage infrastructure
- Fungus control on landscape areas
- Removal of sediment and debris within drainage facilities to ensure proper operation

Maintenance and repair of existing roads and bridges include, but are not limited to:

- Grading
- Paving and resurfacing
- Construction and repair of signage
- Construction and repair of guard rails

APPENDIX 3:
COVERED ACTIVITIES

- Construction and repair of lighting
- Construction, repair, and maintenance of drainage directly associated with the road
- Sanding, de-icing, and snow removal
- Maintenance of ditches
- “Back-sloping” to maintain drainage
- Maintenance of shoulders
- Seeding
- Mowing
- Weed management
- Dust management
- Fence repair
- Delineator post repair
- Striping
- Curbing

Table 3.A Douglas County Road and Bridge Projects within the RCZ

Covered Activity ID	Road	RCZ Map Sheet *	Drainage	Major Basin	Longest Length (Feet)	Temporary Impact (Acres)	Permanent Impact (Acres)	Total Impact (Acres)	Legal Location
AC2-A	Dahlberg	Antelope Creek 2	Antelope Creek	Cherry Creek	750	0.7	4.4	5.1	T9S, R66W, SE1/4 NE1/4 Section 26
AC4-A	CR 74	Antelope Creek 4	Antelope Creek	Cherry Creek	650	0.6	4.1	4.7	T10S, R66W, SE1/4 NE1/4, NE1/4 SE1/4 Section 3 and SW1/4 NW1/4, NW1/4 SW1/4 Section 2
AC6-A	Best Road	Antelope Creek 6	Antelope Creek	Cherry Creek	250	0.1	0.7	0.8	T10S, R66W, SW1/4 SW1/4 Section 15 and NW1/4 NW1/4 Section 22
BG1-A	Bayou Gulch	Bayou Gulch 1	Bayou Gulch	Cherry Creek	2,500	0.7	4.7	5.4	T7S, R66W, N1/2 Section 23 and NW1/4 SW1/4 Section 24
BG1-A	Bayou Gulch	Bayou Gulch 1	Bayou Gulch	Cherry Creek	2,500	0.1	0.7	0.8	T7S, R66W, N1/2 Section 23 and NW1/4 SW1/4 Section 24
BG3-A	Flintwood	Bayou Gulch 3	Bayou Gulch	Cherry Creek	3,000	0.9	6.1	7.1	T7S, R65W, E1/4 Section 32 and SW1/4 SW1/4 Section 33
BG4-A	Grant	Bayou Gulch 4	Bayou Gulch	Cherry Creek	300	0.2	1.6	1.9	T7S, R65W, SW1/4 SW1/4 Section 33 and T8S, R65W, NW1/4 NW1/4 Section 4

* Refers to the RCZ map sheet (1 inch = 500 feet) on which the covered activity occurs. The 1 inch = 500 feet RCZ mapping is not included in the DCHCP.

Table 3.A Douglas County Road and Bridge Projects within the RCZ

Covered Activity ID	Road	RCZ Map Sheet *	Drainage	Major Basin	Longest Length (Feet)	Temporary Impact (Acres)	Permanent Impact (Acres)	Total Impact (Acres)	Legal Location
CARP1-A1	Spruce Mtn. Road	Carpenter Creek 1	East Plum Creek	Plum Creek	1,050	0.3	2.2	2.5	T9S, R67W, W1/2 SW1/4 Section 34 and SE1/4 SE1/4 Section 33
CARP1-A3	Spruce Mtn. Road	Carpenter Creek 1	East Plum Creek	Plum Creek	750	0.2	1.5	1.8	T9S, R67W, SE1/4 SE1/4 Section 33 and T10S, R67W, NE1/4 NE1/4 Section 4

* Refers to the RCZ map sheet (1 inch = 500 feet) on which the covered activity occurs. The 1 inch = 500 feet RCZ mapping is not included in the DCHCP.

Table 3.A Douglas County Road and Bridge Projects within the RCZ

Covered Activity ID	Road	RCZ Map Sheet *	Drainage	Major Basin	Longest Length (Feet)	Temporary Impact (Acres)	Permanent Impact (Acres)	Total Impact (Acres)	Legal Location
CARP3-A	Greenland CR 74	Carpenter Creek 3	Carpenter Creek	Plum Creek	1,000	0.5	3.4	3.9	T10S, R67W, SW1/4 NE1/4 Section 14
CARP4-A	Spruce Mtn. Road	Carpenter Creek 4	Carpenter Creek	Plum Creek	2,100	1.6	10.3	11.9	T10S, R67W, NW1/4 SW1/4 Section 27 and SE1/4 SE1/4 Section 28
CC6-A	N.Pinery Road	Cherry Creek 6	Cherry Creek	Cherry Creek	550	0.5	3.3	3.8	T7S, R66W, S1/2 NW1/4 Section 10
CC7-A	Chamber Road	Cherry Creek 7	Cherry Creek	Cherry Creek	800	0.5	3.2	3.7	T7S, R66W, SE1/4 SW1/4 Section 15
CC7-B	Scott Ave	Cherry Creek 7	Cherry Creek	Cherry Creek	680	0.5	3.3	3.8	T7S, R66W, SW1/4 SE1/4 Section 10 and NW1/4 NE1/4 Section 15
COOK1-A	S Spruce Mtn. Road	Cook Creek 1	Cook Creek	Plum Creek	350	0.3	1.8	2.1	T10S, R67W, NE1/4 NE1/4 Section 9
COOK2-A	Noe Road	Cook Creek 2	Cook Creek	Plum Creek	600	0.5	3.4	3.9	T10S, R67W, SE1/4 NW1/4, NE1/4 SW1/4 Section 16
COOK3-A	Perry Park CR 105	Cook Creek 3	Cook Creek	Plum Creek	1,400	0.5	3.2	3.7	T10S, R67W, SE1/4 SW1/4, SW1/4 SE1/4 Section 20
DG1-C	Dakan	Dry Gulch 1	West Plum Creek	Plum Creek	600	0.6	4.1	4.7	T8S, R68W, SW1/4 SW1/4 Section 35 and T9S, R68W, NW1/4 NW1/4 Section 2

* Refers to the RCZ map sheet (1 inch = 500 feet) on which the covered activity occurs. The 1 inch = 500 feet RCZ mapping is not included in the DCHCP.

Table 3.A Douglas County Road and Bridge Projects within the RCZ

Covered Activity ID	Road	RCZ Map Sheet *	Drainage	Major Basin	Longest Length (Feet)	Temporary Impact (Acres)	Permanent Impact (Acres)	Total Impact (Acres)	Legal Location
EC2-A	Palmer Divide	Elk Creek 2	Elk Creek	Cherry Creek	300	0.1	0.8	0.9	T10S, R66W, SW1/4 SW1/4 Section 36, SE1/4 SE1/4 Section 35
ECC9-A	Palmer Divide	East Cherry Creek 9	East Cherry Creek	Cherry Creek	700	0.6	3.7	4.2	T10S, R65W, SW1/4 SW1/4 Section 33

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Table 3.A Douglas County Road and Bridge Projects within the RCZ

Covered Activity ID	Road	RCZ Map Sheet *	Drainage	Major Basin	Longest Length (Feet)	Temporary Impact (Acres)	Permanent Impact (Acres)	Total Impact (Acres)	Legal Location
ECC9-B	Palmer Divide	East Cherry Creek 9	East Cherry Creek	Cherry Creek	1,000	0.4	2.8	3.2	T10S, R65W, SW1/4 SW1/4 Section 33
EPC15-A	Perry Park CR 105	East Plum Creek 15	East Plum Creek	Plum Creek	600	0.5	3.4	3.9	T10S, R67W, SW1/4 SW1/4 Section 8 and SE1/4 SE1/4 Section 7 and NW1/4 NW1/4 Section 17
EPC16-A	Larkspur Bridge	East Plum Creek 13	East Plum Creek	Plum Creek	100	2.0	5.0	7.0	T9S, R67W, NW1/4 NW1/4 Section 34
EPC7-A	Douglas Lane	East Plum Creek 7	East Plum Creek	Plum Creek	250	0.3	1.8	2.1	T8S, R67W, NE1/4 SE1/4 Section 22
HC1-A	CR 67	Horse Creek 1	South Platte	South Platte	180	0.0	0.2	0.2	T9S, R70W, NW1/4 NE1/4 Section 21
HC1-B	CR 67	Horse Creek 1	South Platte	South Platte	80	0.1	0.6	0.6	T9S, R70W, NW1/4 NE1/4 Section 21
HC1-C	CR75 Y Camp Bridge	Horse Creek 1	Horse Creek	South Platte	90	0.0	0.1	0.1	T9S, R70W, NW1/4 NE1/4 Section 21
HC2-A	Greenland CR 74	Haskel Creek 2	Haskel Creek	Cherry Creek	3,200	1.1	7.4	8.6	T10S, R66W, S1/2 SW1/4 Section 4 and SE1/4 SE1/4 Section 5 and NE1/4 NE1/4 Section 8 and NW1/4 NW1/4 Section 9

* Refers to the RCZ map sheet (1 inch = 500 feet) on which the covered activity occurs. The 1 inch = 500 feet RCZ mapping is not included in the DCHCP.

Table 3.A Douglas County Road and Bridge Projects within the RCZ

Covered Activity ID	Road	RCZ Map Sheet *	Drainage	Major Basin	Longest Length (Feet)	Temporary Impact (Acres)	Permanent Impact (Acres)	Total Impact (Acres)	Legal Location
HC2-B	Spring Valley	Haskel Creek 2	Haskel Creek	Cherry Creek	1,600	1.6	10.6	12.2	T10S, R66W, NW1/4 NW1/4 Section 3 and NE1/4 NE1/4 Section 4
HC4-A	Best	Haskel Creek 4	Haskel Creek	Cherry Creek	400	0.3	2.2	2.5	T10S, R66W, SW1/4 SW1/4 Section 17 and NW1/4 NW1/4 Section 20

* Refers to the RCZ map sheet (1 inch = 500 feet) on which the covered activity occurs. The 1 inch = 500 feet RCZ mapping is not included in the DCHCP.

Table 3.A Douglas County Road and Bridge Projects within the RCZ

Covered Activity ID	Road	RCZ Map Sheet *	Drainage	Major Basin	Longest Length (Feet)	Temporary Impact (Acres)	Permanent Impact (Acres)	Total Impact (Acres)	Legal Location
JKC1-A	Jackson Creek Road	Jackson Creek 1	Jackson Creek	Plum Creek	2,650	1.7	10.8	12.4	T8S, R68W, SW1/4 SW1/4 Section 14 and NE1/4 NE1/4 Section 22
JKC1-B	Jackson Creek CR 27	Jackson Creek 1	West Plum Creek	Plum Creek	1,650	1.0	6.2	7.2	T8S, R68W, SE1/4 SW1/4 Section 14 and NE1/4 NW1/4 Section 23
LWC1-A	Waterton	Little Willow Creek 1	S.Platte/Little Willow	South Platte	4,100	0.7	4.3	4.9	T6S, R69W, SE1/4 NE1/4 Section 34 and S1/2 NW1/4, SW1/4 NE1/4 Section 35
LWC1-A	Waterton	Little Willow Creek 1	S.Platte/Little Willow	South Platte	4,100	1.3	8.5	9.8	T6S, R69W, SE1/4 NE1/4 Section 34 and S1/2 NW1/4, SW1/4 NE1/4 Section 35
PC2-A	Titan Road	Plum Creek 2	Plum Creek	Plum Creek	1,100	1.0	6.8	7.8	T6S, R68W, SW1/4 SE1/4 Section 20 and NW1/4 NE1/4 Section 29
SG2-C	Plum Creek Pkwy	Sellars Gulch 2	Sellars Gulch	Plum Creek	450	0.2	1.2	1.4	T8S, R67W, SE1/4 NW1/4 Section 13
SP7-A	Pine Creek /Co Rd 40	South Platte 7	S.Platte River	South Platte	1,200	0.5	3.3	3.8	T8S, R70W, NE1/4 NE1/4 Section 13

* Refers to the RCZ map sheet (1 inch = 500 feet) on which the covered activity occurs. The 1 inch = 500 feet RCZ mapping is not included in the DCHCP.

Table 3.A Douglas County Road and Bridge Projects within the RCZ

Covered Activity ID	Road	RCZ Map Sheet *	Drainage	Major Basin	Longest Length (Feet)	Temporary Impact (Acres)	Permanent Impact (Acres)	Total Impact (Acres)	Legal Location
UCARP2-A	Best Road	Unnamed Carpenter Creek 2	Carpenter Creek Trib	Plum Creek	1,800	1.0	5.0	6.0	T10S, R67W, S1/2 SW1/4 Section 13 and NE1/4 NW1/4 Section 24
UCARP4-A	Palmer Divide	Unnamed Carpenter Creek 4	Carpenter Creek Trib	Plum Creek	600	0.1	0.4	0.5	T10S, R67W, SE1/4 SW1/4 Section 35
UCARP5-A	Greenland CR 74	Unnamed Carpenter Creek 5	Carpenter Creek Trib	Plum Creek	800	0.6	4.0	4.6	T10S, R66W, SE1/4 SW1/4 Section 7 and NE1/4 NW1/4 Section 18
UEPC1-A	Upper Lake Gulch	Unnamed East Plum 1	Unnamed East Plum	Plum Creek	600	0.1	0.6	0.6	T9S, R67W, NE1/4 NW1/4 Section 27

* Refers to the RCZ map sheet (1 inch = 500 feet) on which the covered activity occurs. The 1 inch = 500 feet RCZ mapping is not included in the DCHCP.

Table 3.A Douglas County Road and Bridge Projects within the RCZ

Covered Activity ID	Road	RCZ Map Sheet *	Drainage	Major Basin	Longest Length (Feet)	Temporary Impact (Acres)	Permanent Impact (Acres)	Total Impact (Acres)	Legal Location
UPC1-A	Main St.	Unnamed Plum ck 1	Plum Creek	Plum Creek	1,900	1.9	12.7	14.6	T6S, R68W, SW1/4 Section 33
UWPC5-A	County Rd 105	Unnamed W Plum ck5	Unnamed Trib. W. Plum	Plum Creek	400	0.5	3.0	3.5	T8S, R68W, SW1/4 NW1/4 Section 12
WCC5-A	Greenland	West Cherry Creek 5	West Cherry Creek	Cherry Creek	1,000	0.9	5.6	6.5	T10S, R66W, NE1/4 SE1/4 Section 1
WCC8-A	Spring Valley CR 61	West Cherry Creek 8	West Cherry Creek	Cherry Creek	1,000	0.8	5.3	6.1	T10S, R66W, NW1/4 NW1/4 Section 34
WPC10-A	County Rd 105	West Plum Creek 10	West Plum Creek	Plum Creek	1,200	0.3	2.0	2.4	T9S, R68W, NW1/4 Section 25
WPC10-A	County Rd 105	West Plum Creek 10	West Plum Creek	Plum Creek	1,200	0.1	0.3	0.4	T9S, R68W, NW1/4 Section 25
WPC10-B	West Red Rocks	West Plum Creek 10	West Plum Creek	Plum Creek	900	0.7	4.5	5.2	T9S, R68W, SW1/4 NW1/4 Section 25
WPC10-C	Perry Park Rd	West Plum Creek 10	West Plum Creek	Plum Creek	888	0.8	5.1	5.9	T9S, R68W, SE1/4 SW1/4 Section 13 and NE1/4 NW1/4 Section 24
WPC10-D	Kalamath	West Plum Creek 10	West Plum Creek	West Plum Creek	4	0.5	3.2	3.6	T9S, R68W, SW1/4 SW1/4 Section 24 and NW1/4 NW1/4 Section 25
WPC1-A	County Rd 105	West Plum Creek 1	West Plum Creek	Plum Creek	400	0.1	0.5	0.5	T7S, R68W, NE1/4 NW1/4 Section 25
WPC1-A	County Rd 105	West Plum Creek 1	West Plum Creek	Plum Creek	400	0.1	0.7	0.8	T7S, R68W, NE1/4 NW1/4 Section 25

* Refers to the RCZ map sheet (1 inch = 500 feet) on which the covered activity occurs. The 1 inch = 500 feet RCZ mapping is not included in the DCHCP.

Table 3.A Douglas County Road and Bridge Projects within the RCZ

Covered Activity ID	Road	RCZ Map Sheet *	Drainage	Major Basin	Longest Length (Feet)	Temporary Impact (Acres)	Permanent Impact (Acres)	Total Impact (Acres)	Legal Location
Total Impacts:						31.3	194.6	225.9	

* Refers to the RCZ map sheet (1 inch = 500 feet) on which the covered activity occurs. The 1 inch = 500 feet RCZ mapping is not included in the DCHCP.

Table 3.B Douglas County Trail Projects within the RCZ

Covered Activity ID	RCZ Map Sheet *	Major Basin	Temporary Impact (Acres)	Permanent Impact (Acres)	Total Impact (Acres)	Legal Location
CC6	Cherry Creek 7 & 8	Lower Cherry Creek	0.1	2.7	2.8	T7S, R66W, NE1/4 NW1/4 and N1/2 NE1/4 Section 22, NW1/4 Section 23
CC7	Cherry Creek 8, Bayou Gulch 1	Lower Cherry Creek	0.0	0.1	0.1	T7S, R66W, SW1/4 NE1/4 Section 23
CC15	Cherry Creek 10	Upper Cherry Creek	0.1	0.6	0.6	T8S, R66W, E1/2 NE1/4 Section 3
CC16	Cherry Creek 10	Upper Cherry Creek	0.0	0.0	0.0	T8S, R66W, SE1/4 NE1/4 Section 3
CC17	Cherry Creek 10 & 11	Upper Cherry Creek	0.0	1.7	1.7	T8S, R66W, E1/2 Section 10
CC19	Cherry Creek 11	Upper Cherry Creek	0.0	0.1	0.1	T8S, R66W, SW1/4 SE1/4 Section 10
CC20	Cherry Creek 11	Upper Cherry Creek	0.0	0.3	0.3	T8S, R66W, NE1/4 NW1/4, NW1/4 NE1/4 Section 15
CC21	Cherry Creek 11 & 12	Upper Cherry Creek	0.0	3.0	3.0	T8S, R66W, E1/2 Section 15 and NE1/4, NE1/4 SE1/4 Section 22
CC45	Cherry Creek 9	Lower Cherry Creek	0.1	0.4	0.5	T7S, R66W, NW1/4 SE1/4 Section 34
PC17	East Plum Creek 10, 11, 12	East Plum Creek	0.1	6.2	6.2	T9S, R67W, NW1/4, SE1/4 Section 16 and NE1/4 Section 21 and SW1/4 Section 22 and W1/2 Section 27 and NW1/4 NW1/4 Section 34
PC22	East Plum Creek 13, Carpenter Creek 1, 2, 3	East Plum Creek	0.3	5.6	5.9	T10S, R67W, NE1/4 NW1/4, NE1/4 Section 3 and SW1/4 Section 2 and Section 11 and NE1/4 Section 14

* Refers to the RCZ map sheet (1 inch = 500 feet) on which the covered activity occurs. The 1 inch = 500 feet RCZ mapping is not included in the DCHCP.

Table 3.B Douglas County Trail Projects within the RCZ

Covered Activity ID	RCZ Map Sheet *	Major Basin	Temporary Impact (Acres)	Permanent Impact (Acres)	Total Impact (Acres)	Legal Location
PC23	Carpenter Creek 1	East Plum Creek	0.5	0.2	0.8	T10S, R67W, E1/2 SE1/4 Section 3
Total Impacts:			1.2	20.8	22.0	

* Refers to the RCZ map sheet (1 inch = 500 feet) on which the covered activity occurs. The 1 inch = 500 feet RCZ mapping is not included in the DCHCP.

Table 3.C Castle Rock Road and Bridge Projects within the RCZ

Covered Activity ID	Road	RCZ Map Sheet *	Drainage	Major Basin	Longest Length (Feet)	Temporary Impact (Acres)	Permanent Impact (Acres)	Total Impact (Acres)	Legal Location
CC8-A	Castle Oaks Drive	Cherry Creek 8	Cherry Creek	Cherry Creek	220	0.9	0.7	1.6	T7S, R67W, NE1/4 NW1/4 Section 27
EPC2-A	U.S. 85/ N. Meadows Drive	East Plum Creek 2	East Plum Creek	Plum Creek	800	3.4	18.2	21.6	T7S, R67W, NE1/4 NE1/4 Section 28
EPC3-A	Meadows Pkwy	East Plum Creek 3	East Plum Creek	Plum Creek	800	3.7	3.7	7.3	T7S, R67W, SW1/4 SE1/4, SE1/4 SW1/4 Section 27
EPC4-A	Liggett Rd	East Plum Creek 4	East Plum Creek	Plum Creek	1,000	0.9	0.0	0.9	T8S, R67W, SE1/4 SW1/4 Section 2
EPC5-A	Plum Creek Parkway	East Plum Creek 5	East Plum Creek	Plum Creek	250	5.7	5.8	11.5	T8S, R67W, SW1/4 SW1/4 Section 11
EPC6-A	Wilcox St	East Plum Creek 6	East Plum Creek	Plum Creek	400	1.8	1.2	3.0	T8S, R67W, SW1/4 SW1/4 Section 11
EPC6-B	Perry Street	East Plum Creek 6	East Plum Creek	Plum Creek	850	2.1	0.0	2.1	T8S, R67W, SW1/4 SW1/4 Section 14 and SE1/4 SE1/4 Section 15
Total Impacts:						18.6	29.6	48.1	

* Refers to the RCZ map sheet (1 inch = 500 feet) on which the covered activity occurs. The 1 inch = 500 feet RCZ mapping is not included in the DCHCP.

Table 3.D Castle Rock Trail Projects within the RCZ

Covered Activity ID	Road	RCZ Map Sheet *	Drainage	Major Basin	Longest Length (Feet)	Temporary Impact (Acres)	Permanent Impact (Acres)	Total Impact (Acres)	Legal Location
CRT1-A	Plum Creek Trail	East Plum Creek 3	Plum Creek	Plum Creek	1,500	0.6	2.0	2.6	T7S, R67W, NE1/4, NE1/4 NW1/4 Section 28 and SW1/4 SW1/4 Section 21
CRT1-B	Plum Creek Trail	East Plum Creek 4	Plum Creek	Plum Creek	11,700	1.1	3.7	4.8	T7S, R67W, SW1/4 SE1/4 Section 27 and E1/2 Section 34 and T8S, R67W, NE1/4 NE1/4 Section 3 and W1/2 Section 2
CRT1-C	Plum Creek Trail	East Plum Creek 5	Plum Creek	Plum Creek	13,700	1.3	4.4	5.7	T8S, R67W, SE1/4 NW 1/4, SW1/4 Section 11 and W1/2 Section 14 and NW1/4 NW1/4 Section 23 and E1/2 NE1/4, NE1/4 SE1/4 Section 22
CRT2	Town Hall Expansion	East Plum Creek 5	Sellers Gulch	Plum Creek	100	0.5	0.2	0.7	T8S, R67W, SE1/4 NW1/4 Section 11
CRT3	Crystal Valley Bridge	Sellers Gulch 3	Sellers Gulch	Plum Creek	200	0.1	0.0	0.1	T8S, R67W, NW1/4 SW1/4 Section 19
Total Impacts:						3.6	10.3	13.9	

* Refers to the RCZ map sheet (1 inch = 500 feet) on which the covered activity occurs. The 1 inch = 500 feet RCZ mapping is not included in the DCHCP.

Table 3.E Castle Rock Utility and Other Projects within the RCZ

Covered Activity ID	Project	RCZ Map Sheet *	Drainage	Major Basin	Longest Length (Feet)	Temporary Impact (Acres)	Permanent Impact (Acres)	Total Impact (Acres)	Legal Location
CRU1-A	Highway 85: Alluvial Well Field	East Plum Creek 2	East Plum Creek	Plum Creek	500	0.0	0.0	0.0	T7S, R67W, N1/2 SW1/4 Section 20
CRU1-B	Highway 85: Alluvial Pipeline	East Plum Creek 2	East Plum Creek	Plum Creek	1,000	1.0	0.3	1.3	T7S, R67W, N1/2 SW1/4 Section 20
CRU2-A	I-25: Well 204 Well Field	East Plum Creek 6	East Plum Creek	Plum Creek	500	3.0	0.5	3.5	T8S, R67W, NW1/4 SW1/4 Section 14
CRU2-B	I-25: Well 204 Pipeline	East Plum Creek 6	East Plum Creek	Plum Creek	1,500	0.9	0.1	1.0	T8S, R67W, N1/2 SW1/4 Section 14
CRU3-A	Heckendorf Ranch Alluvial Well Upgrade	East Plum Creek 7	East Plum Creek	Plum Creek	1,000	2.0	0.5	2.5	T8S, R67W, SE1/4 NE1/4 Section 22
CRU3-B	Heckendorf Ranch Alluvial Well Pipeline	East Plum Creek 7	East Plum Creek	Plum Creek	800	0.9	0.5	1.4	T8S, R67W, NE1/4 SE1/4 Section 22
CRU4	I-25: Plum Creek W. L.S.	East Plum Creek 7	East Plum Creek	Plum Creek	100	0.5	0.0	0.5	T8S, R67W, SW1/4 NW1/4, NE1/4 SW1/4 Section 14 and E1/2 SE1/4 Section 15 and E1/2 NE1/4, NE1/4 SE1/4 Section 22
CRU5	Sellers Gulch Stabilization	Sellers Gulch 1 -2	Sellers Gulch	Plum Creek	5,000	6.0	4.2	10.2	T8S, R67W, SW1/4 Section 11 and SW1/4 SW1/4 Section 12 and NW1/4 Section 13

* Refers to the RCZ map sheet (1 inch = 500 feet) on which the covered activity occurs. The 1 inch = 500 feet RCZ mapping is not included in the DCHCP.

Table 3.E Castle Rock Utility and Other Projects within the RCZ

Covered Activity ID	Project	RCZ Map Sheet *	Drainage	Major Basin	Longest Length (Feet)	Temporary Impact (Acres)	Permanent Impact (Acres)	Total Impact (Acres)	Legal Location
CRU6	Well field and pipeline	Plum Creek 4, 5, 6 and East Plum Creek 1, 2	Plum Creek and East Plum Creek	Plum Creek	37,000	20.0	0.0	20.0	Located parallel to Plum Creek from northern Castle Rock boundary to 7 miles north. Pipeline will account for majority of temporary disturbance.
Total Impacts:						34.3	6.1	40.4	

* Refers to the RCZ map sheet (1 inch = 500 feet) on which the covered activity occurs. The 1 inch = 500 feet RCZ mapping is not included in the DCHCP.

Table 3.F Parker Road and Bridge Projects within the RCZ

Covered Activity ID	Road	RCZ Map Sheet *	Drainage	Major Basin	Longest Length (Feet)	Temporary Impact (Acres)	Permanent Impact (Acres)	Total Impact (Acres)	Legal Location
CC1-A	Cottonwood Drive	Cherry Creek 1	Cherry Creek	Cherry Creek	600	2.0	0.5	2.5	T6S, R66W, NE1/4 SW1/4 Section 4
CC2-A	Pine Lane	Cherry Creek 2	Cherry Creek	Cherry Creek	600	2.0	2.5	4.5	T6S, R66W, S1/2 NE1/4 Section 9
CC2-B	Pine Lane	Cherry Creek 2	Cherry Creek	Cherry Creek	600	2.0	0.5	2.5	T6S, R66W, S1/2 NE1/4 Section 9
CC2-C	Lincoln Avenue	Cherry Creek 2	Cherry Creek	Cherry Creek	500	2.5	0.4	2.9	T6S, R66W, NW1/4 NE1/4 Section 16
CC4-A	Hess Road	Cherry Creek 4	Cherry Creek	Cherry Creek	800	2.0	3.0	5.0	T6S, R66W, N1/2 NW1/4 Section 24
CC4-B	Hess Road	Cherry Creek 4	Cherry Creek	Cherry Creek	800	2.0	0.6	2.6	T6S, R66W, N1/2 NW1/4 Section 24 and S1/2 SW1/4 Section 27
CC4-C	Dransfeldt Road	Cherry Creek 4	Cherry Creek	Cherry Creek	800	2.0	3.0	5.0	T6S, R66W, NW1/4 NW1/4 Section 27
CC5-A	Reatta West Road	Cherry Creek 5	Kinney Creek	Cherry Creek	300	0.8	0.8	1.6	T7S, R66W, NW1/4 NE1/4 Section 3
CC5-B	Stroh Road	Cherry Creek 5	Cherry Creek	Cherry Creek	900	1.0	1.2	2.2	T7S, R66W, N1/2 NW1/4 Section 3
Total Impacts:						16.3	12.5	28.8	

* Refers to the RCZ map sheet (1 inch = 500 feet) on which the covered activity occurs. The 1 inch = 500 feet RCZ mapping is not included in the DCHCP.

Table 3.G Parker Trail Projects within the RCZ

Covered Activity ID	RCZ Map Sheet *	Drainage	Major Basin	Temporary Impact (Acres)	Permanent Impact (Acres)	Total Impact (Acres)	Legal Location
CC1-A	Cherry Creek 1	Cherry Creek	Lower Cherry Creek	0.45	0.55	1.00	T6S, R66W, NW1/4 NW1/4 Section 4
CC1-B	Cherry Creek 1 & 2	Cherry Creek	Lower Cherry Creek	0.30	0.51	0.82	T6S, R66W, NW1/4 NE1/4 Section 9
CC2-A	Cherry Creek 2	Cherry Creek	Lower Cherry Creek	0.01	0.26	0.28	T6S, R66W, N1/2 SE1/4 Section 9
CC3-A	Cherry Creek 3	Cherry Creek	Lower Cherry Creek	0.10	0.20	0.30	T6S, R66W, NW1/4 SE1/4 Section 21
CC3-B	Cherry Creek 3	Cherry Creek	Lower Cherry Creek	0.03	0.28	0.32	T6S, R66W, SE1/4 NE1/4 Section 21
CC3-C	Cherry Creek 3 & 4	Cherry Creek	Lower Cherry Creek	0.10	0.05	0.15	T6S, R66W, SE1/4 SE1/4 Section 21
CC4-A	Cherry Creek 4	Cherry Creek	Lower Cherry Creek	0.01	1.82	1.82	T6S, R66W, E1/2 NW1/4 and SW1/4 NE1/4 Section 27
Total Impacts:				1.01	3.68	4.68	

* Refers to the RCZ map sheet (1 inch = 500 feet) on which the covered activity occurs. The 1 inch = 500 feet RCZ mapping is not included in the DCHCP.

Table 3.H Parker Stormwater and Other Projects within the RCZ

Covered Activity ID	Project	RCZ Map Sheet *	Drainage	Major Basin	Temporary Impact (Acres)	Permanent Impact (Acres)	Total Impact (Acres)	Legal Location
PSW-1	Drainageway D Confluence Rehabilitation	Cherry Creek 5	Cherry Creek	Cherry Creek	0.7	0.2	0.9	T6S, R66W, SW1/4 NW1/4 Section 34
PSW-2	Drainageway A Confluence Rehabilitation	Cherry Creek 5	Cherry Creek	Cherry Creek	0.5	0.2	0.7	T6S, R66W, NW1/4 SW1/4 and SW1/4 NW1/4 Section 34
PSW-3	CC Stabilization near Stroh Ranch	Cherry Creek 5	Cherry Creek	Cherry Creek	3.5	0.6	4.1	T6S, R66W, S1/2 NW1/4 and SW1/4 Section 34
PSW-4	Cottonwood Channels Rehabilitation	Cherry Creek 1	Cherry Creek	Cherry Creek	1.7	0.1	1.8	T6S, R66W, SE1/4 SW1/4 and NW1/4 Section 4 and SE1/4 NE1/4 Section 5
PSW-5	CC Stabilization near Mainstreet	Cherry Creek 3	Cherry Creek	Cherry Creek	2.5	0.4	2.9	T6S, R66W, SE1/4 Section 16, E1/2 NE1/4 and N1/2 SE1/4 Section 21
PSW-6	CC Stabilization near Lincoln Avenue	Cherry Creek 2	Cherry Creek	Cherry Creek	1.7	0.5	2.2	T6S, R66W, W1/2 SE1/4 Section 9 and NW1/4 NE1/4 Section 16

* Refers to the RCZ map sheet (1 inch = 500 feet) on which the covered activity occurs. The 1 inch = 500 feet RCZ mapping is not included in the DCHCP.

Table 3.H Parker Stormwater and Other Projects within the RCZ

Covered Activity ID	Project	RCZ Map Sheet *	Drainage	Major Basin	Temporary Impact (Acres)	Permanent Impact (Acres)	Total Impact (Acres)	Legal Location
PSW-7	CC Stabilization near Hess Road	Cherry Creek 4	Cherry Creek	Cherry Creek	1.7	0.3	2.0	T6S, R66W, SE1/4 SW1/4 Section 27 and NW1/4 NW1/4 Section 34
PSW-8	CC Stabilization near Pine Drive	Cherry Creek 1	Cherry Creek	Cherry Creek	1.4	0.2	1.6	T6S, R66W, E1/2 NE1/4 Section 9
PSW-9	CC Stabilization near E-470	Cherry Creek 1	Cherry Creek	Cherry Creek	2.0	0.3	2.3	T6S, R66W, SE1/4 SW1/4 Section 4 and SE1/4 SW1/4, NW1/4 NE1/4 Section 9
Total Impacts:					15.7	2.8	18.5	

* Refers to the RCZ map sheet (1 inch = 500 feet) on which the covered activity occurs. The 1 inch = 500 feet RCZ mapping is not included in the DCHCP.

ARAPAHOE COUNTY

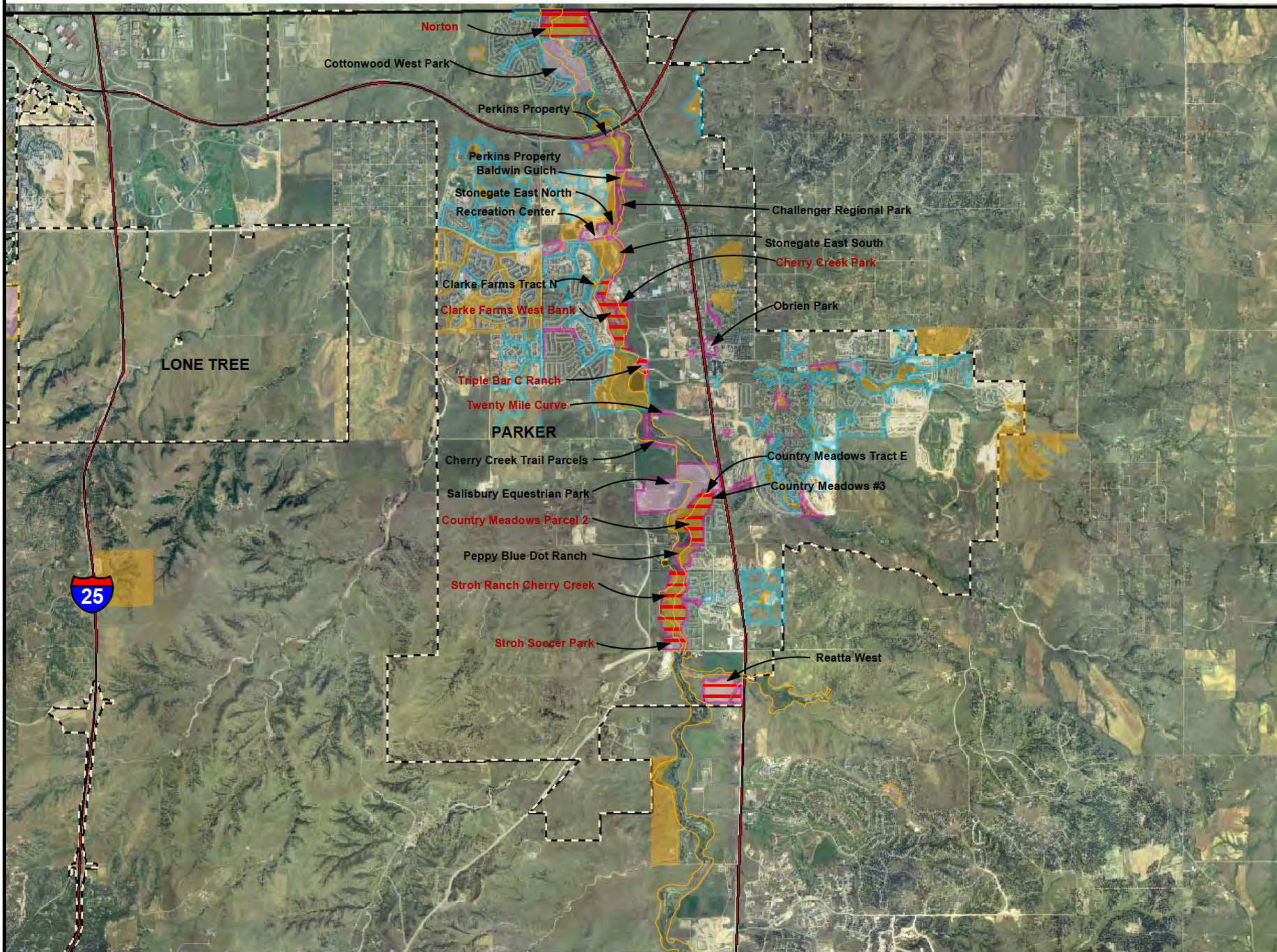


Figure 4c
Parker-Protected Lands Benefiting Preble's
Douglas County Habitat Conservation Plan

DRAFT

- Properties Owned by the Applicants that will be Managed to Maintain, Restore, or Enhance the RCZ
- Conservation Easement
- Open Space
- Regional Park
- State Park
- State Land Board
- Douglas County
- Town of Castle Rock
- Town of Parker
- Private
- State
- Riparian Conservation Zone (RCZ)
- Highway
- Incorporated Towns
- Douglas County Boundary
- Pike National Forest

0 0.5 1 Miles



Prepared for:
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Date: 10/17/2005
File: 328-EA-Fig4c_Parkerprotected.mxd (SR)

Appendix 4:

Revegetation Guidelines

Introduction

The general Best Management Practices for all covered activities require that all temporary disturbances associated with covered activities within the RCZ be revegetated. Appendix 4 presents the revegetation guidelines for areas that do not have woody vegetation. Additional guidance and requirements to avoid, minimize, and replace lost woody vegetation within the RCZ is presented in Appendix 5.

This appendix provides recommendations to establish herbaceous vegetation within the RCZ following temporary disturbances. It contains seeding and planting recommendations, including species appropriate for riparian, upland, and wetland areas in Douglas County.

All revegetation plans will be written or verified by a person familiar with plant ecology. Reseeding will be conducted in accordance with such plans. Inspections to verify plant survival will be conducted or verified by a person with similar knowledge.

Seeding

The seed mixes listed in Tables 4-A and 4-B are appropriate for seeding areas of temporary disturbance within the RCZ. The seed mixes are designed to accommodate all soil types. The following guidelines are applicable to seeding:

- Order seed early because native seed may be in short supply.
- All temporarily disturbed areas within the RCZ shall be reseeded using a sterile cover crop or the appropriate seed mix listed in this appendix. The mixes may be modified due to lack of seed availability; development of new seed/plant varieties; new seed or plant materials becoming commercially available; adjustments of the mix to the specific site conditions; habitat requirements or due to field experience proving success or failure of specific species, varieties or techniques. All plant species used must be beneficial and native to the County.
- Seeding must occur within 3 days of topsoil placement unless delayed by weather conditions improper for seeding or crimp mulching. Seeding will not occur when the ground is frozen.
- Once construction and ground disturbing activities have been completed, the site must be seeded as conditions and season allow. If seeding must occur between May 2 and September 30, disturbed areas may be seeded with a sterile cover crop such as Quickguard or Regreen, or a crop that will be killed by frost before going to seed. The cover crop shall not be cut. The permanent native seed mix shall be seeded into the standing cover crop during the first dormant period suitable for seeding (October 1 through May 1) after planting the cover crop unless the cover crop was planted late in the previous growing season, was not winterkilled and will continue to grow as a winter-wheat type crop for part of the following growing season. In that case, the permanent mix shall be planted a year later during the dormant period (October 1 through May 1) to allow the cover crop

time to come to maturity and die, avoiding competition with seeded species. Wetland seeding and plantings can be excepted from the additional year delay if it is likely that the area will become inundated and kill the cover crop.

- Planting a cover crop as specified above and seeding the native grass mix into the cover crop the second year can increase the successful establishment of grasses in most instances.
- A properly prepared seedbed is critical for a successful restoration site. Seeds may not grow or may grow slowly in soils that are too compacted, and soils that are too loose may lead to erosion and poor germination. After grading, rip soil to a minimum of 12 inches. Avoid or minimize compaction associated with vehicles driving over ripped soil.
- Add fertilizer only if the soil is deficient in a particular nutrient (such as nitrogen). If used, select a slow release fertilizer or organic fertilizers such as Biosol™. In general, native plants do not need much nitrogen, and too much nitrogen can “burn” young native seedlings and encourage heavy weed growth.
- Mycorrhizal and/or beneficial bacterial inocula may aid revegetation efforts and should be considered where topsoil is lacking or deficient in microbial flora, in soils recently subjected to heavy disturbance, and in burned areas.
- The environmental contractor shall supply the County or Town with all seed bag tags and a certification from the supplier stating that the seed complies with the Federal Seed Act. All seed must be guaranteed for purity and germination, free of noxious weed seeds, and supplied on a pure live seed (PLS) basis. Using the seed species name listed on the “Certified Seed Blue Tag,” verify that the seed received is the seed specified prior to seeding.
- Seed shall be drilled where appropriate, but may be broadcast in areas that cannot be accessed using a drill seeder. **Double rates for broadcast seeding.** Seeding equipment used for applying grass seed shall be designed, modified, or equipped to regulate the application rate of native grass seed. Seed shall be distributed uniformly in the broadcasting device, and seed shall be distributed evenly throughout the revegetation site.
 - The most effective seeding equipment is a grass drill with 7- to 12-inch spacing and capable of planting fluffy seeds, equipped with a seedbox agitator, small seedbox, double disc furrow openers with depth bands, and packer wheels. Drills used shall be capable of dropping the seed between the double disk openers and not behind them when planting light fluffy seed. Grass seed shall be planted directly into the cover crop residue without additional seedbed preparation if a cover crop is used. The grass drill shall be operated as near to the contour as practical. To accurately maintain seeding depth, drilling speed is limited to 4 to 4.5 mph.
 - Drag chains may be used in place of packer wheels only on deep sand and similar range sites to prevent seeding too deep.
 - Any modified equipment such as air seeders and drills that control seeding depth with packer wheels must be able to insure proper seeding depth, uniform seed distribution, and firm seed-soil contact. Ground speed shall not

exceed 4 to 4.5 mph so that proper seeding depth can be maintained.

- In small areas or sites where drill seeding is not practicable, seed shall be broadcast and lightly raked to cover the applied seed with a soil thickness no greater than 0.5 inches in depth. A spike-toothed harrow pulled behind a tractor or ATV may be used to cover the seed in this application, or the seed may be raked lightly into the soil by hand.
- Hydroseeding may only occur on slopes that are too steep for drill seeding equipment to be safely or effectively operated.
- A straw mulch shall be applied at a rate of 4,000 lbs/acre, and crimped into the soil surface. If seed is planted into a standing cover crop, mulch shall not be applied. Wheat straw free of noxious weed seed and undesirable plant seed shall be used. Mulch shall be applied to seeded areas no more than 24 hours after seeding; however, mulching shall not take place during adverse weather conditions or when wind prevents uniform distribution and must be postponed until adverse weather conditions subside. Mulch shall be applied in a manner that does not compact the seedbed.
- Noxious and undesirable weeds shall be controlled within RCZ revegetation areas. Control shall start as soon as possible, preferably prior to ground disturbance. Herbicides may injure young grass seedlings during their first growing season and shall be applied during the first season only after grasses have matured beyond their susceptible stage for the selected herbicide if practicable. Mowing and other Integrated Pest Management (IPM) techniques shall be employed as appropriate to control weeds, and especially to keep them from going to seed. Mowing may be especially important during the first growing season because some herbicides may not be able to be used in that timeframe.
- Revegetation must meet GESC Manual criteria for approval of vegetation coverage and control of noxious weeds (GESC Manual Sections 6.3 and 6.4).

Transplants — Herbaceous

Herbaceous plantings can be an effective way to revegetate temporarily disturbed wetland areas. All species used for herbaceous transplants shall be beneficial species native to Douglas County. The following guidelines are applicable to the herbaceous wetland transplants (Table 4-C):

- Transplants grown from locally collected plants or seeds have the greatest chance for long-term establishment and survival.
- Herbaceous nursery container stock comes in a variety of sizes. Transplants with well-developed root systems have the greatest potential for successful establishment. Typically, tubelings (also labeled as supercells or 3 cubic inch containers) have the most extensive root development. Small transplants (2.5-inch containers) are acceptable, but may establish more slowly than deeper-rooted transplants.

APPENDIX 4:
REVEGETATION GUIDELINES

- Securely anchoring plants in inundated areas is difficult; therefore, plant emergent areas before the site is inundated. The ability to control inundation and saturation of the wetland or riparian areas will increase the potential for successful plant establishment. Sites shall be moist when planted. Increase inundation in marshes or seasonally inundated wetlands as the plants become established.
- Transplants shall be planted on approximate 3-foot centers. The density of plantings may be varied to result in a more naturalized pattern.
- After planting, the transplants shall be watered unless the soil is already saturated. Saturated conditions shall be maintained during the growing season with supplemental irrigation as needed.
- Combining wetland seeding (Table 4-B) with herbaceous wetland plantings can speed wetland vegetation establishment and increase successful revegetation of disturbed wetlands.

Table 4-A. Riparian/Upland Seed Mix.

Species	Scientific Name	Variety	Notes	% in Mix	PLS#/AC
Big Bluestem	<i>Andropogon gerardii</i>	Bonilla, Kaw, Champ, Bison	PNWS	8	0.9
Little Bluestem	<i>Schizachyrium scoparium</i>	Pastura	PNWB	8	0.6
Yellow Indiangrass	<i>Sorghastrum nutans</i>	Cheyenne, Holt, Llano	PNWS	8	0.8
Switchgrass	<i>Panicum virgatum</i>	NE28, Greenville, Blackwell	PNWS	15	0.6
Sideoats Grama	<i>Bouteloua curtipendula</i>	Vaughn	PNWB	10	0.9
Western Wheat	<i>Agropyron smithii</i>	Arriba, Rosanna	PNCS	9	1.5
Blue Grama	<i>Bouteloua gracilis</i>	Hachita	PNWB	8	0.3
Indian Ricegrass	<i>Achnatherum hymenoides</i>	Paloma, Nez Par, Rimrock	PNCB	8	1.0
Prairie Sandreed	<i>Calamovilfa longifolia</i>	Goshen/Pronghorn	PNWS	8	0.5
Green Needlegrass	<i>Nassella viridula</i>	Lodorm	PNCB	8	0.8
Slender Wheatgrass	<i>Agropyron trachycaulum</i>	Pryor, San Luis	PNCB	5	0.6
TOTAL PLS/ACRE					8.5

Notes: P=Perennial; A=Annual; N=Native; C=Cool Season; W=Warm Season; B=Bunchgrass; S=Sod former.

Table 4-B. Wetland Seeding Mix for RCZ Wetland Areas.

Common Name	Genus/Species	Variety	% in Mix	PLS#/AC
Switchgrass	<i>Panicum virgatum</i>	NE28, Greenville	10	0.4
Canada Wildrye	<i>Elymus canadensis</i>		5	0.5
Prairie Cordgrass	<i>Spartina pectinata</i>		8	0.6
Fowl Mannagrass	<i>Glyceria striata</i>		5	0.5
American Sloughgrass	<i>Beckmannia syzigachne</i>	Egan	4	0.04
Western Wheat	<i>Pascopyrum smithii</i>	Arriba/Rosana	4	0.6
Yellow Indiangrass	<i>Sorghastrum nutans</i>	Cheyenne/ Holt/ Llano	3	0.3

APPENDIX 4:
REVEGETATION GUIDELINES

Big Bluestem	<i>Andropogon gerardii</i>	Bonilla/Kaw/Champ/Bison	5	0.5
Common Spike-rush	<i>Eleocharis palustris</i>		10	0.3
Arctic (Baltic) Rush	<i>Juncus balticus</i>		10	0.1
Hardstem Bulrush	<i>Schoenoplectus acutus</i>		6	0.5
Softstem Bulrush	<i>Schoenoplectus tabernaemontani</i>		6	0.2
Three Square Bulrush	<i>Schoenoplectus pungens</i>		15	1.0
Woolly Sedge	<i>Carex pelita (lanuginose)</i>		5	0.1
Nebraska Sedge	<i>Carex nebrascensis</i>		2	0.04
Water Sedge	<i>Carex aquatilis</i>		2	0.03
TOTAL PLS/ACRE				5.71

Table 4-C. Transplant species commercially available and appropriate for use in wetlands.*

Common Name	Scientific Name	Depth to Plant (Inches of Standing Water)
Woolly sedge	<i>Carex lanuginosa</i>	3" under to 3" above
Nebraska sedge	<i>Carex nebrascensis</i>	0-6" below water
Fox sedge	<i>Carex vulpinoidea</i>	0-6" below water
Creeping spikerush	<i>Eleocharis palustris</i>	0-6" below water
Baltic rush	<i>Juncus balticus</i>	0-3" above water
Torrey's rush	<i>Juncus torreyi</i>	0-3" above water
Arrowhead	<i>Sagittaria latifolia</i>	0-6" below water
Threesquare bulrush	<i>Scirpus americanus</i>	3" under to 3" above
Alkali bulrush	<i>Scirpus maritimus</i>	0-6" below water
Softstem bulrush	<i>Scirpus tabernaemontani</i>	0-6" below water
Giant burreed	<i>Sparganium eurycarpum</i>	0-6" below water
Prairie cordgrass	<i>Spartina pectinata</i>	0-3" above water

*This is not an exhaustive list of plants that may be transplanted or otherwise used in wetlands in the RCZ. These wetland species are available commercially from nurseries.

Success Criteria for Seeding and Herbaceous Planting

The GESC Manual establishes the following success criteria:

- **Herbaceous Cover** — At least three plants per square foot with a minimum height of 3 inches. The three plants per square foot shall be beneficial native grasses or forbs.
- **Bare Spots** — No bare spots larger than 100 square feet.
- **Erosion** — No eroded areas as determined by County or Town staff qualified to inspect erosion.

Appendix 5:

Woody Riparian Vegetation Guidelines

Introduction

The general Best Management Practices for all covered activities require that activities within the RCZ minimize temporary disturbance to and permanent loss of woody vegetation within the RCZ.¹ These BMPs further require that trees and shrubs removed from the RCZ associated with temporary impacts shall be replaced per these Woody Riparian Vegetation Guidelines.

Trees, and particularly shrubs, provide an important potential habitat component for Preble's and woody vegetation can be slow to recover from impacts or re-establish in a disturbed area. Impacts to trees and shrubs within the RCZ should be avoided and minimized to the extent practicable. Unavoidable losses of trees and shrubs associated with temporary impacts shall be mitigated through replacement.²

The objectives of these guidelines are to provide:

- Measures to avoid and minimize impacts to woody vegetation within the RCZ
- Methods to speed recovery to woody vegetation disturbed by covered activities within the RCZ
- Criteria for the replacement of necessary losses of woody vegetation within the RCZ associated with temporary impacts

This document contains best management practices to avoid and minimize impacts to woody vegetation. In addition, it contains planting recommendations, including species appropriate for streamside and upland areas within the RCZ in the plains, foothills, and montane environments of Douglas County.

These guidelines may be modified periodically to ensure the recommendations reflect advances in revegetation technology and experience in Douglas County.

Best Management Practices to Avoid and Minimize Impacts to Woody Vegetation

The best management practices presented here are designed to avoid and minimize impacts to woody vegetation in the RCZ. In general, however, impacts to all vegetation types within the RCZ, not just woody vegetation, shall be avoided and minimized to the

¹ These guidelines focus on woody vegetation within the RCZ. There is no attempt to distinguish between trees and shrubs that are obligate riparian species and upland trees and shrubs that occur within the RCZ. All trees and shrubs within the RCZ provide potential habitat for Preble's.

² Losses of the RCZ, including woody vegetation, associated with permanent impacts that replace the RCZ with non-habitat are mitigated through habitat preservation associated with the DCHCP's mitigation program.

maximum extent practicable. Additional site-specific opportunities for avoidance and minimization may be available, and project designers and engineers shall incorporate opportunities to avoid and minimize impacts to woody vegetation within the RCZ to the greatest extent practical. Best management practices for avoiding impacts to woody vegetation include:

- Plan and adjust site grading so that impacts to woody vegetation can be avoided. It is recommended that engineers visit a site frequently during the design, grading, and construction phases of a project so that adjustments can be made that limit impacts to woody vegetation. Minor adjustments to alignments and footprints, road and building elevations, and slope steepness can significantly diminish impacts to woody vegetation within the RCZ.
- Avoid clearing and grubbing woody vegetation in areas of temporary impacts. If necessary, prune woody vegetation to ground level so that it may grow back following construction.
- Avoid the unnecessary removal of trees or shrubs; for example, prune the aerial portions of trees and shrubs that hang over a project area and interfere with equipment.
- When it is necessary to clear woody vegetation, leave at least a quarter of the trunks and branches greater than 2 inch in diameter piled in windrows on the project site. The dead woody vegetation can provide cover for Preble's.
- Temporary fencing should be erected at the limits of all construction sites so that vegetation not to be disturbed is not inadvertently impacted during construction.

Replacement of Woody Vegetation

Losses of woody vegetation (trees and shrubs) in the RCZ associated with temporary impacts shall be mitigated. All trees that are removed by activities with temporary impacts other than Russian olive (*Eleagnus angustifolia*), Siberian elm (*Ulmus pumila*), crack willow (*Salix fragilis*), white willow (*Salix alba* var. *vitellina*), buckthorn (*Frangula alnus*), or salt cedar (*Tamarix* spp.) shall be replaced. Replacement of trees and shrubs shall occur as follows:

1. Trees or shrubs removed from areas of temporary disturbance within the RCZ shall be replaced on a 1:1 basis with appropriate species from Table 3-A.
2. The entire area of disturbed woody vegetation shall be replanted at the following density: shrub willow cuttings shall be planted 1 to 3 feet apart, 1 foot apart in areas of higher erosion. Tree type willow pole cuttings (e.g., peachleaf willows) shall be planted 6 to 12 feet apart. All other shrubs and trees shall be spaced at $\frac{3}{4}$ of their maximum mature spread when planted adjacent to another of the same species, or $\frac{3}{4}$ of the average of the maximum mature spread between adjacent plants of different species (see Table 3-A). If a shrub is to be an understory plant, its spacing can be superimposed on canopy species in the vicinity. Openings or grass/herbaceous strips may be created in the woody revegetation areas to create diversity or a mosaic effect. Spacing may be decreased (planted more closely) to create clumps or thickets, or to ensure adequate plant survival to meet the success

criteria outlined in this appendix.

Woody vegetation can be replaced using transplants from nurseries or willow stakes and cottonwood pole cuttings. The trees and shrubs lost shall be replaced with appropriate species from Table 3-A. These trees and shrubs are native to Douglas County.

Transplants — Woody

Woody species appropriate for transplanting in Douglas County are listed in Table 3-A. The following recommendations will increase the survival and establishment of woody transplants:

- The soil shall be prepared—either disked, tilled or a hole dug twice the diameter of the root ball of the tree/shrub. Soil preparation reduces compaction and competitive vegetation.
- Transplants shall be inoculated with appropriate mycorrhizae if there is not a reasonable expectation of a sufficient quantity of *appropriate* mycorrhizal propagules in the soil. Previously inoculated nursery stock is available; the roots or root zones of transplants may be inoculated at the time of planting.
- Leguminous shrub/tree transplants (e.g., leadplant) shall be inoculated with an appropriate rhizobium unless the stock was previously inoculated or is now likely to be colonized.
- If the soil is likely to be deficient in natural microflora other than mycorrhizae, the appropriate local jurisdiction may require an appropriate inoculum or addition of “live” topsoil from an appropriate area.
- The addition of organic matter to soils deficient in humus may be necessary unless the transplants are adapted to deficient soils.
- Water retention polymer (i.e., polyacrylamide or PAM) and slow-release fertilizer tab(s) sufficient for the specific transplant shall be placed in its root zone.
- Weed barrier or mulch shall be used whenever practicable around each planted shrub or tree to protect from competition and to moderate soil temperatures. This requirement may be eliminated if grasses or forbs are to be planted in close proximity to the shrub or the barrier/mulch would otherwise be counter-productive.
- For optimal survival, trees and shrubs should be transplanted in early spring prior to May 1. Trees and shrubs shall not be transplanted from May 1 through October 15 unless potted or balled and burlapped plants are used *and* are watered by an automatic drip irrigation system or consistently watered with a portable tank or by hand. No woody transplants should be planted between October 15 and ground thaw in the spring.
- If browsing from beaver, deer, elk, etc. is a concern, each shrub shall be encircled by a protective cage and each tree trunk protected with wire mesh. Alternatively, rabbit guards secured with bamboo poles may be used for smaller stock in some cases.

- The root ball shall be moist when planted. After planting, each planting shall be watered to ensure good soil to root contact and minimize air pockets.
- In areas where soils are not saturated or constantly moist, supplemental irrigation shall be provided as needed to ensure the transplants' long-term survival. Irrigation shall be applied as needed for at least the first two growing seasons.

Bare Root Whips or Tubeling Potted Trees and Shrubs

If bare root whips or tubeling potted trees or shrubs are planted, the following protocol will help to ensure success.

- The ground shall be disked or worked thoroughly to prepare it to receive the trees and reduce undesirable vegetation.
- The roots/root zones of transplants shall generally be inoculated with an appropriate mycorrhizal inoculum if there is not a reasonable expectation of a sufficient quantity of appropriate mycorrhizal propagules in the soil.
- Other inocula may be required for leguminous transplants (rhizobium) or for soils deficient in beneficial natural microflora.
- If the soil is likely to be deficient in natural microflora other than mycorrhizae, the appropriate local jurisdiction may require an appropriate inoculum or addition of "live" topsoil from an appropriate area.
- The addition of organic matter to soils deficient in humus may be necessary unless the transplants are adapted to deficient soils.
- Whips shall be planted using a tree-planting implement with a spade to open a furrow and packer wheels to firm the soil around the roots of transplanted trees, or hand dug.
- Whips shall be spaced within rows based on $\frac{3}{4}$ of their mature spread (Table 3-A). Under-story plants may be planted more densely or superimposed on the spacing of the over-story shrubs/trees. To establish clumps or thickets or to ensure adequate survival, trees/shrubs may be planted more densely.
- Rows should generally be spaced a minimum of six feet apart (to accommodate weed barrier), but may be varied to provide adequate spacing to accommodate the mature spreads of the species involved. Rows may be spaced farther apart to allow for a grass/herbaceous strip between rows of shrubs/trees. Row spacing may be tightened to accomplish a thicket or clump planting effect, especially with smaller shrubs or to ensure enough plant survival to meet performance specifications.
- A slow release fertilizer tab (or tabs) and hydrated water-retention polymer (PAM) shall be applied to the root-zone of whips and tubelings.
- Weed barrier shall be placed over the rows of whips with a weed-barrier implement. The location of each tree should be marked with spray paint at the time of installation and later slit and the tree stem pulled through. The weed barrier must be anchored with soil on the edges, and staked with landscape staples periodically and beside openings for trees. Weed barrier squares may be placed by hand. Organic mulch may be applied in lieu of weed barrier.

- If browsing from beaver, deer, elk, etc. is a concern, each shrub shall be encircled by a protective cage and each tree trunk protected with wire mesh. Alternatively, rabbit guards secured with bamboo poles may be used for smaller stock in some cases.
- Plantings shall be irrigated to ensure their survival. Local experience suggests that during the months of May – August, one gallon of water per shrub applied bi-weekly is probably adequate for bare-root stock planted per this protocol on clay or loam soils. Irrigation shall occur for at least the first two seasons after planting.

Willow Stakes and Cottonwood Pole Cuttings

Willows and cottonwoods can be obtained from nurseries as bare root, container, or balled and burlapped stock or can be established from stakes and poles in the spring. Willow stakes and cottonwood pole cuttings are appropriate for use in wetland and riparian areas with ground water levels within 2.5 feet of the surface for willow shrubs and 4 feet for pole cuttings during the growing season. The willow and cottonwood species listed in Table 3-A can be used for cuttings as follows.

- Cuttings should be taken from live wood that is at least 2 years old.
- Willows and cottonwoods should be cut in the spring while plants are dormant (before the leaves appear). This is typically prior to April 15.
- Optimally, live cuttings should be taken from willow and cottonwoods found on or near the site. The trees and shrubs should be cut a minimum of 8 to 10 inches from the ground with loppers or handsaws. Cuts should be at a 45° angle.
- Never harvest more than 60 percent of any one plant; if there is an abundant resource, harvest no more than 30 percent of individual plants.
- Willow shrub cuttings should be approximately 2 to 3 feet long and greater than ½ inch in diameter.
- Cottonwood or willow tree pole cuttings should be 4 to 20 feet in length and 3 inches or greater in diameter.
- All side branches and the terminal bud shall be trimmed off.
- Willow and cottonwood cuttings shall be long enough so that the bottom ⅓ of the stake or pole reaches soil that will remain saturated throughout the growing season, and at least the upper ⅓ of the stake remains above the soil surface. **It is important to plant willow stakes and cottonwood poles deep enough so that the bottom of the cutting reaches saturated soil throughout the growing season.**
- Immediately after cutting, all live stakes shall be placed in water so that the cut ends are covered with water. The cuttings shall be soaked in water for 5 to 7 days prior to planting but removed from soaking and planted before root tips appear. They shall be stored in a cool, humid, dark place until planting time. Cuttings may be stored for up to 6 months in a cool, dark, moist environment that maintains the cuttings dormancy.

- Willow stakes shall be planted using a piece of rebar to create a vertical hole approximately 1 to 2 feet deep. Alternatively, a narrow hole for the cutting may be dug with a shovel or auger. Approximately $\frac{2}{3}$ of the stake shall be inserted into the hole so that the stake is in contact with the water table. After the willow cutting is inserted, the hole shall be backfilled with native soils and lightly tamped to prevent air pockets. The stake shall then be watered to help fill in the air pockets.
- To plant cottonwood or willow tree poles, a shovel or an auger shall be used to dig a hole to the ground water table (usually within 1 to 4 feet deep; if the water table is deeper, then the location may not be appropriate for cottonwoods). After the cottonwood pole cutting is inserted, the hole shall be backfilled with native soils and lightly tamped to prevent air pockets. The cottonwood poles shall then be watered to help fill in the air pockets.
- Willow stakes and poles shall be planted with the leaf buds pointing up (i.e., the stakes and poles need to be oriented in the same direction they were growing when cut).
- There should be at least two lateral buds and/or a terminal scar above ground on the cuttings (cuttings put out the largest number and strongest shoots just below a terminal bud scar).
- Alternatively, willow stakes may be planted in groups of ten or more stakes in the same manner as discussed for individual stakes. Planting several willow stakes together increases the likelihood of at least one of the stakes surviving.

Willow Bundles

Willow bundles are buried horizontally and are commonly used along streambanks to help establish streambank vegetation and as a biotechnical means to stabilize soil. The following guidelines apply to construction and placement of willow bundles:

- Willow bundles shall be installed while dormant, usually in the spring before April 15.
- Willow cuttings shall be collected using guidelines presented for willow stakes above.
- Bundles should be composed of about 8 to 12 dormant shrub branches in cross section, ranging $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter, and 3 to 4 feet in length. Fascines may be lengthened as necessary for a particular application. The completed bundles should be 6 to 8 inches in diameter. Stagger the cuttings in the bundles so that the tops of the cuttings are evenly distributed throughout the length of the uniformly sized live fascine.
- Using cotton or other biodegradable string, the willow cuttings shall be tied together in bundles about 6 to 8 inches in diameter.
- About half the thickness of the bundles shall be buried in a shallow trench horizontally along the streambanks with some overlap of bundles. Stakes shall be driven (wood or if possible, willow cuttings) through the bundle, and two stakes at the ends of the bundle to help stabilize it. Willow bundles must be buried so that a portion of the bundle is in saturated soil during the growing season.

- Avoid using gravel, cobbles, or rocks (i.e., gravelly material 4.75 mm in diameter or larger) as fill around willow bundles.

Willow Transplants

Live willows can be transplanted on site. If willows grow in areas that will be disturbed during construction, willows can be salvaged from the area to be disturbed and transplanted by pruning, excavating, and replanting following site grading. The following specifications apply to transplanting willows:

- Willows shall be transplanted using an excavator, backhoe, or tree spade.
- The amount of pruning necessary will depend on the size of the root ball that can be obtained. Generally excavators and tree spades can acquire larger root balls, so less pruning is necessary. If it is possible to transplant only small root balls, it may be necessary to prune willows to within 8 inches of the ground level.
- Efforts shall be made to excavate as much of the willow root ball as possible, keeping it intact as it is lifted out of the ground and transported.
- If possible, willow should be transplanted immediately after excavation, as this increases survival rates.
- If it is not possible to transplant willows immediately, willows shall be temporarily heeled in, or placed in large groups so that the roots are not exposed to air. Willows shall be watered frequently to make sure that the roots do not dry out.
- When planting, a hole large enough for the entire root ball shall be excavated, so that the top of the root ball is flush with the adjacent soil surface. The root ball shall be placed gently into the hole, making sure that there are no air pockets and watered following planting.
- Willow transplants shall be located so that the lower portion of the root ball encounters the groundwater table. The root ball shall not be placed in an area where the entire root ball is permanently saturated.
- Transplant success can be increased by transplanting the willows in early spring while the willows are dormant (typically prior to April 15).

Maintenance

- Trees and shrubs shall be irrigated for a minimum of 2 years as needed to ensure the planting's survival and vigor. Any type of transplant, cutting, fascine, etc. that is planted in soil that is saturated during the growing season is exempt from watering requirements.
- Hand watering or spraying from a tank mounted on a cart, ATV or other vehicle is appropriate if an automatic drip irrigation system cannot be practicably installed. Impacts to vegetation and habitat shall be kept to a minimum. Staging water tanks and vehicles from trails, roads, other hardened areas, or areas outside the RCZ is required if practicable; if not, the smallest cart/vehicle feasible (that will minimize impacts to the RCZ) shall be utilized. Long hoses or hand carried buckets shall be used to further minimize impacts whenever possible.

Alternatively, tank driven solar-powered automatic drip irrigation systems are encouraged where water is otherwise unavailable. The tank and controls shall be located outside the RCZ if practicable; if not, they shall be placed in an area where refilling the tank and system maintenance will impact the RCZ least. The appropriate local jurisdiction shall approve the irrigation plan, and may monitor it as appropriate.

- Weed control is critical for the success of a revegetation project. Control efforts should focus on noxious weeds listed on the State and County Noxious Weed Lists³ because these species are the most serious threat to habitat and the most difficult to control. The sooner control methods are started, the easier to control or eliminate weeds; otherwise the infestation may become impossible to control.
 - If noxious weeds are found at a site before grading, areas to be disturbed shall be pre-treated with either an approved herbicide or mowing before grading. Mowing is acceptable only if mowing is an effective management against that particular weed *and* if it is the appropriate season/timing to mow. Mowing can be an effective technique to prevent weeds from going to seed.
 - After planting, the site shall be monitored for weeds. If noxious weeds occur, they shall be controlled using an Integrated Weed Management Plan targeted for the specific species involved/infesting the area. An Integrated Weed Management Plan combines several methods (mechanical, biological, and herbicides) in the most effective and least environmentally damaging way to control a weed species.
- The site shall be continually checked for erosion and the erosion concerns remediated as soon as possible to prevent further damage.

Success Criteria

Minimum success criteria are as follows. Areas of temporarily disturbed woody vegetation must be revegetated with appropriate woody vegetation (Table 3A). The area replanted should generally be the same area that was disturbed. Expanding the area to be planted is generally acceptable, unless grassy or herbaceous vegetation is limited in the area. Increasing the area to be replanted is generally encouraged to both increase habitat quality and to ensure that sufficient area is restored to prevent the delays and additional costs associated with replanting and remediation.

Planting Density

To be considered successfully revegetated, the disturbed area must be revegetated to a density of woody vegetation similar to the disturbed area prior to the disturbance. The density shall be calculated based on the surface area covered by tree and/or shrub canopy. For this calculation, the area covered by a tree or shrub is considered to be $\frac{3}{4}$ of its mature canopy spread (MCS), not the current cover of the newly planted immature vegetation. Table 3A lists $\frac{3}{4}$ MCS for each species, which also may be calculated as shown in the example below based on the formula for the area of a circle (πr^2).

³ www.douglas.co.us/publicworks/weeds/weed_home.htm

The following minimum standards must be met at the end of two growing seasons for woody revegetation to be considered successful, and hence, to be released from monitoring requirements:

- All transplants (bare-root, potted and balled-and-burlapped) must survive to at least 80 percent canopy density, based on $\frac{3}{4}$ MCS.
- Pole plantings must survive to at least 70 percent canopy density, based on $\frac{3}{4}$ MCS.
- Woody material used in bioengineering techniques must survive at reasonable rates to ensure the success of the technique (i.e., bank stabilization and recolonization with willows).

The target density and coverage is appropriate for the following reasons. Many species will spread vegetatively or by seed and fill in gaps over time. The $\frac{3}{4}$ MCS is conservative; in many cases the trees and shrubs will continue to grow to full canopy spread. In most cases, a mosaic of woody and herbaceous vegetation is more beneficial to wildlife than a large uninterrupted stand of woody vegetation.

Monitoring

All plantings shall be monitored (to ensure a sufficient revegetation of the site and plant survival) for a minimum of 2 years. An inspector designated by the appropriate local jurisdiction and experienced in native plant material shall conduct inspections. Generally, verification of appropriate coverage/density shall be based on a visual inspection for sufficient density without counting or measuring. If a dispute arises as to sufficiency, individual plantings can be counted and the approximate surface area calculated using the following method.

Count the number of the living individuals of each planted species and multiply each sum by the surface area of $\frac{3}{4}$ MCS of each species. These products shall be added together to get a total woody vegetation coverage figure. If the total woody vegetation coverage area equals or exceeds that required for woody revegetation, the effort shall be considered adequate. The surface area required for woody revegetation shall be calculated by measuring the surface area of the woody vegetation temporarily impacted and multiplying it by the minimum percentage density required for the planting method employed.

Example: A covered activity temporarily impacts 1,000 square feet of woody vegetation within the RCZ. 1,000 square feet of woody vegetation impacted x 80 percent density required for potted transplants = 800 square feet of coverage required.

Determine $\frac{3}{4}$ MCS from Table 3A or calculate $(\text{spread in feet} \times 0.75 \times 0.5)^2 \times 3.14 = \frac{3}{4}$ MCS in square feet. If spread is a range, take the average.

Total surface coverage for 10 chokecherries and 43 golden currants would be calculated as follows, regardless of their current canopy size: [10 chokecherries x 44 square feet (surface area of $\frac{3}{4}$ MCS) = 440 square feet] + [43 golden currants x 11 square feet (surface area of $\frac{3}{4}$ MCS) = 473 square feet] = 913 square feet restored into woody vegetation.

APPENDIX 5:
WOODY RIPARIAN VEGETATION GUIDELINES

913 square feet restored is greater than the 800 square feet required. Therefore, the planting is accepted as successful and monitoring may end as long as plants have survived two seasons for initial planting or two seasons for replacements.

All dead plantings shall be replaced in years 1 and 2. At the end of year 2, the total surface coverage (see example above) of the planted woody material must be 80 percent or greater for all nursery stock and transplants, and 70 percent or greater for all willow and cottonwood cuttings and pole plantings, or monitoring and plant replacement shall continue. Replacements shall not be considered “proven” until they have remained viable for two full growing seasons. Ultimately, it must be demonstrated that 100 percent of the temporarily impacted woody vegetation area has been revegetated to woody cover per the success criteria.

Table 3-A. Woody Transplant Species for use in Douglas County.

Scientific Name [†]	Common Name	Wetland, Riparian, Upland [‡]	Notes	Height (ft)	Spread (ft)	Surface Area of $\frac{3}{4}$ of Mature Canopy Spread (MCS) (ft ²)
Shrubs						
<i>Amelanchier alnifolia</i>	Saskatoon serviceberry	R, U	5000-10,900 ft	15	8-10	36
<i>Amorpha canescens</i>	Leadplant	U	3500-7600 ft	2-4	2-4	4
<i>Atriplex canescens</i>	Fourwing saltbush	R, U	3900-8600 ft	3-6	2-4	4
<i>Betula nana</i>	Bog birch	W, R	6000-11,500 ft	3	3	4
<i>Cercocarpus montanus</i>	Mountain mahogany	R, U	4000-8500 ft	2-4	2-4	4
<i>Chrysothamnus nauseosus</i>	Rubber rabbitbrush	U	various	2-6	2-4	4
<i>Cornus sericea</i>	Red-Osier dogwood	W, R	4500-10,000 ft	4-6'	4-6	11
<i>Crataegus erythropoda (rivularis)</i>	Red hawthorn	R, U		15	10	44
<i>Crataegus macracantha</i>	Big-thorned hawthorne	R, U	4500-7500 ft	15	10	44
<i>Fallugia paradoxa</i>	Apacheplume	U	3500-8000 ft	3-5	3-5	7
<i>Juniperus communis</i>	Common juniper	U	5000-7500 ft	2-3	3-6	9
<i>Krascheninnikovia lanata</i>	Winterfat	U	2500-8000 ft	1-3	1-3	2
<i>Lonicera involucrate</i>	Twinberry honeysuckle	R, U	6000-11,500 ft	2-7	2-7	9
<i>Purshia tridentata</i>	Antelope bitterbrush	U	4500-8000 ft	4	5	11
<i>Prunus americana</i>	Wild plum	R, U	3500-6000 ft	10-20	8-12	44

APPENDIX 5:
WOODY RIPARIAN VEGETATION GUIDELINES

Scientific Name [†]	Common Name	Wetland, Riparian, Upland [‡]	Notes	Height (ft)	Spread (ft)	Surface Area of ¾ of Mature Canopy Spread (MCS) (ft ²)
<i>Prunus virginiana</i>	Chokecherry	R, U	4500-9000 ft	8-20	8-12	44
<i>Quercus gambelii</i>	Gambel oak	R, U	4500-8500 ft Container plant from seed only	5-15	10-15	69
<i>Rhus glabra</i>	Smooth Sumac	R, U		6-12	6-12	36
<i>Rhus typhina (hirta)</i>	Staghorn Sumac	R, U		10-20	12-20	113
<i>Rhus trilobata</i>	Skunkbrush sumac	R, U	4000-9000 ft	3-6	3-6	9
<i>Ribes aureum</i>	Golden currant	R, U	3000-9000 ft	4-6	4-6	11
<i>Ribes cereum</i>	Wax currant	R, U	4000-11,400 ft	2-4	2-4	4
<i>Rosa woodsii</i>	Wood's rose	R, U	3000-11,500 ft	3-6	3-6	9
<i>Rubus deliciosus</i>	Boulder raspberry	R, U	4500-9000 ft	3-6	3-6	9
<i>Salix bebbiana</i>	Bebb willow	W, R	5000-9000 ft	10	8-10	36
<i>Salix boothii</i>	Booth's willow	W, R	5000-10,300 ft	10	8-10	36
<i>Salix drummondiana</i>	Drummond willow	W, R	6000-11,000 ft	12	8-12	44
<i>Salix eriocephala</i> <i>var. ligulifolia</i>	Strapleaf willow	W, R	5000-9000 ft.	10-15	10-14	64
<i>Salix exigua</i>	Sandbar willow	W, R	3500-9200 ft	6-12	4-8	16
<i>Salix geyeriana</i>	Geyer's willow	W, R	> 6000 ft	15	10-14	64
<i>Salix irrorata</i>	Bluestem Willow	W, R	5500-7500 ft	8	8-10	36
<i>Salix lasiandra</i>	Whiplash willow	W, R	4100-10,000 ft	10	8-10	36
<i>Salix monticola</i>	Mountain willow	W, R	5700-12,500 ft	15	10-14	64
<i>Salix planifolia</i>	Planeleaf willow	W, R	7000-12,000 ft	5	4-6	11
<i>Salix scouleriana</i>	Scouler willow	R, U	8000-10,000 ft	5-12	8-12	44
<i>Sambucus nigra</i> <i>Canadensis</i>	Common elderberry	R, U		8-12	8-12	44
<i>Sambucus nigra</i> <i>cerulea</i>	Blue elderberry	W, R, U	5500-8500 ft	10	8-12	44
<i>Sambucus racemosa</i> <i>(microbotrys)</i>	Red elderberry	R, U		8-10	8-10	36
<i>Shepherdia argentea</i>	Silver buffaloberry	U	3800-7500 ft	10	6-12	36
<i>Symphoricarpos</i> <i>albus, occidentalis</i> <i>or oreophilus</i>	Snowberry	R, U	4000-11,500 ft (albus: 5500- 7500 ft)	2-4	2-4	4
Trees						
<i>Acer glabrum</i>	Rocky mountain maple	W, R, U	6500-10,000 ft	10-20	10-15	69

APPENDIX 5:
WOODY RIPARIAN VEGETATION GUIDELINES

Scientific Name [†]	Common Name	Wetland, Riparian, Upland [‡]	Notes	Height (ft)	Spread (ft)	Surface Area of $\frac{3}{4}$ of Mature Canopy Spread (MCS) (ft ²)
<i>Acer negundo</i>	Boxelder	R, U	4500-7600 ft	25-30	20-25	224
<i>Alnus incana (tenuifolia)</i>	Thin leaf alder	W, R	4500-11,500 ft	15-30	15-20	135
<i>Betula occidentalis (fontinalis)</i>	Water birch	W, R	4500-11,500 ft	15	10	44
<i>Celtis occidentalis</i>	Hackberry	W, R, U	3500-7200 ft	40-50	35-40	621
<i>Juniperus scopulorum</i>	Rocky Mountain juniper	U	5000-9000 ft	15-30	15-20	135
<i>Picea pungens</i>	Colorado blue spruce	R, U	7000-9500 ft	50-100	15-20	135
<i>Pinus contorta</i>	Lodgepole pine	U	>8000 ft	20-80	15-25	177
<i>Pinus flexilis</i>	Limber pine	U	5000-9000 ft	30-40	12-15	80
<i>Pinus ponderosa</i>	Ponderosa pine	U	5000-9000 ft	40-100	25-40	466
<i>Populus angustifolia</i>	Narrow-leaved cottonwood	W, R	3000-11,500 ft	50	40	706
<i>Populus deltoides monilifera</i>	Plains cottonwood	W, R	3000-6000 ft	75	40	706
<i>Populus tremuloides</i>	Quaking Aspen	R, U	6000-10,000 ft	30-40	12-15	80
<i>Pseudotsuga menziesii</i>	Douglas fir	R, U	4000-11,000 ft	50-60	20-25	224
<i>Robinia neomexicana</i>	New Mexico Locust	R, U		10-20	10-20	99
<i>Salix amygdaloides</i>	Peachleaf willow	W, R	3000-9000 ft	30-40	25-30	334

[†]Some of these species may not be commercially available.

[‡]W=Wetland, R=Riparian, U=Upland.

Appendix 6: Implementing Agreements

IMPLEMENTING AGREEMENT
for the
DOUGLAS COUNTY HABITAT CONSERVATION PLAN
for
DOUGLAS COUNTY
APRIL 11, 2006

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1.0 PARTIES

The parties to this Implementing Agreement are the Board of County Commissioners of Douglas County, Colorado (Permittee) and the United States Fish and Wildlife Service (Service).

2.0 RECITALS AND PURPOSES

2.1 Recitals. The parties have entered into this agreement in consideration of the following facts:

(a) The Riparian Conservation Zone (RCZ) within Douglas County has been determined to provide, or potentially provide, habitat for the Preble's meadow jumping mouse, *Zapus hudsonius preblei* (Preble's), currently listed as a threatened subspecies under the Endangered Species Act (ESA); and

(b) Permittee, in conjunction with the Towns of Castle Rock and Parker, has developed a series of measures, described in the habitat conservation plan (HCP), to avoid, minimize and mitigate to the maximum extent practicable the effects of take of Preble's incidental to covered activities undertaken by Permittee and the Towns.

2.2 Purposes. The purposes of this agreement are:

(a) To ensure implementation of each of the terms of the HCP;

(b) To describe remedies and recourse should any party fail to perform its obligations as set forth in this agreement; and,

(c) To provide assurances to Permittee that as long as the terms of the HCP, the permit, and this agreement are performed, no additional mitigation will be required of Permittee, with respect to covered species, except as provided for in this agreement or required by law.

3.0 DEFINITIONS

The following terms as used in this agreement will have the meanings set forth below:

3.1 Terms defined in Endangered Species Act. Terms used in this agreement and specifically defined in the ESA or in regulations adopted by the Service under the ESA

have the same meaning as in the ESA and those implementing regulations, unless this agreement expressly provides otherwise.

3.2 “Changed circumstances” means changes in circumstances affecting a covered species or the geographic area covered by the HCP that can reasonably be anticipated by the parties to the HCP and that can reasonably be planned for in the HCP (e.g. the listing of a new species, or a fire or other natural catastrophic event in areas prone to such event.) Changed circumstances and the planned responses to those circumstances are described in section 7.3 of the HCP. Changed circumstances are not unforeseen circumstances.

3.3 “Covered activities” means certain activities carried out by Permittee and by the other HCP Participants on covered lands that may result in incidental take of covered species. Covered activities means those activities to be conducted by the Permittee and the other HCP Participants within the RCZ as identified in Appendix 3 of the HCP or as may be substituted for those activities pursuant to section 7.6.1.3 of the HCP.

3.4 “Covered lands” means the areas of delineated potential Preble's habitat along approximately 283 miles of streams in Douglas County, Colorado referred to as the RCZ. The RCZ establishes the geographic limits of Preble's habitat on non-federal lands in Douglas County and is the area upon which the permit authorizes incidental take of covered species and the area to which the HCP's conservation and mitigation measures apply. These lands are described in Appendix 1 of the HCP. Activities conducted by the Permittee that occur outside the RCZ will not result in incidental take of Preble's.

3.5 “Covered species” means the subspecies Preble's, which the HCP addresses in a manner sufficient to meet all of the criteria for issuing an incidental take permit under ESA section 10(a)(1)(B).

3.6 “HCP” means the Douglas County Habitat Conservation Plan prepared by Permittee and the Towns of Castle Rock and Parker for certain activities to be conducted on covered lands in Douglas County, Colorado.

3.7 “HCP Participants” means Permittee and the Towns of Castle Rock and Parker, who have developed and are implementing the HCP.

3.8 “Listed species” means a species (including a subspecies, or a distinct population segment of a vertebrate species) that is listed as endangered or threatened under the ESA.

3.9 “Permit” means the incidental take permit issued by the Service to Permittee pursuant to section 10(a)(1)(B) of the ESA for take incidental to covered

activities in Douglas County, as it may be amended from time to time.

3.10 “Permittee” as used in this agreement means the Board of County Commissioners of Douglas County, Colorado. The Towns of Castle Rock and Parker will each execute a separate implementing agreement and receive a separate permit.

3.11 “Take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect any listed or unlisted covered species. Harm means an act that actually kills or injures a member of a covered species, including an act that causes significant habitat modification or degradation where it actually kills or injures a member of a covered species by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

3.12 “Unforeseen circumstances” means changes in circumstances affecting a species or geographic area covered by an HCP that could not reasonably have been anticipated by plan developers and the Service at the time of the conservation plan’s negotiation and development, and that result in a substantial and adverse change in the status of the covered species.

4.0 OBLIGATIONS OF THE PARTIES

4.1 Obligations of Permittee; methodology to determine compliance. Permittee will fully and faithfully perform all obligations assigned to it under this agreement, its permit, and the HCP. Permittee will be deemed in compliance with its obligations if the commitments in section 7.1 of the HCP have been or are being implemented in substantial conformity with their terms. During the life of the permit, the Permittee and the other HCP Participants may on a collective basis impact up to 430 acres of the RCZ. This total impact threshold includes 280 acres of permanent impacts, 122 acres of temporary impacts, and 28 acres of emergency impacts to the RCZ, with resulting incidental take of Preble’s, in conjunction with the covered activities. The Permittee and Service shall adhere to the methodology set forth in Chapter 4 of the HCP for determining impacts to Preble’s and its habitat, and for quantifying incidental take of Preble’s, associated with the covered activities. Covered activities may be conducted on areas of the preserved RCZ used for mitigation of the covered activities (HCP section 5.3) and on previously designated mitigation lands pursuant to the requirements of section 4.1.4.1 of the HCP.

4.2 Obligations of the Service. Upon execution of this agreement, and satisfaction of all other applicable legal requirements, the Service will issue Permittee a permit under section 10(a)(1)(B) of the ESA, authorizing incidental take by Permittee of the covered species resulting from covered activities on covered lands.

4.2.1 Permit coverage. The permit will identify all covered species. The permit will take effect for listed covered species at the time the permit is issued.

4.2.2 “No surprises” assurances. Provided that Permittee has complied with its obligations under the HCP, this agreement, and the permit, the Service can require Permittee to provide mitigation beyond that provided for in the HCP only under unforeseen circumstances, and only in accordance with the “no surprises” rule at 50 C.F.R. §§ 17.22(b)(5), 17.32(b)(5), 222.22(g).

4.2.3 Covered activities with a federal nexus. The section 7 consultation and biological opinion (BO) on issuance of the Permittee’s permit will evaluate the impacts associated with covered activities, and will evaluate the HCP conservation measures and any reasonable and prudent measures, if necessary, to address the impacts and authorized take of Preble’s associated with such activities. This BO will contain the Service’s determination whether the covered activities would likely jeopardize the continued existence of Preble’s or result in the destruction or adverse modification of any designated critical habitat for such species under section 7(a)(2) of the ESA. Accordingly, from a procedural standpoint, when Permittee undertakes an individual covered activity that involves a federal action subject to section 7 of the ESA, the Service and action agency will determine whether the impacts of the proposed federal action associated with the covered activity on Preble’s have already been analyzed by the Service and authorized as part of the HCP. If they have, the Service will respond to the request for formal consultation with a letter explaining that no further consultation is necessary as the effects to Preble’s have already been analyzed in the BO on the HCP, and that the Permittee is in possession of a permit that covers take from the project.

4.3 Interim obligations upon a finding of unforeseen circumstances. If the Service makes a finding of unforeseen circumstances, during the period necessary to determine the nature and location of additional or modified mitigation, Permittee will avoid contributing to appreciably reducing the likelihood of the survival and recovery of the affected species.

5.0 INCORPORATION OF HCP

The HCP and each of its provisions are intended to be, and by this reference are, incorporated herein. In the event of any direct contradiction between the terms of this agreement and the HCP, the terms of this agreement will control. In all other cases, the

terms of this agreement and the terms of the HCP will be interpreted to be supplementary to each other.

6.0 TERM

6.1 Initial Term. This agreement and the HCP will become effective on the date that the Service issues the permit. This agreement, the HCP, and the permit will remain in effect for a period of 10 years from issuance of the original permit, except as provided below.

6.2 Permit suspension or revocation. The Service may suspend or revoke the permit for cause (See 5 U.S.C. § 558; 50 C.F.R. §§ 13.27 - 13.29, 222.27; 15 C.F.R. Part 904) except that the Service may revoke the permit based on a determination that the continuation of the permitted activity would be likely to jeopardize the continued existence of the covered species only if the Service has not been successful in remedying the situation in a timely fashion through other means as provided in the no surprises rule (50 C.F.R. §§ 17.22(b)(5), 17.32(b)(5), 222.22(g)). Prior to proposing any suspension or revocation of the permit, the Service will meet and confer informally with the Permittee in an effort to resolve its grounds for concern. In the event of suspension or revocation, incidental take coverage for covered activities that have already been implemented pursuant to the minimization and mitigation measures in the HCP shall continue and be unaffected; Permittee's obligations under this agreement and the HCP will continue, however, until the Service determines, in collaboration with the Permittee, that all take of covered species that occurred under the permit has been fully mitigated in accordance with the HCP. Suspension or revocation may apply to the entire permit, or only to specified covered lands or covered activities. In the event of a partial suspension or revocation, the portion of the permit not subject to the suspension or revocation shall remain in full force and effect. The incidental take permits of the other HCP Participants also shall remain in full force and effect and shall be unaffected by those suspension or revocation procedures.

6.3 Withdrawal of participation. At any time during the term of the HCP, this agreement, and the permit, Permittee may choose to discontinue its participation under the HCP, this agreement and its permit by surrendering its permit in accordance with 50 C.F.R. § 13.26. Except as provided in section 6.3.1 below, the requirements of 50 C.F.R. §17.32(a)(7) shall apply to any withdrawal of participation. Withdrawal of one or more of the other HCP Participants will not affect the validity of the HCP, this agreement or Permittee's permit, provided Permittee remains a participant. These standards apply to subsections 6.3.1 and 6.3.2 below.

6.3.1. Withdrawal based on error in original listing of Preble's. If the withdrawal is based on delisting of Preble's due to error in its original listing, unrelated to

recovery efforts or conservation measures in place at the time of delisting, Permittee shall at its option be relieved of all obligations under the HCP and permit. Should the Service finalize its proposal to delist due to error, the HCP will continue until such time as Permittee elects to discontinue the HCP and surrender its permit in accordance with 50 C.F.R. §13.26. Permittee may contact the Service to discuss future conservation opportunities that may make use of the HCP prior to terminating activities under the HCP.

6.3.2. Withdrawal based on circumstances other than listing error. In the event of a withdrawal due to any circumstances other than those in 6.3.1 above, no subsequent protection or management of habitat lands shall be required of the Permittee except as required by 50 C.F.R. § 17.32(a)(7), as determined by the Service after consulting with the Permittee.

6.4 Extension of the permit. Upon agreement of the parties and compliance with all applicable laws, the permit may be extended beyond its initial term. If Permittee desires to extend its permit, it will so notify the Service at least one year before the then-current term is scheduled to expire. Extension of the permit constitutes extension of the HCP and this agreement for the same amount of time, subject to any modifications that the Service may require at the time of extension. Permittee will have the ability to carry forward any unused portion of its mitigation and total impact threshold under its permit into the next renewal time period.

7.0 FUNDING

Permittee warrants that it has, and will expend, consistent with section 7.2 of the HCP, such funds as may be necessary to fulfill its obligations under the HCP. Permittee will promptly notify the Service of any material change in Permittee's financial ability to fulfill its obligations. In addition to providing any such notice, Permittee will provide the Service with reasonably available financial information that the parties agree will provide adequate evidence of Permittee's ability to fulfill its obligations.

8.0 MONITORING AND REPORTING

8.1 Planned periodic reports. As described in the HCP, Permittee will submit reports annually describing its activities and results of the monitoring program provided for in the HCP. This requirement may be satisfied by a single report submitted annually on behalf of all HCP Participants.

8.2 Other reports. Permittee will provide, within 30 days of being requested by

the Service, any additional information in its possession or control related to implementation of the HCP that is requested by the Service for the purpose of assessing whether the terms and conditions of the permit and the HCP, including the HCP's adaptive management plan, are being fully implemented.

8.3 Certification of reports. All reports will include the following certification from a responsible official who supervised or directed preparation of the report:

I certify that, to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of this report, the information submitted is true, accurate, and complete.

8.4 Monitoring by Service. The Service may conduct inspections and monitoring in connection with the permit in accordance with its regulations. (See 50 C.F.R. §§ 13.47, 220.47.)

9.0 CHANGED CIRCUMSTANCES

9.1 Permittee-initiated response to changed circumstances. Permittee will give notice to the Service within seven days after learning that any of the changed circumstances listed in section 7.3 of the HCP has occurred. As soon as practicable thereafter, Permittee will modify its activities in the manner described in section 7.3 of the HCP to the extent necessary to mitigate the effects of the changed circumstances on covered species, and will report to the Service on its actions. Permittee will make such modifications without awaiting notice from the Service.

9.2 Service-initiated response to changed circumstances. If the Service determines that changed circumstances have occurred and that Permittee has not responded in accordance with section 7.3 of the HCP, the Service will so notify Permittee and will direct Permittee to make the required changes. As soon as practicable thereafter, Permittee will make the required changes and report to the Service on its actions.

9.3 Effect of changed circumstances. Changed circumstances are provided for in the HCP and, hence, do not constitute unforeseen circumstances or require amendment of the permit or HCP. Changed circumstances do not constitute "new information" under 50 C.F.R. § 402.16 and, hence, the occurrence of changed circumstances does not require the reinitiation of formal consultation by the Service under section 7 of the ESA on its action of issuing the permit. As long as Permittee is in compliance with its permit and the requirements of section 7.3 of the HCP, the Service shall not require any conservation or mitigation measures or funding by the Permittee in response to changed circumstances other than those measures specified in section 7.3.

9.4 Effect of unforeseen circumstances. In the event that it is demonstrated by the Service that unforeseen circumstances arise during the life of the permit, and additional conservation and mitigation measures are deemed necessary to respond to unforeseen circumstances, adjustments to the HCP may be proposed by the Permittee or the Service to address those circumstances. The Service and Permittee would work together to redirect resources to address unforeseen circumstances. Notwithstanding the foregoing, however, provided the Permittee is in good faith implementing the HCP, the Service shall not: (A) require the commitment of any additional land, water, or financial compensation by the Permittee without the consent of the Permittee; or (B) impose additional restrictions on the use of land, water, or natural resources otherwise available for use by the Permittee under the original terms of the HCP, including additional restrictions on the permitted activities or additional requirements related to the RCZ. Notwithstanding the occurrence of unforeseen circumstances, as long as the Permittee maintains compliance with the requirements of its permit and the requirements of the HCP and any additional measures developed in accordance with this section, the permit will remain in full force and effect.

10.0 ADAPTIVE MANAGEMENT

10.1 Permittee-initiated adaptive management. Permittee will implement the adaptive management provisions in section 6.6 of the HCP when changes in management practices are necessary to achieve the HCP's biological objectives, or to respond to monitoring results or new scientific information. Permittee will make such changes without awaiting notice from the Service, and will report to the Service on any actions taken pursuant to this section.

10.2 Service-initiated adaptive management. If the Service determines that one or more of the adaptive management provisions in the HCP have been triggered and that Permittee has not changed its management practices in accordance with section 6.6 of the HCP, the Service will so notify Permittee and will direct Permittee to make the required changes. As soon as practicable thereafter, Permittee will make the required changes and report to the Service on its actions. Such changes are provided for in the HCP, and hence do not constitute unforeseen circumstances or require amendment of the permit or HCP, except as provided in this section.

10.3 Reductions in mitigation. Permittee will not implement adaptive management changes that may result in less mitigation than provided for covered species under the original terms of the HCP, unless the Service first provides written approval. Permittee may propose any such adaptive management changes by notice to the Service, specifying the adaptive management modifications proposed, the basis for them, including

supporting data, and the anticipated effects on covered species, and other environmental impacts. Within 120 days of receiving such a notice, the Service will either approve the proposed adaptive management changes, approve them as modified by the Service, or notify Permittee that the proposed changes constitute permit amendments that must be reviewed under section 12.2 of this agreement.

10.4 No increase in take. This section does not authorize any modifications that would result in an increase in the amount and nature of take, or increase the impacts of take, of covered species beyond that analyzed under the original HCP and any amendments thereto. Any such modification must be reviewed as a permit amendment under section 12.2 of this agreement, and is addressed in section 7.6.2 of the HCP.

11.0 LAND TRANSACTIONS

11.1 Acquisition of land by Permittee. Nothing in this agreement, the HCP, or the permit limits Permittee's right to acquire additional lands. Lands that may be acquired may, upon prior approval of the Service, serve as additional or substitute mitigation lands and shall be processed as minor modifications in accordance with section 12.1 of this agreement provided such lands meet the criteria in section 7.6.1.4 of the HCP.

11.2 Disposal of land by Permittee. Permittee's transfer of ownership or control of mitigation land will require prior approval by the Service and an amendment of the permit in accordance with section 12.2 of this agreement, except that transfers of mitigation lands may be processed as minor modifications in accordance with section 12.1 of this agreement if:

(a) The land will be transferred to an agency of the federal government and, prior to transfer, the Service has determined that transfer will not compromise the effectiveness of the HCP based on adequate commitments by that agency regarding management of such land; or

(b) The land will be transferred to a non-federal entity that has entered into an agreement acceptable to the Service (e.g., an easement held by the state fish and wildlife agency with the Service as third-party beneficiary) to ensure that the lands will be managed in such a manner and for such duration so as not to compromise the effectiveness of the HCP; or

(c) The land will be transferred to a non-federal entity that, prior to completion of the land transaction, has agreed to be bound by the HCP as it applies to the transferred land and has obtained an incidental take permit following normal permit procedures covering all species then covered by the Permittee's ; or

(d) The land to be transferred will be substituted with mitigation land that affords a level of mitigation benefits consistent with those of the original lands, is within the RCZ and does not adversely affect Preble's; or

(e) The Service determines that the amount of land to be transferred does not exceed 113 acres and will not have a material impact on the ability of the Permittee to comply with the requirements of the HCP and the terms and conditions of the permit.

12.0 MODIFICATIONS AND AMENDMENTS

12.1 Minor modifications.

(a) Either party may propose minor modifications to the HCP or this agreement by providing notice to the other party. Such notice shall include a statement of the reason for the proposed modification and an analysis of its environmental effects, including its effects on operations under the HCP and on covered species. The parties will use best efforts to respond to proposed modifications within 60 days of receipt of such notice. Proposed modifications will become effective upon the other party's written approval and will not necessitate amendment of the permit. If, for any reason, a receiving party objects to a proposed modification, it must be processed as an amendment of the permit in accordance with subsection 12.2. The Service will not propose or approve minor modifications to the HCP or this agreement if the Service determines that such modifications would result in operations under the HCP that are significantly different from those analyzed in connection with the original HCP, adverse effects on the environment that are new or significantly different from those analyzed in connection with the original HCP, or additional take not analyzed in connection with the original HCP.

(b) Minor modifications to the HCP processed pursuant to this subsection may include but are not limited to the following:

(1) corrections of typographic, grammatical, and similar editing errors that do not change the intended meaning (see HCP section 7.6.1.1);

(2) corrections of any maps or exhibits to correct errors in mapping or to reflect previously approved changes in the permit or HCP (see HCP section 7.6.1.2);

(3) minor changes to survey, monitoring or reporting protocols;

(4) substitutions of covered activities (see section 7.6.1.3 of the HCP);

(5) additions, transfer of ownership and substitutions of mitigation lands (see section 11 of this agreement and section 7.6.1.4 of the HCP);

(6) adjustments that may need to be made as a result of adaptive management under the HCP; and

(7) other types of modifications that are minor in relation to the HCP, that the Service has analyzed and agreed to, and on which the public has had an opportunity to comment.

(c) Material changes to the HCP pursuant to section 7.6.2 of the HCP will be processed as amendments of the permit in accordance with subsection 12.2 .

12.2 Amendment of the permit. The permit may be amended in accordance with all applicable legal requirements, including but not limited to the ESA, the National Environmental Policy Act, and the Service's permit regulations. The party proposing the amendment shall provide a statement of the reasons for the amendment and an analysis of its environmental effects, including its effects on operations under the HCP and on covered species.

13.0 REMEDIES, ENFORCEMENT, AND DISPUTE RESOLUTION

13.1 In general. Except as set forth below, each party shall have all remedies otherwise available to enforce the terms of this agreement, the permit, and the HCP.

13.2 No monetary damages. No party shall be liable in damages to any other party, HCP Participant, or other person for any breach of this agreement, any performance or failure to perform a mandatory or discretionary obligation imposed by this agreement or any other cause of action arising from this agreement.

13.3 Enforcement authority of the United States. Nothing contained in this agreement is intended to limit the authority of the United States government to seek civil or criminal penalties or otherwise fulfill its enforcement responsibilities under the ESA or other applicable law.

13.4 Dispute resolution. The parties recognize that disputes concerning implementation of, compliance with, or termination of this agreement, the HCP, and the permit may arise from time to time. The parties agree to work together in good faith to resolve such disputes, using the informal dispute resolution procedures set forth in this section, or such other procedures upon which the parties may later agree. However, if at

any time any party determines that circumstances so warrant, it may seek any available remedy without waiting to complete informal dispute resolution.

13.4.1 Informal dispute resolution process. Unless the parties agree upon another dispute resolution process, or unless an aggrieved party has initiated administrative proceedings or suit in federal court as provided in this section, the parties may use the following process to attempt to resolve disputes:

(a) The aggrieved party will notify the other party and HCP Participants of the provision that may have been violated, the basis for contending that a violation has occurred, and the remedies it proposes to correct the alleged violation.

(b) The party alleged to be in violation will have 30 days, or such other time as may be agreed, to respond. During this time it may seek clarification of the information provided in the initial notice. The aggrieved party will use its best efforts to provide any information then available to it that may be responsive to such inquiries.

(c) Within 30 days after such response was provided or was due, representatives of the parties having authority to resolve the dispute will meet and negotiate in good faith toward a solution satisfactory to all parties, or will establish a specific process and timetable to seek such a solution.

(d) If any issues cannot be resolved through such negotiations, the parties will consider non-binding mediation and other alternative dispute resolution processes and, if a dispute resolution process is agreed upon, will make good faith efforts to resolve all remaining issues through that process.

14.0 MISCELLANEOUS PROVISIONS

14.1 No partnership. Neither this agreement nor the HCP shall make or be deemed to make any party to this agreement the agent for or the partner of any other party.

14.2 Notices. Any notice permitted or required by this agreement shall be in writing, delivered personally to the persons listed below, or shall be deemed given five (5) days after deposit in the United States mail, certified and postage prepaid, return receipt requested and addressed as follows, or at such other address as any party may from time to time specify to the other parties in writing. Notices may be delivered by facsimile or other electronic means, provided that they are also delivered personally or by certified mail. Notices shall be transmitted so that they are received within the specified deadlines.

Regional Director
United States Fish and Wildlife Service
134 Union Blvd., Suite 550
P.O. Box 25486-DFC
Lakewood, Colorado 80228-1807
Telephone: 303-236-7920
Fax: 303-236-8295

Permittee:
Board of County Commissioners of Douglas County, Colorado
100 Third Street
Castle Rock, Colorado 80104
303-660-7401
303-688-1293 (fax)

AND

HCP Participant:
Town of Castle Rock
Attn: Mark Stevens, Town Manager
100 Wilcox Street
Castle Rock, CO 80104
303-660-1374
303-660-1024 (fax)

AND

HCP Participant:
Town of Parker
Attn: Jeannene Bragg, Town Administrator
20120 E. Mainstreet
Parker, CO 80138
303-841-0353
303-805-3153

14.3. Severability. The terms and conditions of the permit and HCP shall be deemed severable, and if any term or condition of the permit or HCP shall be held invalid, illegal or unenforceable by a federal court, after exhaustion of available appeals, the remainder shall continue to be effective and binding upon the Service and the Permittee. Any lawsuit brought pursuant to the citizen suit provision of the ESA against Permittee to enforce an individual covered activity's compliance with the ESA shall have no effect on the provisions of the HCP and permit or on other covered activities not subject to such

proceeding, which shall remain in full force and effect. Noncompliance of one or more of the other HCP Participants will not affect the validity of the HCP as to the Permittee or remaining HCP Participant.

14.4 Effect of agreement. This agreement is dependent upon the continued validity of the HCP and permit and has no independent legal force and effect in the absence of those documents.

14.5 Non-waiver of rights. By participating in the HCP, signing this agreement, and accepting the permit, Permittee shall not be deemed to have waived or relinquished any right to challenge the legal, scientific, or technical validity of the Service determinations related to Preble's including, but not limited to, the listing status, critical habitat designations, habitat needs, or conservation and recovery standards applicable to Preble's.

14.6 Entire agreement. This agreement, together with the HCP and the permit, constitutes the entire agreement among the parties. It supersedes any and all other agreements, either oral or in writing, among the parties with respect to the subject matter hereof and contains all of the covenants and agreements among them with respect to said matters, and each party acknowledges that no representation, inducement, promise or agreement, oral or otherwise, has been made by any other party or anyone acting on behalf of any other party that is not embodied herein.

14.7 Elected officials not to benefit. No member of or delegate to Congress shall be entitled to any share or part of this agreement, or to any benefit that may arise from it.

14.8 Availability of funds. Implementation of this agreement and the HCP by the Service is subject to the requirements of the Anti-Deficiency Act and the availability of appropriated funds. Nothing in this agreement will be construed by the parties to require the obligation, appropriation, or expenditure of any money from the U.S. Treasury. The parties acknowledge that the Service will not be required under this agreement to expend any federal agency's appropriated funds unless and until an authorized official of that agency affirmatively acts to commit to such expenditures as evidenced in writing.

14.9 Duplicate originals. This agreement may be executed in any number of duplicate originals. A complete original of this agreement shall be maintained in the official records of each of the parties hereto.

14.10 No third-party beneficiaries. Without limiting the applicability of rights granted to the public pursuant to the ESA or other federal law, this agreement shall not create any right or interest in the public, or any member thereof, as a third-party beneficiary hereof, nor shall it authorize anyone not a party to this agreement to maintain a suit for

personal injuries or damages pursuant to the provisions of this agreement. The duties, obligations, and responsibilities of the parties to this agreement with respect to third parties shall remain as imposed under existing law.

14.11 Relationship to the ESA and other authorities. The terms of this agreement shall be governed by and construed in accordance with the ESA and applicable federal law. In particular, nothing in this agreement is intended to limit the authority of the Service to seek penalties or otherwise fulfill its responsibilities under the ESA. Moreover, nothing in this agreement is intended to limit or diminish the legal obligations and responsibilities of the Service as an agency of the federal government. Nothing in this agreement will limit the right or obligation of any federal agency to engage in consultation required under section 7 of the ESA or other federal law; however, it is intended that the rights and obligations of Permittee under the HCP and this agreement will be considered in any consultation affecting Permittee's use of the covered lands.

14.12 References to regulations. Any reference in this agreement, the HCP, or the permit to any regulation or rule of the Service shall be deemed to be a reference to such regulation or rule in existence at the time an action is taken.

14.13 Applicable laws. All activities undertaken pursuant to this agreement, the HCP, and the permit must be in compliance with all applicable state and federal laws and regulations. This agreement, the HCP, and the permit shall be governed by the ESA and implementing regulations as the same exist on their effective date. Any reference in this agreement, the HCP, or the permit to any provision of the ESA or to any regulation or rule of the Service shall be deemed to be a reference to such statute, regulation or rule in existence as of the effective date. If federal statutes are enacted or rules or regulations are issued by the Service after the effective date that conflict with any provision of this agreement, the HCP, or permit, the provisions of the agreement, HCP, and permit shall control and continue to govern the rights and obligations of the Permittee and the Service.

14.14 Successors and assigns. This agreement and each of its covenants and conditions shall be binding on and shall inure to the benefit of the parties and their respective successors and assigns. Assignment or other transfer of the permit shall be governed by the Service's regulations in force at the time.

IN WITNESS WHEREOF, THE PARTIES HERETO have executed this Implementing Agreement to be in effect as of the date that the Service issue the permit.

UNITED STATES FISH AND WILDLIFE SERVICE

BY: *James E. Gault* Date 5-11-06
Regional Director, Rocky Mountain Region
United States Fish and Wildlife Service
Lakewood, Colorado

Deputy

BOARD OF COUNTY COMMISSIONERS OF
DOUGLAS COUNTY, COLORADO

BY: *Melanie A. Worley* Date 04/14/06
Melanie A. Worley, Chair

ATTEST:

Mary A. Niblack Date 04/11/06
Mary A. Niblack, Deputy Clerk



RECEIVED

APR 12 2006

RESOLUTION NO. R-006-053

THE BOARD OF COUNTY COMMISSIONERS
OF THE COUNTY OF DOUGLAS, COLORADO

A RESOLUTION APPROVING AN INTERGOVERNMENTAL
AGREEMENT BETWEEN DOUGLAS COUNTY AND THE
UNITED STATES FISH AND WILDLIFE SERVICE
CONCERNING THE IMPLEMENTATION OF THE HABITAT
CONSERVATION PLAN AND INCIDENTAL TAKE PERMIT

WHEREAS, the Board of County Commissioners of the County of Douglas (the "County") and the United States Fish and Wildlife Service ("USFWS") desire to enter into an intergovernmental agreement concerning the implementation of the Habitat Conservation Plan and Incidental Take Permit; and

WHEREAS, the County is willing to enter into such an intergovernmental agreement with the USFWS in accordance with the terms and conditions set forth in the intergovernmental agreement attached hereto; and

WHEREAS, governmental entities are authorized to enter into intergovernmental agreements pursuant to the provisions of Article XIV, Section 18(2)(a) of the Colorado Constitution, and section 29-1-203, C.R.S.; now, therefore,

BE IT RESOLVED, BY THE BOARD OF COUNTY COMMISSIONERS OF THE COUNTY OF DOUGLAS, STATE OF COLORADO, that the intergovernmental agreement between the County and the USFWS, a copy of which is attached hereto and incorporated herein, is hereby approved, and the Chair of the Board is authorized to execute the intergovernmental agreement on behalf of Douglas County.

PASSED AND ADOPTED this 11 day of April, 2006, in Castle Rock, Douglas County, Colorado.

THE BOARD OF COUNTY COMMISSIONERS
OF THE COUNTY OF DOUGLAS, COLORADO

BY: Melanie A. Worley
MELANIE A. WORLEY
Chair

ATTEST:

Mary Niblack
MARY NIBLACK
County Clerk



IMPLEMENTING AGREEMENT
for the
DOUGLAS COUNTY HABITAT CONSERVATION PLAN
for
THE TOWN OF CASTLE ROCK

APRIL 2006

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1.0 PARTIES

The parties to this Implementing Agreement are the Town of Castle Rock (Permittee) and the United States Fish and Wildlife Service (Service).

2.0 RECITALS AND PURPOSES

2.1 Recitals. The parties have entered into this agreement in consideration of the following facts:

(a) The Riparian Conservation Zone (RCZ) within Douglas County has been determined to provide, or potentially provide, habitat for the Preble's meadow jumping mouse, *Zapus hudsonius preblei* (Preble's), currently listed as a threatened subspecies under the Endangered Species Act (ESA); and

(b) Permittee, in conjunction with Douglas County and the Town of Parker, has developed a series of measures, described in the habitat conservation plan (HCP), to avoid, minimize and mitigate to the maximum extent practicable the effects of take of Preble's incidental to covered activities undertaken by Permittee, the County and Town of Parker.

2.2 Purposes. The purposes of this agreement are:

(a) To ensure implementation of each of the terms of the HCP;

(b) To describe remedies and recourse should any party fail to perform its obligations as set forth in this agreement; and,

(c) To provide assurances to Permittee that as long as the terms of the HCP, the permit, and this agreement are performed, no additional mitigation will be required of Permittee, with respect to covered species, except as provided for in this agreement or required by law.

3.0 DEFINITIONS

The following terms as used in this agreement will have the meanings set forth below:

3.1 Terms defined in Endangered Species Act. Terms used in this agreement and specifically defined in the ESA or in regulations adopted by the Service under the ESA

have the same meaning as in the ESA and those implementing regulations, unless this agreement expressly provides otherwise.

3.2 “Changed circumstances” means changes in circumstances affecting a covered species or the geographic area covered by the HCP that can reasonably be anticipated by the parties to the HCP and that can reasonably be planned for in the HCP (e.g. the listing of a new species, or a fire or other natural catastrophic event in areas prone to such event.) Changed circumstances and the planned responses to those circumstances are described in section 7.3 of the HCP. Changed circumstances are not unforeseen circumstances.

3.3 “Covered activities” means certain activities carried out by Permittee and by the other HCP Participants on covered lands that may result in incidental take of covered species. Covered activities means those activities to be conducted by the Permittee and by the other HCP Participants within the RCZ as identified in Appendix 3 of the HCP or as may be substituted for those activities pursuant to section 7.6.1.3 of the HCP.

3.4 “Covered lands” means the areas of delineated potential Preble’s habitat along approximately 283 miles of streams in Douglas County, Colorado referred to as the RCZ. The RCZ establishes the geographic limits of Preble’s habitat on non-federal lands in Douglas County and is the area upon which the permit authorizes incidental take of covered species and the area to which the HCP’s conservation and mitigation measures apply. These lands are described in Appendix 1 of the HCP. Activities conducted by the Permittee that occur outside the RCZ will not result in incidental take of Preble’s.

3.5 “Covered species” means the subspecies Preble’s, which the HCP addresses in a manner sufficient to meet all of the criteria for issuing an incidental take permit under ESA section 10(a)(1)(B).

3.6 “HCP” means the Douglas County Habitat Conservation Plan prepared by Permittee, Douglas County and the Town of Parker for certain activities to be conducted on covered lands in Douglas County, Colorado.

3.7 “HCP Participants” means Permittee, Douglas County and the Town of Parker, who have developed and are implementing the HCP.

3.8 “Listed species” means a species (including a subspecies, or a distinct population segment of a vertebrate species) that is listed as endangered or threatened under the ESA.

3.8 “Permit” means the incidental take permit issued by the Service to Permittee pursuant to section 10(a)(1)(B) of the ESA for take incidental to covered activities in Douglas County, as it may be amended from time to time.

3.10 “Permittee” as used in this agreement means the Town of Castle Rock. The Board of County Commissioners of Douglas County, Colorado and the Town of Parker will each execute a separate implementing agreement and receive a separate permit.

3.11 “Take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect any listed or unlisted covered species. Harm means an act that actually kills or injures a member of a covered species, including an act that causes significant habitat modification or degradation where it actually kills or injures a member of a covered species by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

3.12 “Unforeseen circumstances” means changes in circumstances affecting a species or geographic area covered by an HCP that could not reasonably have been anticipated by plan developers and the Service at the time of the conservation plan’s negotiation and development, and that result in a substantial and adverse change in the status of the covered species.

4.0 OBLIGATIONS OF THE PARTIES

4.1 Obligations of Permittee; methodology to determine compliance. Permittee will fully and faithfully perform all obligations assigned to it under this agreement, its permit, and the HCP. Permittee will be deemed in compliance with its obligations if the commitments in section 7.1 of the HCP have been or are being implemented in substantial conformity with their terms. During the life of the permit, the Permittee and other HCP Participants may on a collective basis impact up to 430 acres of the RCZ. This total impact threshold includes 280 acres of permanent impacts, 122 acres of temporary impacts, and 28 acres of emergency impacts to the RCZ, with resulting incidental take of Preble’s, in conjunction with the covered activities. The Permittee and Service shall adhere to the methodology set forth in Chapter 4 of the HCP for determining impacts to Preble’s and its habitat, and for quantifying incidental take of Preble’s, associated with the covered activities. Covered activities may be conducted on areas of the preserved RCZ used for mitigation of the covered activities (HCP section 5.3) and on previously designated mitigation lands pursuant to the requirements of section 4.1.4.1 of the HCP.

4.2 Obligations of the Service. Upon execution of this agreement and satisfaction of all other applicable legal requirements, the Service will issue Permittee a

permit under section 10(a)(1)(B) of the ESA, authorizing incidental take by Permittee of the covered species resulting from covered activities on covered lands.

4.2.1 Permit coverage. The permit will identify all covered species. The permit will take effect for listed covered species at the time the permit is issued.

4.2.2 “No surprises” assurances. Provided that Permittee has complied with its obligations under the HCP, this agreement, and the permit, the Service can require Permittee to provide mitigation beyond that provided for in the HCP only under unforeseen circumstances, and only in accordance with the “no surprises” rule at 50 C.F.R. §§ 17.22(b)(5), 17.32(b)(5), 222.22(g).

4.2.3 Covered activities with a federal nexus. The section 7 consultation and biological opinion (BO) on issuance of the Permittee’s permit will evaluate the impacts associated with covered activities, and will evaluate the HCP conservation measures and any reasonable and prudent measures, if necessary, to address the impacts and authorized take of Preble’s associated with such activities. This BO will contain the Service’s determination whether the covered activities would likely jeopardize the continued existence of Preble’s or result in the destruction or adverse modification of any designated critical habitat for such species under section 7(a)(2) of the ESA. Accordingly, from a procedural standpoint, when Permittee undertakes an individual covered activity that involves a federal action subject to section 7 of the ESA, the Service and action agency will determine whether the impacts of the proposed federal action associated with the covered activity on Preble’s have already been analyzed by the Service and authorized as part of the HCP. If they have, the Service will respond to the request for formal consultation with a letter explaining that no further consultation is necessary as the effects to Preble’s have already been analyzed in the BO on the HCP, and that the Permittee is in possession of a permit that covers take from the project.

4.3 Interim obligations upon a finding of unforeseen circumstances. If the Service makes a finding of unforeseen circumstances, during the period necessary to determine the nature and location of additional or modified mitigation, Permittee will avoid contributing to appreciably reducing the likelihood of the survival and recovery of the affected species.

5.0 INCORPORATION OF HCP

The HCP and each of its provisions are intended to be, and by this reference are, incorporated herein. In the event of any direct contradiction between the terms of this agreement and the HCP, the terms of this agreement will control. In all other cases, the terms of this agreement and the terms of the HCP will be interpreted to be supplementary to each other.

6.0 TERM

6.1 Initial Term. This agreement and the HCP will become effective on the date that the Service issues the permit. This agreement, the HCP, and the permit will remain in effect for a period of 10 years from issuance of the original permit, except as provided below.

6.2 Permit suspension or revocation. The Service may suspend or revoke the permit for cause (See 5 U.S.C. § 558; 50 C.F.R. §§ 13.27 - 13.29, 222.27; 15 C.F.R. Part 904) except that the Service may revoke the permit based on a determination that the continuation of the permitted activity would be likely to jeopardize the continued existence of the covered species only if the Service has not been successful in remedying the situation in a timely fashion through other means as provided in the no surprises rule (50 C.F.R. §§ 17.22(b)(5), 17.32(b)(5), 222.22(g)). Prior to proposing any suspension or revocation of the permit, the Service will meet and confer informally with the Permittee in an effort to resolve its grounds for concern. In the event of suspension or revocation, incidental take coverage for covered activities that have already been implemented pursuant to the minimization and mitigation measures in the HCP shall continue and be unaffected; Permittee's obligations under this agreement and the HCP will continue, however, until the Service determines, in collaboration with the Permittee, that all take of covered species that occurred under the permit has been fully mitigated in accordance with the HCP. Suspension or revocation may apply to the entire permit, or only to specified covered lands or covered activities. In the event of a partial suspension or revocation, the portion of the permit not subject to the suspension or revocation shall remain in full force and effect. The incidental take permits of the other HCP Participants also shall remain in full force and effect and shall be unaffected by those suspension or revocation procedures.

6.3 Withdrawal of participation. At any time during the term of the HCP, this agreement, and the permit, Permittee may choose to discontinue its participation under the HCP, this agreement and its permit by surrendering its permit in accordance with 50 C.F.R. § 13.26. Except as provided in section 6.3.1 below, the requirements of 50 C.F.R. § 17.32(a)(7) shall apply to any withdrawal of participation. These standards apply to subsections 6.3.1 and 6.3.2 below.

6.3.1. Withdrawal based on error in original listing of Preble's. If the withdrawal is based on delisting of Preble's due to error in its original listing, unrelated to recovery efforts or conservation measures in place at the time of delisting, Permittee shall at its option be relieved of all obligations under the HCP and permit. Should the Service finalize its proposal to delist due to error, the HCP will continue until such time as Permittee elects to discontinue the HCP and surrender its permit in accordance with 50 C.F.R. § 13.26. Permittee may contact the Service to discuss future conservation opportunities that may make use of the HCP prior to terminating activities under the HCP.

6.3.2. Withdrawal based on circumstances other than listing error. In the event of a withdrawal due to any circumstances other than those in 6.3.1 above, no subsequent protection or management of habitat lands shall be required of the Permittee except as required by 50 C.F.R. § 17.32(a)(7), as determined by the Service after consulting with the Permittee.

6.4 Extension of the permit. Upon agreement of the parties and compliance with all applicable laws, the permit may be extended beyond its initial term. If Permittee desires to extend its permit, it will so notify the Service at least one year before the then-current term is scheduled to expire. Extension of the permit constitutes extension of the HCP and this agreement for the same amount of time, subject to any modifications that the Service may require at the time of extension. Permittee will have the ability to carry forward any unused portion of its mitigation and total impact threshold under its permit into the next renewal time period.

7.0 FUNDING

Permittee warrants that it has, and will expend, consistent with section 7.2 of the HCP, such funds as may be necessary to fulfill its obligations under the HCP. Permittee will promptly notify the Service of any material change in Permittee's financial ability to fulfill its obligations. In addition to providing any such notice, Permittee will provide the Service with reasonably available financial information that the parties agree will provide adequate evidence of Permittee's ability to fulfill its obligations.

8.0 MONITORING AND REPORTING

8.1 Planned periodic reports. As described in the HCP, Permittee will submit reports annually describing its activities and results of the monitoring program provided for

in the HCP. This requirement may be satisfied by a single report submitted annually on behalf of all HCP Participants.

8.2 Other reports. Permittee will provide, within 30 days of being requested by the Service, any additional information in its possession or control related to implementation of the HCP that is requested by the Service for the purpose of assessing whether the terms and conditions of the permit and the HCP, including the HCP's adaptive management plan, are being fully implemented.

8.3 Certification of reports. All reports will include the following certification from a responsible official who supervised or directed preparation of the report:

I certify that, to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of this report, the information submitted is true, accurate, and complete.

8.4 Monitoring by Service. The Service may conduct inspections and monitoring in connection with the permit in accordance with its regulations. (See 50 C.F.R. §§ 13.47, 220.47)

9.0 CHANGED CIRCUMSTANCES

9.1 Permittee-initiated response to changed circumstances. Permittee will give notice to the Service within seven days after learning that any of the changed circumstances listed in section 7.3 of the HCP has occurred. As soon as practicable thereafter, Permittee will modify its activities in the manner described in section 7.3 of the HCP to the extent necessary to mitigate the effects of the changed circumstances on covered species, and will report to the Service on its actions. Permittee will make such modifications without awaiting notice from the Service.

9.2 Service-initiated response to changed circumstances. If the Service determines that changed circumstances have occurred and that Permittee has not responded in accordance with section 7.3 of the HCP, the Service will so notify Permittee and will direct Permittee to make the required changes. As soon as practicable thereafter, Permittee will make the required changes and report to the Service on its actions.

9.3 Effect of changed circumstances. Changed circumstances are provided for in the HCP and, hence, do not constitute unforeseen circumstances or require amendment of the permit or HCP. Changed circumstances do not constitute "new information" under 50 C.F.R. § 402.16 and, hence, the occurrence of changed circumstances does not require the reinitiation of formal consultation by the Service under section 7 of the ESA on its action

of issuing the permit. As long as Permittee is in compliance with its permit and the requirements of section 7.3 of the HCP, the Service shall not require any conservation or mitigation measures or funding by the Permittee in response to changed circumstances other than those measures specified in section 7.3.

9.4 Effect of unforeseen circumstances. In the event that it is demonstrated by the Service that unforeseen circumstances arise during the life of the permit, and additional conservation and mitigation measures are deemed necessary to respond to unforeseen circumstances, adjustments to the HCP may be proposed by the Permittee or the Service to address those circumstances. The Service and Permittee would work together to redirect resources to address unforeseen circumstances. Notwithstanding the foregoing, however, provided the Permittee is in good faith implementing the HCP, the Service shall not: (A) require the commitment of any additional land, water, or financial compensation by the Permittee without the consent of the Permittee; or (B) impose additional restrictions on the use of land, water, or natural resources otherwise available for use by the Permittee under the original terms of the HCP, including additional restrictions on the permitted activities or additional requirements related to the RCZ. Notwithstanding the occurrence of unforeseen circumstances, as long as the Permittee maintains compliance with the requirements of its permit and the requirements of the HCP and any additional measures developed in accordance with this section, the permit will remain in full force and effect.

10.0 ADAPTIVE MANAGEMENT

10.1 Permittee-initiated adaptive management. Permittee will implement the adaptive management provisions in section 6.6 of the HCP when changes in management practices are necessary to achieve the HCP's biological objectives, or to respond to monitoring results or new scientific information. Permittee will make such changes without awaiting notice from the Service, and will report to the Service on any actions taken pursuant to this section.

10.2 Service-initiated adaptive management. If the Service determines that one or more of the adaptive management provisions in the HCP have been triggered and that Permittee has not changed its management practices in accordance with section 6.6 of the HCP, the Service will so notify Permittee and will direct Permittee to make the required changes. As soon as practicable thereafter, Permittee will make the required changes and report to the Service on its actions. Such changes are provided for in the HCP, and hence do not constitute unforeseen circumstances or require amendment of the permit or HCP, except as provided in this section.

10.3 Reductions in mitigation. Permittee will not implement adaptive management changes that may result in less mitigation than provided for covered species

under the original terms of the HCP, unless the Service first provides written approval. Permittee may propose any such adaptive management changes by notice to the Service, specifying the adaptive management modifications proposed, the basis for them, including supporting data, and the anticipated effects on covered species, and other environmental impacts. Within 120 days of receiving such a notice, the Service will either approve the proposed adaptive management changes, approve them as modified by the Service, or notify Permittee that the proposed changes constitute permit amendments that must be reviewed under section 12.2 of this agreement.

10.4 No increase in take. This section does not authorize any modifications that would result in an increase in the amount and nature of take, or increase the impacts of take, of covered species beyond that analyzed under the original HCP and any amendments thereto. Any such modification must be reviewed as a permit amendment under section 12.2 of this agreement, and is addressed in section 7.6.2 of the HCP.

11.0 LAND TRANSACTIONS

11.1 Acquisition of land by Permittee. Nothing in this agreement, the HCP, or the permit limits Permittee's right to acquire additional lands. Lands that may be acquired may, upon prior approval of the Service, serve as additional or substitute mitigation lands and shall be processed as minor modifications in accordance with section 12.1 of this agreement provided such lands meet the criteria in section 7.6.1.4 of the HCP.

11.2 Disposal of land by Permittee. Permittee's transfer of ownership or control of mitigation land will require prior approval by the Service and an amendment of the permit in accordance with section 12.2 of this agreement, except that transfers of mitigation lands may be processed as minor modifications in accordance with section 12.1 of this agreement if:

(a) The land will be transferred to an agency of the federal government and, prior to transfer, the Service has determined that transfer will not compromise the effectiveness of the HCP based on adequate commitments by that agency regarding management of such land; or

(b) The land will be transferred to a non-federal entity that has entered into an agreement acceptable to the Service (e.g., an easement held by the state fish and wildlife agency with the Service as third-party beneficiary) to ensure that the lands will be managed in such a manner and for such duration so as not to compromise the effectiveness of the HCP; or

(c) The land will be transferred to a non-federal entity that, prior to completion of the land transaction, has agreed to be bound by the HCP as it applies to the transferred land and has obtained an incidental take permit following normal permit procedures covering all species then covered by the Permittee's permit; or

(d) The land to be transferred will be substituted with mitigation land that affords a level of mitigation benefits consistent with those of the original lands, is within the RCZ and does not adversely affect Preble's; or

(e) The Service determines that the amount of land to be transferred does not exceed 113 acres and will not have a material impact on the ability of the Permittee to comply with the requirements of the HCP and the terms and conditions of the permit.

12.0 MODIFICATIONS AND AMENDMENTS

12.1 Minor modifications.

(a) Either party may propose minor modifications to the HCP or this agreement by providing notice to the other party. Such notice shall include a statement of the reason for the proposed modification and an analysis of its environmental effects, including its effects on operations under the HCP and on covered species. The parties will use best efforts to respond to proposed modifications within 60 days of receipt of such notice. Proposed modifications will become effective upon the other party's written approval and will not necessitate amendment of the permit. If, for any reason, a receiving party objects to a proposed modification, it must be processed as an amendment of the permit in accordance with subsection 12.2 of this section. The Service will not propose or approve minor modifications to the HCP or this agreement if the Service determines that such modifications would result in operations under the HCP that are significantly different from those analyzed in connection with the original HCP, adverse effects on the environment that are new or significantly different from those analyzed in connection with the original HCP, or additional take not analyzed in connection with the original HCP.

(b) Minor modifications to the HCP processed pursuant to this subsection may include but are not limited to the following:

(1) corrections of typographic, grammatical, and similar editing errors that do not change the intended meaning (see HCP section 7.6.1.1);

(2) corrections of any maps or exhibits to correct errors in mapping or to reflect previously approved changes in the permit or HCP (see HCP section 7.6.1.2);

- (3) minor changes to survey, monitoring or reporting protocols;
 - (4) substitutions of covered activities (see section 7.6.1.3 of the HCP);
 - (5) additions, transfer of ownership and substitutions of mitigation lands (see section 11 of this agreement and section 7.6.1.4 of the HCP);
 - (6) adjustments that may need to be made as a result of adaptive management under the HCP; and
 - (7) other types of modifications that are minor in relation to the HCP, that the Service has analyzed and agreed to, and on which the public has had an opportunity to comment.
- (c) Material changes to the HCP pursuant to section 7.6.2 of the HCP will be processed as amendments of the permit in accordance with subsection 12.2 of this section.

12.2 Amendment of the permit. The permit may be amended in accordance with all applicable legal requirements, including but not limited to the ESA, the National Environmental Policy Act, and the Service's permit regulations. The party proposing the amendment shall provide a statement of the reasons for the amendment and an analysis of its environmental effects, including its effects on operations under the HCP and on covered species.

13.0 REMEDIES, ENFORCEMENT, AND DISPUTE RESOLUTION

13.1 In general. Except as set forth below, each party shall have all remedies otherwise available to enforce the terms of this agreement, the permit, and the HCP.

13.2 No monetary damages. No party shall be liable in damages to any other party, HCP Participant, or other person for any breach of this agreement, any performance or failure to perform a mandatory or discretionary obligation imposed by this agreement or any other cause of action arising from this agreement.

13.3 Enforcement authority of the United States. Nothing contained in this agreement is intended to limit the authority of the United States government to seek civil or criminal penalties or otherwise fulfill its enforcement responsibilities under the ESA or other applicable law.

13.4 Dispute resolution. The parties recognize that disputes concerning implementation of, compliance with, or termination of this agreement, the HCP, and the permit may arise from time to time. The parties agree to work together in good faith to resolve such disputes, using the informal dispute resolution procedures set forth in this section, or such other procedures upon which the parties may later agree. However, if at any time any party determines that circumstances so warrant, it may seek any available remedy without waiting to complete informal dispute resolution.

13.4.1 Informal dispute resolution process. Unless the parties agree upon another dispute resolution process, or unless an aggrieved party has initiated administrative proceedings or suit in federal court as provided in this section, the parties may use the following process to attempt to resolve disputes:

(a) The aggrieved party will notify the other party and HCP Participants of the provision that may have been violated, the basis for contending that a violation has occurred, and the remedies it proposes to correct the alleged violation.

(b) The party alleged to be in violation will have 30 days, or such other time as may be agreed, to respond. During this time it may seek clarification of the information provided in the initial notice. The aggrieved party will use its best efforts to provide any information then available to it that may be responsive to such inquiries.

(c) Within 30 days after such response was provided or was due, representatives of the parties having authority to resolve the dispute will meet and negotiate in good faith toward a solution satisfactory to all parties, or will establish a specific process and timetable to seek such a solution.

(d) If any issues cannot be resolved through such negotiations, the parties will consider non-binding mediation and other alternative dispute resolution processes and, if a dispute resolution process is agreed upon, will make good faith efforts to resolve all remaining issues through that process.

14.0 MISCELLANEOUS PROVISIONS

14.1 No partnership. Neither this agreement nor the HCP shall make or be deemed to make any party to this agreement the agent for or the partner of any other party.

14.2 Notices. Any notice permitted or required by this agreement shall be in writing, delivered personally to the persons listed below, or shall be deemed given five (5) days after deposit in the United States mail, certified and postage prepaid, return receipt requested and addressed as follows, or at such other address as any party may from time

to time specify to the other parties in writing. Notices may be delivered by facsimile or other electronic means, provided that they are also delivered personally or by certified mail. Notices shall be transmitted so that they are received within the specified deadlines.

Regional Director
United States Fish and Wildlife Service
134 Union Blvd., Suite 550
P.O. Box 25486-DFC
Lakewood, Colorado 80228-1807
Telephone: 303-236-7920
Fax: 303-236-8295

Permittee:
Town of Castle Rock
Attn: Mark Stevens, Town Manager
100 Wilcox Street
Castle Rock, CO 80104
303-660-1374
303-660-1024 (fax)

AND

HCP Participant:
Board of County Commissioners of Douglas County, Colorado
100 Third Street
Castle Rock, Colorado 80104
303-660-7401
303-688-1293 (fax)

AND

HCP Participant:
Town of Parker
Attn: Jeannene Bragg, Town Administrator
20120 E. Mainstreet
Parker, CO 80138
303-841-0353
303-805-3153

14.3. Severability. The terms and conditions of the permit and HCP shall be deemed severable, and if any term or condition of the permit or HCP shall be held invalid, illegal or unenforceable by a federal court, after exhaustion of available appeals, the

remainder shall continue to be effective and binding upon the Service and the Permittee. Any lawsuit brought pursuant to the citizen suit provision of the ESA against Permittee to enforce an individual covered activity's compliance with the ESA shall have no effect on the provisions of the HCP and permit or on other covered activities not subject to such proceeding, which shall remain in full force and effect.

14.4 Effect of agreement. This agreement is dependent upon the continued validity of the HCP and permit and has no independent legal force and effect in the absence of those documents.

14.5 Non-waiver of rights. By participating in the HCP, signing this agreement, and accepting the permit, Permittee shall not be deemed to have waived or relinquished any right to challenge the legal, scientific, or technical validity of the Service determinations related to Preble's including, but not limited to, the listing status, critical habitat designations, habitat needs, or conservation and recovery standards applicable to Preble's.

14.6 Entire agreement. This agreement, together with the HCP and the permit, constitutes the entire agreement among the parties. It supersedes any and all other agreements, either oral or in writing, among the parties with respect to the subject matter hereof and contains all of the covenants and agreements among them with respect to said matters, and each party acknowledges that no representation, inducement, promise or agreement, oral or otherwise, has been made by any other party or anyone acting on behalf of any other party that is not embodied herein.

14.7 Elected officials not to benefit. No member of or delegate to Congress shall be entitled to any share or part of this agreement, or to any benefit that may arise from it.

14.8 Availability of funds. Implementation of this agreement and the HCP by the Service is subject to the requirements of the Anti-Deficiency Act and the availability of appropriated funds. Nothing in this agreement will be construed by the parties to require the obligation, appropriation, or expenditure of any money from the U.S. Treasury. The parties acknowledge that the Service will not be required under this agreement to expend any federal agency's appropriated funds unless and until an authorized official of that agency affirmatively acts to commit to such expenditures as evidenced in writing.

14.9 Duplicate originals. This agreement may be executed in any number of duplicate originals. A complete original of this agreement shall be maintained in the official records of each of the parties hereto.

14.10 No third-party beneficiaries. Without limiting the applicability of rights granted to the public pursuant to the ESA or other federal law, this agreement shall not

create any right or interest in the public, or any member thereof, as a third-party beneficiary hereof, nor shall it authorize anyone not a party to this agreement to maintain a suit for personal injuries or damages pursuant to the provisions of this agreement. The duties, obligations, and responsibilities of the parties to this agreement with respect to third parties shall remain as imposed under existing law.

14.11 Relationship to the ESA and other authorities. The terms of this agreement shall be governed by and construed in accordance with the ESA and applicable federal law. In particular, nothing in this agreement is intended to limit the authority of the Service to seek penalties or otherwise fulfill its responsibilities under the ESA. Moreover, nothing in this agreement is intended to limit or diminish the legal obligations and responsibilities of the Service as an agency of the federal government. Nothing in this agreement will limit the right or obligation of any federal agency to engage in consultation required under section 7 of the ESA or other federal law; however, it is intended that the rights and obligations of Permittee under the HCP and this agreement will be considered in any consultation affecting Permittee's use of the covered lands.

14.12 References to regulations. Any reference in this agreement, the HCP, or the permit to any regulation or rule of the Service shall be deemed to be a reference to such regulation or rule in existence at the time an action is taken.

14.13 Applicable laws. All activities undertaken pursuant to this agreement, the HCP, and the permit must be in compliance with all applicable state and federal laws and regulations. This agreement, the HCP, and the permit shall be governed by the ESA and implementing regulations as the same exist on their effective date. Any reference in this agreement, the HCP, or the permit to any provision of the ESA or to any regulation or rule of the Service shall be deemed to be a reference to such statute, regulation or rule in existence as of the effective date. If federal statutes are enacted or rules or regulations are issued by the Service after the effective date that conflict with any provision of this agreement, the HCP, or permit, the provisions of the agreement, HCP, and permit shall control and continue to govern the rights and obligations of the Permittee and the Service.

14.14 Successors and assigns. This agreement and each of its covenants and conditions shall be binding on and shall inure to the benefit of the parties and their respective successors and assigns. Assignment or other transfer of the permit shall be governed by the Service's regulations in force at the time.

IN WITNESS WHEREOF, THE PARTIES HERETO have executed this Implementing Agreement to be in effect as of the date that the Service issues the permit.

BY

James Cook

Date 5-11-06

Deputy

Regional Director, Rocky Mountain Region
United States Fish and Wildlife Service
Lakewood, Colorado

BY

Ray Waterman

Date 4-14-06

Town of Castle Rock

U.S. FISH & WILDLIFE SER.
ECOLOGICAL SERVICES

MAY -2 06

IMPLEMENTING AGREEMENT

for the

DOUGLAS COUNTY HABITAT CONSERVATION PLAN

for

THE TOWN OF PARKER

April 3, 2006

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1.0 PARTIES

The parties to this Implementing Agreement are the Town of Parker (Permittee) and the United States Fish and Wildlife Service (Service).

2.0 RECITALS AND PURPOSES

2.1 Recitals. The parties have entered into this agreement in consideration of the following facts:

(a) The Riparian Conservation Zone (RCZ) within Douglas County has been determined to provide, or potentially provide, habitat for the Preble's meadow jumping mouse, *Zapus hudsonius preblei* (Preble's), currently listed as a threatened subspecies under the Endangered Species Act (ESA); and

(b) Permittee, in conjunction with Douglas County and the Town of Castle Rock, has developed a series of measures, described in the habitat conservation plan (HCP), to avoid, minimize and mitigate to the maximum extent practicable the effects of take of Preble's incidental to the covered activities undertaken by Permittee, the County and the Town of Castle Rock.

2.2 Purposes. The purposes of this agreement are:

(a) To ensure implementation of each of the terms of the HCP;

(b) To describe remedies and recourse should any party fail to perform its obligations as set forth in this agreement; and,

(c) To provide assurances to Permittee that as long as the terms of the HCP, the permit, and this agreement are performed, no additional mitigation will be required of Permittee with respect to covered species, except as provided for in this agreement or required by law.

3.0 DEFINITIONS

The following terms as used in this agreement will have the meanings set forth below:

3.1 Terms defined in Endangered Species Act. Terms used in this agreement and specifically defined in the ESA or in regulations adopted by the Service under the ESA have the same meaning as in the ESA and those implementing regulations, unless this agreement expressly provides otherwise.

3.2 “Changed circumstances” means changes in circumstances affecting a covered species or the geographic area covered by the HCP that can reasonably be anticipated by the parties to the HCP and that can reasonably be planned for in the HCP (e.g. the listing of a new species, or a fire or other natural catastrophic event in areas prone to such event.) Changed circumstances and the planned responses to those circumstances are described in section 7.3 of the HCP. Changed circumstances are not unforeseen circumstances.

3.3 “Covered activities” means certain activities carried out by Permittee and by the other HCP Participants on covered lands that may result in incidental take of covered species. Covered activities means those activities to be conducted by the Permittee and by the other HCP Participants within the RCZ as identified in Appendix 3 of the HCP or as may be substituted for those activities pursuant to section 7.6.1.3 of the HCP.

3.4 “Covered lands” means the areas of delineated potential Preble’s habitat along approximately 283 miles of streams in Douglas County, Colorado referred to as the RCZ. The RCZ establishes the geographic limits of Preble’s habitat on non-federal lands in Douglas County and is the area upon which the permit authorizes incidental take of covered species and the area to which the HCP’s conservation and mitigation measures apply. These lands are described in Appendix 1 of the HCP. Activities conducted by the Permittee that occur outside the RCZ will not result in incidental take of Preble’s.

3.5 “Covered species” means the subspecies Preble’s, which the HCP addresses in a manner sufficient to meet all of the criteria for issuing an incidental take permit under ESA section 10(a)(1)(B).

3.6 “HCP” means the Douglas County Habitat Conservation Plan prepared by Permittee and other HCP Participants for certain activities to be conducted on covered lands in Douglas County, Colorado.

3.7 “HCP Participants” means Permittee, Douglas County and the Town of Castle Rock, who have developed and are implementing the HCP.

3.8 “Listed species” means a species (including a subspecies, or a distinct population segment of a vertebrate species) that is listed as endangered or threatened under the ESA.

3.9 “Permit” means the incidental take permit issued by the Service to Permittee pursuant to section 10(a)(1)(B) of the ESA for take incidental to covered activities in Douglas County, as it may be amended from time to time.

3.10 “Permittee” as used in this agreement means the Town of Parker. The Board of County Commissioners of Douglas County, Colorado and the Town of Castle Rock will each execute a separate implementing agreement and receive a separate permit.

3.11 “Take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect any listed or unlisted covered species. Harm means an act that actually kills or injures a member of a covered species, including an act that causes significant habitat modification or degradation where it actually kills or injures a member of a covered species by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

3.12 “Unforeseen circumstances” means changes in circumstances affecting a species or geographic area covered by an HCP that could not reasonably have been anticipated by plan developers and the Service at the time of the conservation plan’s negotiation and development, and that result in a substantial and adverse change in the status of the covered species.

4.0 OBLIGATIONS OF THE PARTIES

4.1 Obligations of Permittee; methodology to determine compliance. Permittee will fully and faithfully perform all obligations assigned to it under this agreement, its permit, and the HCP. Permittee will be deemed in compliance with its obligations if the commitments in section 7.1 of the HCP have been or are being implemented in substantial conformity with their terms. During the life of the permit, the Permittee and other HCP Participants may on a collective basis impact up to 430 acres of the RCZ. This total impact threshold includes 280 acres of permanent impacts, 122 of temporary impacts, and 28 acres of emergency impacts to the RCZ, with resulting incidental take of Preble’s, in conjunction with the covered activities. The Permittee and Service shall adhere to the methodology set forth in Chapter 4 of the HCP for determining impacts to Preble’s and its habitat, and for quantifying incidental take of Preble’s, associated with the covered activities. Covered activities may be conducted on areas of the preserved RCZ used for mitigation of the covered activities (HCP section 5.3) and on previously designated mitigation lands pursuant to the requirements of section 4.1.4.1 of the HCP.

4.2 Obligations of the Service. Upon execution of this agreement and satisfaction of all other applicable legal requirements, the Service will issue Permittee a permit under section 10(a)(1)(B) of the ESA, authorizing incidental take by Permittee of the covered species resulting from covered activities on covered lands.

4.2.1 Permit coverage. The permit will identify all covered species. The permit will take effect for listed covered species at the time the permit is issued.

4.2.2 “No surprises” assurances. Provided that Permittee has complied with its obligations under the HCP, this agreement, and the permit, the Service can require Permittee to provide mitigation beyond that provided for in the HCP only under unforeseen circumstances, and only in accordance with the “no surprises” rule at 50 C.F.R. §§ 17.22(b)(5), 17.32(b)(5), 222.22(g).

4.2.3 Covered activities with a federal nexus. The section 7 consultation and biological opinion (BO) on issuance of the Permittee’s permit will evaluate the impacts associated with covered activities, and will evaluate the HCP conservation measures and any reasonable and prudent measures, if necessary, to address the impacts and authorized take of Preble’s associated with such activities. This BO will contain the Service’s determination whether the covered activities would likely jeopardize the continued existence of Preble’s or result in the destruction or adverse modification of any designated critical habitat for such species under section 7(a)(2) of the ESA. Accordingly, from a procedural standpoint, when Permittee undertakes an individual covered activity that involves a federal action subject to section 7 of the ESA, the Service and action agency will determine whether the impacts of the proposed federal action associated with the covered activity on Preble’s have already been analyzed by the Service and authorized as part of the HCP. If they have, the Service will respond to the request for formal consultation with a letter explaining that no further consultation is necessary as the effects to Preble’s have already been analyzed in the BO on the HCP, and that the Permittee is in possession of a permit that covers take from the project.

4.3 Interim obligations upon a finding of unforeseen circumstances. If the Service makes a finding of unforeseen circumstances, during the period necessary to determine the nature and location of additional or modified mitigation, Permittee will avoid contributing to appreciably reducing the likelihood of the survival and recovery of the affected species.

5.0 INCORPORATION OF HCP

The HCP and each of its provisions are intended to be, and by this reference are, incorporated herein. In the event of any direct contradiction between the terms of this agreement and the HCP, the terms of this agreement will control. In all other cases, the terms of this agreement and the terms of the HCP will be interpreted to be supplementary to each other.

6.0 TERM

6.1 Initial Term. This agreement and the HCP will become effective on the date that the Service issues the permit. This agreement, the HCP, and the permit will remain in effect for a period of 10 years from issuance of the original permit, except as provided below.

6.2 Permit suspension or revocation. The Service may suspend or revoke the permit for cause (See 5 U.S.C. § 558; 50 C.F.R. §§ 13.27 - 13.29, 222.27; 15 C.F.R. Part 904) except that the Service may revoke the permit based on a determination that the continuation of the permitted activity would be likely to jeopardize the continued existence of the covered species only if the Service has not been successful in remedying the situation in a timely fashion through other means as provided in the no surprises rule (50 C.F.R. §§ 17.22(b)(5), 17.32(b)(5), 222.22(g)). Prior to proposing any suspension or revocation of the permit, the Service will meet and confer informally with the Permittee in an effort to resolve its grounds for concern. In the event of suspension or revocation, incidental take coverage for covered activities that have already been implemented pursuant to the minimization and mitigation measures in the HCP shall continue and be unaffected; Permittee's obligations under this agreement and the HCP will continue, however, until the Service determines, in collaboration with the Permittee, that all take of covered species that occurred under the permit has been fully mitigated in accordance with the HCP. Suspension or revocation may apply to the entire permit, or only to specified covered lands or covered activities. In the event of a partial suspension or revocation, the portion of the permit not subject to the suspension or revocation shall remain in full force and effect. The incidental take permits of the other HCP Participants also shall remain in full force and effect and shall be unaffected by those suspension or revocation procedures.

6.3 Withdrawal of participation. At any time during the term of the HCP, this agreement, and the permit, Permittee may choose to discontinue its participation under the HCP, this agreement and its permit by surrendering its permit in accordance with 50 C.F.R. § 13.26. Except as provided in section 6.3.1 below, the requirements of 50 C.F.R. § 17.32(a)(7) shall apply to any withdrawal of participation. Withdrawal of one or more of the other HCP Participants will not affect the validity of the HCP, this agreement, or Permittee's permit, provided Permittee remains a participant. These standards apply to subsections 6.3.1 and 6.3.2 below.

6.3.1. Withdrawal based on error in original listing of Preble's. If the withdrawal is based on delisting of Preble's due to error in its original listing, unrelated to recovery efforts or conservation measures in place at the time of delisting, Permittee shall at its option be relieved of all obligations under the HCP and permit. Should the Service

finalize its proposal to delist due to error, the HCP will continue until such time as Permittee elects to discontinue the HCP and surrender its permit in accordance with 50 C.F.R. § 13.26. Permittee may contact the Service to discuss future conservation opportunities that may make use of the HCP prior to terminating activities under the HCP.

6.3.2. Withdrawal based on circumstances other than listing error. In the event of a withdrawal due to any circumstances other than those in 6.3.1 above, no subsequent protection or management of habitat lands shall be required of the Permittee except as required by 50 C.F.R. § 17.32(a)(7), as determined by the Service after consulting with the Permittee.

6.4 Extension of the permit. Upon agreement of the parties and compliance with all applicable laws, the permit may be extended beyond its initial term. If Permittee desires to extend its permit, it will so notify the Service at least one year before the then-current term is scheduled to expire. Extension of the permit constitutes extension of the HCP and this agreement for the same amount of time, subject to any modifications that the Service may require at the time of extension. Permittee will have the ability to carry forward any unused portion of its mitigation and total impact threshold under its permit into the next renewal time period.

7.0 FUNDING

Permittee warrants that it has, and will expend, consistent with section 7.2 of the HCP, such funds as may be necessary to fulfill its obligations under the HCP. Permittee will promptly notify the Service of any material change in Permittee's financial ability to fulfill its obligations. In addition to providing any such notice, Permittee will provide the Service with reasonably available financial information that the parties agree will provide adequate evidence of Permittee's ability to fulfill its obligations.

8.0 MONITORING AND REPORTING

8.1 Planned periodic reports. As described in the HCP, Permittee will submit reports annually describing its activities and results of the monitoring program provided for in the HCP. This requirement may be satisfied by a single report submitted annually on behalf of all HCP Participants.

8.2 Other reports. Permittee will provide, within 30 days of being requested by the Service, any additional information in its possession or control related to implementation of the HCP that is requested by the Service for the purpose of assessing whether the terms and conditions of the permit and the HCP, including the HCP's adaptive management plan, are being fully implemented.

8.3 Certification of reports. All reports will include the following certification from a responsible official who supervised or directed preparation of the report:

I certify that, to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of this report, the information submitted is true, accurate, and complete.

8.4 Monitoring by Service. The Service may conduct inspections and monitoring in connection with the permit in accordance with its regulations. (See 50 C.F.R. §§ 13.47, 220.47.)

9.0 CHANGED CIRCUMSTANCES

9.1 Permittee-initiated response to changed circumstances. Permittee will give notice to the Service within seven days after learning that any of the changed circumstances listed in section 7.3 of the HCP has occurred. As soon as practicable thereafter, Permittee will modify its activities in the manner described in section 7.3 of the HCP to the extent necessary to mitigate the effects of the changed circumstances on covered species, and will report to the Service on its actions. Permittee will make such modifications without awaiting notice from the Service.

9.2 Service-initiated response to changed circumstances. If the Service determines that changed circumstances have occurred and that Permittee has not responded in accordance with section 7.3 of the HCP, the Service will so notify Permittee and will direct Permittee to make the required changes. As soon as practicable thereafter, Permittee will make the required changes and report to the Service on its actions.

9.3 Effect of changed circumstances. Changed circumstances are provided for in the HCP and, hence, do not constitute unforeseen circumstances or require amendment of the permit or HCP. Changed circumstances do not constitute "new information" under 50 C.F.R. § 402.16 and, hence, the occurrence of changed circumstances does not require the reinitiation of formal consultation by the Service under section 7 of the ESA on its action of issuing the permit. As long as Permittee is in compliance with its permit and the requirements of section 7.3 of the HCP, the Service shall not require any conservation or mitigation measures or funding by the Permittee in response to changed circumstances other than those measures specified in section 7.3.

9.4 Effect of unforeseen circumstances. In the event that it is demonstrated by the Service that unforeseen circumstances arise during the life of the permit, and additional conservation and mitigation measures are deemed necessary to respond to unforeseen circumstances, adjustments to the HCP may be proposed by the Permittee or

the Service to address those circumstances. The Service and Permittee would work together to redirect resources to address unforeseen circumstances. Notwithstanding the foregoing, however, provided the Permittee is in good faith implementing the HCP, the Service shall not: (A) require the commitment of any additional land, water, or financial compensation by the Permittee without the consent of the Permittee; or (B) impose additional restrictions on the use of land, water, or natural resources otherwise available for use by the Permittee under the original terms of the HCP, including additional restrictions on the permitted activities or additional requirements related to the RCZ. Notwithstanding the occurrence of unforeseen circumstances, as long as the Permittee maintains compliance with the requirements of its permit and the requirements of the HCP and any additional measures developed in accordance with this section, the permit will remain in full force and effect.

10.0 ADAPTIVE MANAGEMENT

10.1 Permittee-initiated adaptive management. Permittee will implement the adaptive management provisions in section 6.5 of the HCP when changes in management practices are necessary to achieve the HCP's biological objectives, or to respond to monitoring results or new scientific information. Permittee will make such changes without awaiting notice from the Service, and will report to the Service on any actions taken pursuant to this section.

10.2 Service-initiated adaptive management. If the Service determines that one or more of the adaptive management provisions in the HCP have been triggered and that Permittee has not changed its management practices in accordance with section 6.5 of the HCP, the Service will so notify Permittee and will direct Permittee to make the required changes. As soon as practicable thereafter, Permittee will make the required changes and report to the Service on its actions. Such changes are provided for in the HCP, and hence do not constitute unforeseen circumstances or require amendment of the permits or HCP, except as provided in this section.

10.3 Reductions in mitigation. Permittee will not implement adaptive management changes that may result in less mitigation than provided for covered species under the original terms of the HCP, unless the Service first provides written approval. Permittee may propose any such adaptive management changes by notice to the Service, specifying the adaptive management modifications proposed, the basis for them, including supporting data, and the anticipated effects on covered species, and other environmental impacts. Within 120 days of receiving such a notice, the Service will either approve the proposed adaptive management changes, approve them as modified by the Service, or notify Permittee that the proposed changes constitute permit amendments that must be reviewed under section 12.2 of this agreement.

10.4 No increase in take. This section does not authorize any modifications that would result in an increase in the amount and nature of take, or increase the impacts of take, of covered species beyond that analyzed under the original HCP and any amendments thereto. Any such modification must be reviewed as a permit amendment under section 12.2 of this agreement, and is addressed in section 7.6.2 of the HCP.

11.0 LAND TRANSACTIONS

11.1 Acquisition of land by Permittee. Nothing in this agreement, the HCP, or the permit limits Permittee's right to acquire additional lands. Lands that may be acquired may, upon prior approval of the Service, serve as additional or substitute mitigation lands and shall be processed as minor modifications in accordance with section 12.1 of this agreement provided such lands meet the criteria in section 7.6.1.4 of the HCP.

11.2 Disposal of land by Permittee. Permittee's transfer of ownership or control of mitigation land will require prior approval by the Service and an amendment of the permit in accordance with section 12.2 of this agreement, except that transfers of mitigation lands may be processed as minor modifications in accordance with section 12.1 of this agreement if:

(a) The land will be transferred to an agency of the federal government and, prior to transfer, the Service has determined that transfer will not compromise the effectiveness of the HCP based on adequate commitments by that agency regarding management of such land; or

(b) The land will be transferred to a non-federal entity that has entered into an agreement acceptable to the Service (e.g., an easement held by the state fish and wildlife agency with the Service as third-party beneficiary) to ensure that the lands will be managed in such a manner and for such duration so as not to compromise the effectiveness of the HCP; or

(c) The land will be transferred to a non-federal entity that, prior to completion of the land transaction, has agreed to be bound by the HCP as it applies to the transferred land and has obtained an incidental take permit following normal permit procedures covering all species then covered by the Permittee's permit; or

(d) The land to be transferred will be substituted with mitigation land that affords a level of mitigation benefits consistent with those of the original lands, is within the RCZ and does not adversely affect Preble's; or

(e) The Service determines that the amount of land to be transferred does not exceed 113 acres and will not have a material impact on the ability of the Permittee to comply with the requirements of the HCP and the terms and conditions of the permit.

12.0 MODIFICATIONS AND AMENDMENTS

12.1 Minor modifications.

(a) Either party may propose minor modifications to the HCP or this agreement by providing notice to the other party. Such notice shall include a statement of the reason for the proposed modification and an analysis of its environmental effects, including its effects on operations under the HCP and on covered species. The parties will use best efforts to respond to proposed modifications within 60 days of receipt of such notice. Proposed modifications will become effective upon the other party's written approval and will not necessitate amendment of the permit. If, for any reason, a receiving party objects to a proposed modification, it must be processed as an amendment of the permit in accordance with subsection 12.2 of this section. The Service will not propose or approve minor modifications to the HCP or this agreement if the Service determines that such modifications would result in operations under the HCP that are significantly different from those analyzed in connection with the original HCP, adverse effects on the environment that are new or significantly different from those analyzed in connection with the original HCP, or additional take not analyzed in connection with the original HCP.

(b) Minor modifications to the HCP processed pursuant to this subsection may include but are not limited to the following:

(1) corrections of typographic, grammatical, and similar editing errors that do not change the intended meaning (see HCP section 7.6.1.1);

(2) corrections of any maps or exhibits to correct errors in mapping or to reflect previously approved changes in the permit or HCP (see HCP section 7.6.1.2);

(3) minor changes to survey, monitoring or reporting protocols;

(4) substitutions of covered activities (see section 7.6.1.3 of the HCP);

(5) additions, transfer of ownership and substitutions of mitigation lands (see section 11 of this agreement and section 7.6.1.4 of the HCP);

(6) adjustments that may need to be made as a result of adaptive management under the HCP; and

(7) other types of modifications that are minor in relation to the HCP, that the Service has analyzed and agreed to, and on which the public has had an opportunity to comment.

(c) Material changes to the HCP pursuant to section 7.6.2 of the HCP will be processed as amendments of the permit in accordance with subsection 12.2 of this section.

12.2 Amendment of the permit. The permit may be amended in accordance with all applicable legal requirements, including but not limited to the ESA, the National Environmental Policy Act, and the Service's permit regulations. The party proposing the amendment shall provide a statement of the reasons for the amendment and an analysis of its environmental effects, including its effects on operations under the HCP and on covered species.

13.0 REMEDIES, ENFORCEMENT, AND DISPUTE RESOLUTION

13.1 In general. Except as set forth below, each party shall have all remedies otherwise available to enforce the terms of this agreement, the permit, and the HCP.

13.2 No monetary damages. No party shall be liable in damages to any other party, HCP Participant, or other person for any breach of this agreement, any performance or failure to perform a mandatory or discretionary obligation imposed by this agreement or any other cause of action arising from this agreement.

13.3 Enforcement authority of the United States. Nothing contained in this agreement is intended to limit the authority of the United States government to seek civil or criminal penalties or otherwise fulfill its enforcement responsibilities under the ESA or other applicable law.

13.4 Dispute resolution. The parties recognize that disputes concerning implementation of, compliance with, or termination of this agreement, the HCP, and the permit may arise from time to time. The parties agree to work together in good faith to resolve such disputes, using the informal dispute resolution procedures set forth in this section, or such other procedures upon which the parties may later agree. However, if at any time any party determines that circumstances so warrant, it may seek any available remedy without waiting to complete informal dispute resolution.

13.4.1 Informal dispute resolution process. Unless the parties agree upon another dispute resolution process, or unless an aggrieved party has initiated administrative proceedings or suit in federal court as provided in this section, the parties may use the following process to attempt to resolve disputes:

(a) The aggrieved party will notify the other party and HCP Participants of the provision that may have been violated, the basis for contending that a violation has occurred, and the remedies it proposes to correct the alleged violation.

(b) The party alleged to be in violation will have 30 days, or such other time as may be agreed, to respond. During this time it may seek clarification of the information provided in the initial notice. The aggrieved party will use its best efforts to provide any information then available to it that may be responsive to such inquiries.

(c) Within 30 days after such response was provided or was due, representatives of the parties having authority to resolve the dispute will meet and negotiate in good faith toward a solution satisfactory to all parties, or will establish a specific process and timetable to seek such a solution.

(d) If any issues cannot be resolved through such negotiations, the parties will consider non-binding mediation and other alternative dispute resolution processes and, if a dispute resolution process is agreed upon, will make good faith efforts to resolve all remaining issues through that process.

14.0 MISCELLANEOUS PROVISIONS

14.1 No partnership. Neither this agreement nor the HCP shall make or be deemed to make any party to this agreement the agent for or the partner of any other party.

14.2 Notices. Any notice permitted or required by this agreement shall be in writing, delivered personally to the persons listed below, or shall be deemed given five (5) days after deposit in the United States mail, certified and postage prepaid, return receipt requested and addressed as follows, or at such other address as any party may from time to time specify to the other parties in writing. Notices may be delivered by facsimile or other electronic means, provided that they are also delivered personally or by certified mail. Notices shall be transmitted so that they are received within the specified deadlines.

Regional Director
United States Fish and Wildlife Service
134 Union Blvd., Suite 550
P.O. Box 25486-DFC
Lakewood, Colorado 80228-1807
Telephone: 303-236-7920
Fax: 303-236-8295

Permittee:
Town of Parker
Attn: Jeannene Bragg, Town Administrator
20120 E. Mainstreet
Parker, CO 80138
303-841-0353
303-805-3153

AND

HCP Participant:
Board of County Commissioners of Douglas County, Colorado
100 Third Street
Castle Rock, Colorado 80104
303-660-7401
303-688-1293 (fax)

AND

HCP Participant:
Town of Castle Rock
Attn: Mark Stevens, Town Manager
100 Wilcox Street
Castle Rock, CO 80104
303-660-1374
303-660-1024 (fax)

14.3. Severability. The terms and conditions of the permit and HCP shall be deemed severable, and if any term or condition of the permit or HCP shall be held invalid, illegal or unenforceable by a federal court, after exhaustion of available appeals, the remainder shall continue to be effective and binding upon the Service and the Permittee. Any lawsuit brought pursuant to the citizen suit provision of the ESA against Permittee to enforce an individual covered activity's compliance with the ESA shall have no effect on

the provisions of the HCP and permit or on other covered activities not subject to such proceeding, which shall remain in full force and effect. Noncompliance of one or more of the other HCP Participants will not affect the validity of the HCP as to the Permittee or remaining HCP Participant.

14.4 Effect of agreement. This agreement is dependent upon the continued validity of the HCP and permit and has no independent legal force and effect in the absence of those documents.

14.5 Non-waiver of rights. By participating in the HCP, signing this agreement, and accepting the permit, Permittee shall not be deemed to have waived or relinquished any right to challenge the legal, scientific, or technical validity of the Service determinations related to Preble's including, but not limited to, the listing status, critical habitat designations, habitat needs, or conservation and recovery standards applicable to Preble's.

14.6 Entire agreement. This agreement, together with the HCP and the permit, constitutes the entire agreement among the parties. It supersedes any and all other agreements, either oral or in writing, among the parties with respect to the subject matter hereof and contains all of the covenants and agreements among them with respect to said matters, and each party acknowledges that no representation, inducement, promise or agreement, oral or otherwise, has been made by any other party or anyone acting on behalf of any other party that is not embodied herein.

14.7 Elected officials not to benefit. No member of or delegate to Congress shall be entitled to any share or part of this agreement, or to any benefit that may arise from it.

14.8 Availability of funds. Implementation of this agreement and the HCP by the Service is subject to the requirements of the Anti-Deficiency Act and the availability of appropriated funds. Nothing in this agreement will be construed by the parties to require the obligation, appropriation, or expenditure of any money from the U.S. Treasury. The parties acknowledge that the Service will not be required under this agreement to expend any federal agency's appropriated funds unless and until an authorized official of that agency affirmatively acts to commit to such expenditures as evidenced in writing.

14.9 Duplicate originals. This agreement may be executed in any number of duplicate originals. A complete original of this agreement shall be maintained in the official records of each of the parties hereto.

14.10 No third-party beneficiaries. Without limiting the applicability of rights granted to the public pursuant to the ESA or other federal law, this agreement shall not create any right or interest in the public, or any member thereof, as a third-party beneficiary hereof, nor shall it authorize anyone not a party to this agreement to maintain a suit for personal injuries or damages pursuant to the provisions of this agreement. The duties, obligations, and responsibilities of the parties to this agreement with respect to third parties shall remain as imposed under existing law.

14.11 Relationship to the ESA and other authorities. The terms of this agreement shall be governed by and construed in accordance with the ESA and applicable federal law. In particular, nothing in this agreement is intended to limit the authority of the Service to seek penalties or otherwise fulfill its responsibilities under the ESA. Moreover, nothing in this agreement is intended to limit or diminish the legal obligations and responsibilities of the Service as an agency of the federal government. Nothing in this agreement will limit the right or obligation of any federal agency to engage in consultation required under section 7 of the ESA or other federal law; however, it is intended that the rights and obligations of Permittee under the HCP and this agreement will be considered in any consultation affecting Permittee's use of the covered lands.

14.12 References to regulations. Any reference in this agreement, the HCP, or the permit to any regulation or rule of the Service shall be deemed to be a reference to such regulation or rule in existence at the time an action is taken.

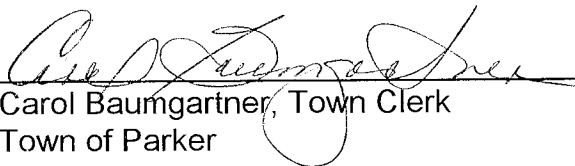
14.13 Applicable laws. All activities undertaken pursuant to this agreement, the HCP, and the permit must be in compliance with all applicable state and federal laws and regulations. This agreement, the HCP, and the permit shall be governed by the ESA and implementing regulations as the same exist on their effective date. Any reference in this agreement, the HCP, or the permit to any provision of the ESA or to any regulation or rule of the Service shall be deemed to be a reference to such statute, regulation or rule in existence as of the effective date. If federal statutes are enacted or rules or regulations are issued by the Service after the effective date that conflict with any provision of this agreement, the HCP, or permit, the provisions of the agreement, HCP, and permit shall control and continue to govern the rights and obligations of the Permittee and the Service.

14.14 Successors and assigns. This agreement and each of its covenants and conditions shall be binding on and shall inure to the benefit of the parties and their respective successors and assigns. Assignment or other transfer of the permit shall be governed by the Service's regulations in force at the time.

IN WITNESS WHEREOF, THE PARTIES HERETO have executed this Implementing Agreement to be in effect as of the date that the Service issues the permit.

BY  Date 5-11-06
Deputy Regional Director, Rocky Mountain Region
United States Fish and Wildlife Service
Lakewood, Colorado

BY  Date 04/19/2006
David Casiano, Mayor
Town of Parker

ATTEST  Date 4-19-06
Carol Baumgartner, Town Clerk
Town of Parker

- **Weeds** — Free of noxious weed infestation as determined by County or Town staff qualified to inspect weeds (see GESC Manual Section 6.4).

The County or Town shall inspect the revegetation for at least two growing seasons. If the success criteria are not met after the first growing season, the County or Town will implement additional weed control, reseeding, replanting, irrigation, or other remedial measures. If minimum success criteria have not been met by the end of the review period, or remedial herbaceous plantings have not been proven for at least two growing seasons, then the County or Town will continue remedial measures, monitoring and inspections.

Upper East Plum Creek: East Plum Creek and its tributaries that include the RCZ from the Douglas County-El Paso County line to where the southern town boundary for Castle Rock crosses East Plum Creek about 2 miles upstream from the confluence of East Plum Creek and Sellers Gulch.

Appendix 7:
Douglas County Open Space, Trails and Park
Sales, and Use Tax Resolution

BEFORE THE BOARD OF COUNTY COMMISSIONERS
OF THE COUNTY OF DOUGLAS, STATE OF COLORADO

DC9428442

Resolution No. R-994-062

A RESOLUTION CONCERNING THE IMPOSITION OF A COUNTYWIDE SALES TAX OF 1.7 TENTHS OF ONE PERCENT (0.17%) UPON THE SALE AT RETAIL OF TANGIBLE PERSONAL PROPERTY AND THE FURNISHING OF CERTAIN SERVICES IN DOUGLAS COUNTY, AND A COUNTYWIDE USE TAX OF ~~ONE~~ 1.7 TENTHS OF ONE PERCENT (0.17%) FOR THE PRIVILEGE OF USING OR CONSUMING IN DOUGLAS COUNTY ANY CONSTRUCTION AND BUILDING MATERIALS PURCHASED AT RETAIL, AND FOR THE PRIVILEGE OF STORING, USING, OR CONSUMING IN DOUGLAS COUNTY ANY MOTOR AND OTHER VEHICLES PURCHASED AT RETAIL ON WHICH REGISTRATION IS REQUIRED; PROVIDING FOR THE DEPOSIT AND EXPENDITURE OF THE REVENUES DERIVED FROM SAID TAXES; AND PROVIDING OTHER DETAILS RELATING TO SUCH SALES TAX AND USE TAX.

*16 P
no fee*

WHEREAS, Section 29-2-103, Colorado Revised Statutes ("C.R.S."), authorizes counties to levy a countywide sales tax and use tax upon the approval of a majority of the registered electors of the county voting on such proposal; and

WHEREAS, Section 29-2-104, C.R.S., provides that a proposal for a countywide sales tax, use tax, or both shall be referred to the registered electors of the county either by resolution of the board of county commissioners or by petition initiated and signed by five percent of the registered electors of the county;

WHEREAS, there is a critical need for the preservation of open space lands and for the provision of trails and parks in Douglas County (the "County"), and it is in the best interests of the present and future citizens of the County to establish a countywide sales and use tax of 1.7 tenths of one percent (0.17%) to finance the foregoing; and

WHEREAS, registered electors within the County desire to submit this sales and use tax proposal to the registered electors of the County;

NOW, THEREFORE, BE IT RESOLVED that there shall be submitted to the registered electors of the County of Douglas at the general election to be held on Tuesday, November 8, 1994, the following proposal:

GENERAL PROVISIONS

1. Purpose. The purpose of this Resolution is, upon the approval of a majority of registered electors voting on such proposal, to impose a sales tax of 1.7 tenths of one percent (0.17%) upon the sale at retail of tangible personal property and the furnishing of certain services in the County, and to impose a use tax of 1.7 tenths of one percent (0.17%) for the privilege of use or consuming in the County any construction and building materials purchased at retail, and for the privilege of storing, using or consuming in the County any motor and other vehicles, purchased at retail on which registration is required, all in accordance with the provisions of Article 2 of Title 29, C.R.S., which provisions are incorporated herein by this reference. The sales and use tax shall become effective on January 1, 1995.
2. Statutory Definitions Incorporated. For purposes of this Resolution, the definitions of the words contained herein shall be as defined in Sections 39-26-102 and 39-26-201, C.R.S., which definitions are incorporated herein by this reference.

SALES TAX

3. Property and Services Taxed. There is hereby levied and imposed and there shall be collected and paid a sales and use tax of 1.7 tenths of one percent (0.17%) of the gross receipts upon the sale of tangible personal property at retail and the furnishing of certain services as provided in Section 29-2-105(1)(d), C.R.S., upon all taxable transactions in the County. The tangible personal property and services taxable pursuant to this Resolution shall be the same as the tangible personal property and services taxable pursuant to Section 39-26-104, C.R.S., and shall be subject to the same exemptions as those specified in Section 39-26-114, C.R.S, except as provided in Section 7 hereof.
4. Adoption of State Rules and Regulations. The imposition of the tax on the sale at retail of tangible personal property and the furnishing of certain services subject to this tax shall be in accordance with schedules set forth in the rules and regulations of the Colorado Department of Revenue, and in accordance with any regulations which may be enacted by separate resolution of the Board.
5. Amounts Excluded. The amount subject to tax shall not include the amount of any sales or use tax imposed by Article 26 of Title 39, C.R.S.

6. Delivery Charges Included. The gross receipts from sales shall include delivery charges, when such charges are subject to the sales and use tax of the State of Colorado imposed by Article 26 of Title 39, C.R.S., regardless of the place to which delivery is made.
7. Exemptions. There shall be exempt from sales taxation under the provisions of this Resolution all of the tangible personal property and services which are exempt under Section 39-26-114, C.R.S., except that purchases of machinery or machine tools as provided in Section 39-26-114(11), C.R.S., shall not be exempt. Sales of food as defined in Section 39-26-102(4.5), C.R.S., are exempt from taxation under the provisions of this Resolution. Sales and purchases of electricity, coal, wood, gas (including natural, manufactured and liquified petroleum gas), fuel oil, and coke sold, but not for resale, to occupants of residences, whether owned, leased, or rented by said occupants, for the purpose of operating residential fixtures and appliances which provide light, heat, and power for such residences, are also exempt from taxation under the provisions of this Resolution.
8. Nonresident Exemption. All sales of tangible personal property on which a specific ownership tax has been paid or is payable shall be exempt from the subject sales tax when such sales meet both of the following conditions:
 - a. The purchaser is a nonresident of or has his principal place of business outside of the County; and
 - b. Such tangible personal property is registered or required to be registered outside the limits of the County under the laws of the State of Colorado.
9. Exemption for Construction Materials Subject to Use Tax. The sales tax imposed by this Resolution shall not apply to the sale of construction and building materials, as the term is used in Section 29-2-109, C.R.S., if such materials are picked up by the purchaser and if the purchaser of such materials presents to the retailer a building permit or other documentation acceptable to the County evidencing that the use tax imposed by this Resolution has been paid or is required to be paid.
10. Exemption for Transactions Previously Subject to Sales or Use Tax. The sales tax imposed by this Resolution shall not apply to the sale of tangible personal property at retail or the furnishing of services if the transaction was previously subjected to a sales or use tax lawfully imposed on the purchaser or user by another statutory or home rule county equal to or in excess of that imposed by Douglas County. A credit shall be granted against the sales tax imposed by

Douglas County with respect to such transaction equal in amount to the lawfully imposed county sales or use tax previously paid by the purchaser or user to the previous statutory or home rule county. The amount of the credit shall not exceed the sales tax imposed by Douglas County.

11. Place of Sale. For purposes of this Resolution, all retail sales are consummated at the place of business of the retailer, unless the tangible personal property sold is delivered by the retailer or his agent to a destination outside the limits of the County or to a common carrier for delivery to a destination outside the limits of the County. If a retailer has no permanent place of business in the County, or has more than one place of business, the place or places at which the retail sales are consummated for the purpose of the sales tax imposed by this Resolution shall be determined by the provisions of Article 26 of Title 39, C.R.S., and by the rules and regulations promulgated by the Department of Revenue of the State of Colorado.
12. Sales Tax License. No separate County sales tax license shall be required. Any person engaging in the business of selling tangible personal property at retail or furnishing certain services as herein specified shall annually obtain and hold a state license as required by Section 39-26-103, C.R.S.
13. Vendor's Fee. At the time of making a monthly return of the sales taxes required by this Resolution, every retailer shall be entitled to withhold a vendor's fee in the amount of three and one-third percent of the sales tax remitted to cover the retailer's expenses in the collection and remittance of said taxes. If any retailer is delinquent in remitting said taxes, other than in unusual circumstances shown to the satisfaction of the Executive Director of the Department of Revenue of the State of Colorado (the "Executive Director"), the retailer shall not retain any amounts to cover his expenses in collecting and remitting said taxes. If any retailer, during any reporting period, shall collect as a tax an amount in excess of one percent of the total taxable sales, the retailer shall remit to the Executive Director the full amount of the tax herein imposed and also the full amount of said excess.
14. Collection, Administration and Enforcement. The collection, administration and enforcement of the sales tax imposed by this Resolution shall be performed by the Executive Director in the same manner as the collection, administration and enforcement of the Colorado State sales tax. Unless otherwise provided in Article 2 of Title 39, C.R.S., the provisions of Article 26 of Title 39, C.R.S., and all rules and regulations promulgated by the Executive Director thereunder, are incorporated herein by this reference and shall govern the

collection, administration, and enforcement of the sales tax imposed by this Resolution.

Pursuant to Section 29-2-106, C.R.S., the Board shall, following the election on November 8, 1994, and prior to November 17, 1994, request the Executive Director to administer, collect and distribute the sales tax hereby imposed. The Board, at the time of making such request, shall provide the following documents to the Executive Director:

- a. A copy of this Resolution, certified by the County Clerk and Recorder;
- b. Affidavits of publication of this Resolution, as provided herein; and
- c. An Abstract of Election Results, certified as to the approval of the sales tax by a majority of the registered electors of the County voting thereon.

In the event that the Executive Director fails or refuses to collect the sales tax imposed by this Resolution, the Board shall provide for the collection, administration or enforcement of such sales tax to the extent permitted by law, or amend this Resolution to comply with the requirements of the Department of Revenue.

USE TAX

15. Property Taxed. There is hereby levied and there shall be collected and paid a countywide use tax of 1.7 tenths of one percent (0.17%) for the privilege of using or consuming in Douglas County any construction and building materials purchased at retail and for the privilege of storing, using or consuming in the County any motor and other vehicles purchased at retail on which registration is required.
16. Definition. For purposes of this Resolution, the term "construction and building materials" shall mean any tangible personal property which is used or consumed in the County, and which is intended to become part of, attached to, or a component of any building, structure, road, or appurtenance in the County.
17. Use Tax Exemptions. In no event shall the use tax imposed by this Resolution extend or apply:
 - a. To the storage, use or consumption of any tangible personal property the sale of which is subject to a retail sales tax imposed by the County.

b. To the storage, use or consumption of any tangible personal property purchased for resale in the County, either in its original form or as an ingredient of a manufactured or compounded product, in the regular course of a business.

c. To the storage, use, or consumption of tangible personal property brought into the County by a nonresident thereof for his own storage, use, or consumption while temporarily within the County; however, this exemption does not apply to the storage, use, or consumption of tangible personal property brought into this state by a nonresident to be used in the conduct of a business in this state.

d. To the storage, use, or consumption of tangible personal property by the United States government or the State of Colorado, or its institutions, or its political subdivisions in their governmental capacities only or by religious or charitable corporations in the conduct of their regular religious or charitable functions.

e. To the storage, use, or consumption of tangible personal property by a person engaged in the business of manufacturing or compounding for sale, profit, or use any article, substance, or commodity, which tangible personal property enters into the processing of or becomes an ingredient or component part of the product or service which is manufactured, compounded, or furnished and the container, label, or the furnished shipping case thereof.

f. To the storage, use, or consumption of any article of tangible personal property the sale or use of which has already been subjected to a sales or use tax of another county equal to or in excess of that imposed by this Resolution. A credit shall be granted against the use tax imposed by this Resolution with respect to a person's storage, use or consumption in the County of tangible personal property purchased by him in a previous county. The amount of the credit shall be equal to the tax paid by him by reason of the imposition of a sales or use tax of a previous county on his purchase or use of the property. The amount of the credit shall not exceed the tax imposed by this Resolution.

g. To the storage, use, or consumption of tangible personal property and household effects acquired outside of the County and brought into it by a nonresident acquiring residency.

h. To the storage or use of a motor vehicle if the owner is or was, at the time of purchase, a nonresident of the County and he purchased the vehicle outside of the County for use outside of the County and actually so used it for a substantial and primary purpose for which it was acquired and

he registered, titled, or licensed said motor vehicle outside of the County.

i. To the storage, use, or consumption of any construction and building materials and motor and other vehicles on which registration is required if a written contract for the purchase thereof was entered into prior to the effective date of this use tax.

j. To the storage, use, or consumption of any construction and building materials required or made necessary in the performance of any construction contract bid, let, or entered into at any time prior to the effective date of this Resolution.

18. Motor and Other Vehicle Use Tax Collection. The use tax provided by this Resolution shall be applicable to every motor and other vehicle purchased at retail on which registration is required by the laws of the State of Colorado, and no registration shall be made of any motor or other vehicle for which registration is required, and no certificate of title shall be issued for such vehicle or for a mobile home by the Colorado Department of Revenue or its authorized agent until any tax due upon the storage, use, or consumption thereof pursuant to this Resolution has been paid. The use tax imposed by this Resolution shall be collected by the County Clerk and Recorder, as the authorized agent of the Colorado Department of Revenue. The proceeds of the use tax shall be paid to the County periodically in accordance with an agreement to be entered by and between the County and the Colorado Department of Revenue.

19. Construction and Building Materials Use Tax Collection. The collection, administration, and enforcement of the use tax on construction and building materials used or consumed within the unincorporated areas of the County shall be performed in accordance with regulations and procedures prescribed by the Board. The use tax shall be paid by estimate through the payment of the tax at the time building permits are issued. No certificate of occupancy shall be issued for any building or structure until all applicable use tax on the construction and building materials has been paid in full.

The collection, administration, and enforcement of the use tax on construction and building materials used or consumed within the incorporated areas of the County shall be performed in accordance with an intergovernmental agreement between the County and the town or city where the construction and building materials are used or consumed, or in accordance with such rules and procedures as may be prescribed by the Board.

DEPOSIT AND EXPENDITURE OF REVENUES

20. The sales and use taxes collected pursuant to this Resolution shall be deposited, allocated, and expended only in the following amounts, and for the following purposes:
- a. A special fund, to be known as the "Douglas County Open Space Lands, Trails, and Parks Fund" (the "Fund") shall be created and all revenue derived from said sales and use taxes shall be deposited into said fund.
 - 1) For purposes of Colo. Const., Art. X, Section 20, the receipt and expenditure of revenues of the sales tax and use tax shall be accounted for, budgeted and appropriated separately from other revenues and expenditures of Douglas County and outside of the fiscal year spending of the County as calculated under Art. X, Section 20, and nothing in Art. X, Section 20, shall limit the receipt and expenditure in each fiscal year of the full amount such revenues of the sales tax and use tax, nor shall receipt and expenditure of such revenues affect or limit the receipt or expenditure of any and all other revenues of Douglas County for any fiscal year.
 - 2) Interest generated from the revenues of the sales tax and use tax shall be used for the purposes set forth in this Resolution.
 - 3) A maximum of eight percent (8%) of the proceeds from said sales and use tax may be deposited into a special fund, to be known as the "Douglas County Open Space Lands, Trails, and Parks Administration, Planning, and Maintenance Fund", and the monies deposited therein may be used to pay for administration, planning, and maintenance activities for any interest in open space lands, trails, and parks owned by the County.
 - 4) Portions of the net proceeds from said sales tax and use tax shall be deemed attributable to each municipality located wholly within Douglas County in accordance with the following formula: the amount deemed attributable to the municipality shall be that amount which bears the same ratio to the entire net proceeds from said sales and use tax as the sum of Douglas County automobile registrations within said municipality bears to the sum of all of the Douglas County automobile registrations. In making the foregoing computations, the latest available automobile

registration figures shall be used.

Fifty percent (.50%) of that portion of the net proceeds from said sales and use tax attributable to each municipality after deduction of any fees for administration, planning, and maintenance authorized in section 20. a. 3) above, shall be, upon specific requests therefor from time to time by the municipality, expended by Douglas County for the purposes authorized in section 20., a., 6) and 7) herein after set forth, except that no restriction shall apply with regard to the percentages allocated for open space lands or park purposes.

- 5) The remaining fund balance, after municipal shares have been distributed as provided in paragraph 20. a. 4) shall be allocated as provided in section 20. a. 6) and 7) below.
- 6) Open Space Lands Account.
 - a) Eighty percent (80%) of the remaining balance, after deductions for administration, planning, and maintenance, and after municipal shares have been distributed, shall be allocated only for open space lands as provided herein.
 - b) The funds allocated for open space lands shall be expended by the County for the following purposes:
 - (1) To acquire real property through all means available and by various types of instruments and transactions, in the County for open space lands when determined by the Board of County Commissioners, acting pursuant to authority as set forth in title 30, C.R.S., and in article 7 of title 29, C.R.S., to be necessary to preserve such areas;
 - (2) To acquire water rights and water storage rights for use in connection with real property acquired for open space lands;
 - (3) To acquire rights-of-way and easements for access to open space lands and for trails in the County and to build and improve such access ways and trails;

- (4) To acquire options related to these acquisitions;
- (5) To improve all County open space lands property and trails in accordance with opens space lands, trails, and parks policies adopted by the Board of County Commissioners; improvements to open space lands shall be related to resource management including but not limited to water improvements (irrigation, domestic use and recreational uses), preservation enhancements (fences, wetlands and wildlife habitat improvements), and passive recreational uses, such as trails, trailhead parking and other access improvements, picnic facilities and restrooms;
- (6) To manage, patrol, and maintain all County open space lands and trails in accordance with parks and open space policies adopted by the Board of County Commissioners;
- (7) To permit the use of these funds for the joint acquisition of open space lands with municipalities located within the County in accordance with an intergovernmental agreement for open space lands or with other governmental entities or land trusts;
- (8) Open space lands, for the purposes of this Resolution, are generally described as those lands with respect to which it has been determined by the Board of County Commissioners that it is, or may in the future be, in the public interest to acquire an interest in order to assure their protection and to fulfill one or more of the functions described below. The interest acquired may include fee simple, lease, easements, development rights, or conservation easements.
- (9) Open space lands shall serve one or more of the following functions:
 - (a) creating spacial definition of and between urban areas;

- (b) preservation of fragile ecosystems, natural areas, scenic vistas and areas, fish and wildlife habitats and corridors, or important areas that support biodiversity, natural resources and landmarks, and cultural, historical and archeological areas;
 - (c) linkages and trails, access to public lakes, streams, and other suitable open space lands, stream corridors and scenic corridors along existing highways;
 - (d) areas of environmental preservation, designated as areas of concern, generally in multiple ownership, where several different preservation methods (including other governmental bodies' participation or private ownership) may need to be utilized;
 - (e) conservation of natural resources, including but not limited to forest lands, range lands, agricultural land, aquifer recharge areas, and surface water;
 - (f) Lands within or adjacent to a park or public open lands whose development potential is clearly incompatible with those lands;
 - (g) preservation of land for outdoor recreation areas limited to passive recreational use, including but not limited to hiking, photography or nature studies, and if specifically designated, bicycling, horseback riding, or fishing.
- (10) Once acquired, open space lands may be used only for passive recreational purposes, for agricultural purposes, or for environmental preservation purposes, all as set forth above.
- (11) No open space land acquired through the revenues provided by this sales and use tax may be sold, leased, traded, or otherwise conveyed, nor may any exclusive license or permit with respect to such open space land be given, until approval of such disposal by the Board of County Commissioners. Prior to such disposal,

the proposal shall be reviewed by the Citizens Advisory Committee, and a recommendation shall be forwarded to the Board of County Commissioners. Approval of the disposal may be given only by a majority vote of the members of the Board of County Commissioners after a public hearing held with notice published at least ten (10) days in advance in the official newspaper of the County and of each city and incorporated town within the County, giving the location of the of the land in question and the intended disposal thereof.

- (12) If the real property or any interest therein acquired by use of proceeds of said sales tax pursuant to paragraph 20. a. 6) b) of this Resolution be ever sold, exchanged, transferred or otherwise disposed of, the consideration for such sale, exchange, transfer or disposition shall be subject to the same expenditure and use restrictions as those set forth herein for the original proceeds of said sales and use tax, including restrictions set forth in this paragraph; and if such consideration is by its nature incapable of being so subject, then the proposed sale, exchange, transfer, or disposition shall be unlawful and shall not be made.
- (13) The revenues received from the sales and use tax shall not be used by the County to acquire an interest, other than an option, in open space land within the municipal planning area of a municipality as designated in the Douglas County Master Plan as amended, or as provided in an intergovernmental agreement with such municipality, without the concurrence of the municipality involved.
- (14) Revenue generated from activities on opens space lands may be used to acquire, manage, patrol, improve and maintain open space lands.
- 7) Park Account. Twenty percent (20%) of the remaining balance, after deduction for administration, planning, and maintenance and after municipal shares have been distributed,

shall be expended for park purposes, including constructing, acquiring, and maintaining park and recreational capital improvements for the use and benefit of the public, including:

- a) Irrigated multi-purpose turf for both youth and adult baseball, softball, soccer, football, etc.;
- b) Individual picnic units and group picnic pavilions;
- c) Playgrounds;
- d) Onsite parking (asphalt);
- e) Restroom buildings, concessions, press box, and storage areas;
- f) Sand volleyball courts;
- g) Multi-purpose (basketball) courts;
- h) Tennis courts;
- i) Horseshoe pits;
- j) Optional-golf driving range, miniature golf, batting cage, etc.

CITIZENS ADVISORY COMMITTEE

21. If said sales and use tax is approved, the Board of County Commissioners shall establish a citizens advisory committee to make recommendations to the County Commissioners and municipal officials regarding disbursement of funds from the Open Space Lands, Trails, and Parks Fund, and the selection of open space land to be acquired, maintained, or preserved and establishment of priorities therefor; and may by separate and additional resolutions promulgate such rules and regulations as may be required to implement this proposal for the best interests and preservation of the public peace, health, safety, and welfare of the citizens of Douglas County, including, without limiting the generality of the foregoing, all rules and regulations designed to assure that all proceeds from said taxes and reimbursements, rebates, or refunds thereof shall be used for the purposes herein set forth.
22. The members of said citizens advisory committee shall be appointed by the Board of County Commissioners; and said citizens advisory committee shall be composed of three (3) representatives of municipal government selected from lists of nominees submitted by the municipalities located wholly within Douglas County, three (3) representatives of the County, one from each Commissioner district, and three (3) members appointed at large with at least one of these to be a Douglas County Planning Commission member, and one a professional land planner.

BIENNIAL REVIEW

23. The Board of County Commissioners shall adopt regulations requiring biennial review by the Board of County Commissioners, with citizens advisory committee participation, of the expenditures of all of the net proceeds from said sales tax and use tax made for the preceding two (2) years, and of the proposed expenditures to be made during the next succeeding two (2) years, with a view to establishing priorities therefor; and for such purpose the relevant official county and municipal audit reports shall be made available to the citizens advisory committee and to the Board of County Commissioners.

EFFECTIVE DATE-EXPIRATION DATE

24. Upon adoption by the electorate at the election on November 8, 1994, the sales tax and use tax provided herein shall become effective and in force at 12:01 a.m. on January 1, 1995, and shall expire at 12:00 a.m. on January 1, 2009, and upon said expiration all monies remaining in any of the Funds created hereunder may continue to be expended for the purposes set forth herein until completely exhausted.

MISCELLANEOUS

25. Limitation on Amount of Tax. In the event the seven percent limitation provided in Section 29-2-108, C.R.S., were to be exceeded in any municipality within the County by the sales and use tax imposed by this Resolution, such limitation shall be exceeded by no more than one percent in said municipality.
26. Statutory References. All statutory citations in this Resolution shall be construed to refer to such statutes as the same may have been heretofore amended, and as the same may hereafter be amended from time to time.
27. Severability. If any section, paragraph, clause, or provision of this Resolution, or the ballot question submitted to the registered electors at the election provided in section 29, shall be adjudged to be invalid or unenforceable, the invalidity or enforceability of such section, paragraph, clause or provision shall not affect any of the remaining sections, paragraphs, clauses, or provisions of this Resolution or said ballot question. It is the intention of the Board that the various parts of this Resolution and said ballot question are severable.

28. Repeal and Amendment

- a. If this Resolution is approved by a majority of the registered electors of Douglas County at the election to be held on November 8, 1994, its provisions relating to the amount of tax imposed, specifically the 1.7 tenths of one percent (.17%) sales tax specified in section 3 and 1.7 tenths of one percent (.17%) use tax specified in Section 15, the provisions relating to the deposit and expenditure of revenue as set forth in Section 20, and the provisions of sections 21, 22, 23, 24, and 28, shall not be repealed or amended except by a vote of the registered electors of the County.
- b. Except as provided in subsection a. hereof, or as otherwise provided in Article 2 of Title 29, C.R.S., the provisions of this Resolution may be repealed or amended, subsequent to its adoption, by a majority vote of the Board of County Commissioners and such repeal or amendment need not be submitted to the registered electors of the County for their approval.

ELECTION

29. Submission to Electors. Pursuant to Section 29-2-104(4), C.R.S., the sales and use tax proposal contained in this Resolution shall be submitted to the registered electors of Douglas County at an election to be held on Tuesday, November 8, 1994. The question to be submitted to the registered electors shall be as follows:

Shall Douglas County taxes be increased \$2.5 million annually, by the imposition of a countywide sales tax and use tax, at the rate of 1.7 tenths of one percent (.17%), to be levied and imposed, commencing January 1, 1995, and continuing thereafter until January 1, 2009, in accordance with the form of resolution concerning a countywide sales tax and use tax filed with the Clerk and Recorder of Douglas County on May 20, 1994, which resolution provides that the taxes collected shall be expended for open space lands and park purposes; and, in connection therewith shall Douglas County be entitled to collect and spend all revenues from such taxes regardless of whether the annual revenues from such taxes in any year after the first full year in which they are in effect exceed the estimated dollar amount stated above, and without any other limitation, or condition, and without limiting the collection or spending of any other revenues or funds by Douglas County under Article X, Section 20, of the Colorado Constitution or any other law?

30. Publication of Resolution. The County Clerk and Recorder is hereby authorized and directed to publish the full text of this Resolution four separate times, a week apart, in the Douglas County News-Press and in the official newspaper of each city and incorporated town in the County.
31. Conduct of Election. The election shall be held, conducted and the results thereof shall be determined, so far as practicable, in conformity with the general election laws of the State of Colorado, and the election provisions set forth in Colo. Const., Art. X, Section 20(3), including but not limited to the mailing of required election notices and ballot issue summaries.
32. Cost of the Election. The cost of the election shall be paid from the general fund of the County.

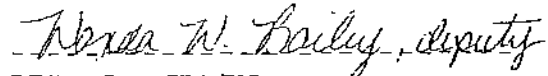
PASSED AND ADOPTED this 20th of May, 1994, in Castle Rock, Douglas County, Colorado.

THE BOARD OF COUNTY COMMISSIONERS
OF THE COUNTY OF DOUGLAS, COLORADO

BY:


M. MICHAEL COOKE
Chair

ATTEST:


RET A. CRAIN
Clerk and Recorder

DEPARTMENT OF THE INTERIOR



U.S. FISH AND WILDLIFE SERVICE

FEDERAL FISH AND WILDLIFE PERMIT

1. PERMITTEE

Board of County Commissioners of Douglas County, Colorado
 100 Third Street
 Castle Rock, Colorado 80550

3-201 (10/86)

2. AUTHORITY-STATUTES
 16 USC 1539(a)
 16 USC 1533(d)

REGULATIONS (ATTACHED)
 50 CFR §13, 17, & 21

3. NUMBER
 TE-036717

4. RENEWABLE

5. MAY COPY

X YES
 _____ NO

X YES
 _____ NO

6. EFFECTIVE

7. EXPIRES
 10 years from
 Issuance

MAY 11 2006

8. NAME AND TITLE OF PRINCIPAL OFFICER (IF # 1 IS A BUSINESS)
 Melanie A. Worley, Chair

9. TYPE OF PERMIT
 Endangered/Threatened Species

10. LOCATION WHERE AUTHORIZED ACTIVITY MAY BE CONDUCTED
 Douglas County, Colorado - as identified in the Permittee's HCP.

11. CONDITIONS AND AUTHORIZATIONS:

- A. GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR § 13, AND SPECIFIC CONDITIONS CONTAINED IN FEDERAL REGULATIONS CITED IN BLOCK #2 ABOVE, ARE HEREBY MADE A PART OF THIS PERMIT. ALL ACTIVITIES AUTHORIZED HEREIN MUST BE CARRIED OUT IN ACCORD WITH AND FOR THE PURPOSES DESCRIBED IN THE APPLICATION SUBMITTED. CONTINUED VALIDITY, OR RENEWAL, OF THIS PERMIT IS SUBJECT TO COMPLETE AND TIMELY COMPLIANCE WITH ALL APPLICABLE CONDITIONS, INCLUDING THE FILING OF ALL REQUIRED INFORMATION AND REPORTS.
- B. THE VALIDITY OF THIS PERMIT IS ALSO CONDITIONED UPON STRICT OBSERVANCE OF ALL APPLICABLE FOREIGN, STATE, LOCAL OR OTHER FEDERAL LAW.
- C. VALID FOR USE BY PERMITTEE NAMED ABOVE, AND HIS DESIGNATED AUTHORIZED AGENTS.
- D. FURTHER CONDITIONS OF AUTHORIZATION ARE CONTAINED IN THE ATTACHED SPECIAL TERMS AND CONDITIONS.

ADDITIONAL CONDITIONS AND AUTHORIZATIONS ON REVERSE ALSO APPLY

12. REPORTING REQUIREMENTS

AS DESCRIBED IN THE PERMITTEE'S HCP.

ISSUED BY

TITLE

DATE

James J. Shuck

Deputy

Regional Director

5-11-06

ORIGINAL

U.S. FISH AND WILDLIFE SERVICE, LAKEWOOD, COLORADO
PERMIT CONDITIONS FOR TE-036717, Page 2 of 4

- E. All sections and provisions of Title 50 *Code of Federal Regulations*, parts 13 and 17.22 and 17.32 are conditions of this Permit.
- F. The Permittee agrees to allow U.S. Fish and Wildlife Service (Service) personnel to enter the covered properties, upon reasonable notice, as identified in Block 10 of on the face of this Permit for general purposes as specified in 50 CFR § 13.21(d)(2).
- G. The authorization granted by this Permit is subject to compliance with, and implementation of, the final Habitat Conservation Plan for Douglas County and the Towns of Castle Rock and Parker (HCP) (hereby incorporated into this Permit) for the Issuance of an Endangered Species Act Section 10(a)(1)(B) Permit for the Incidental Take of the Preble's Meadow Jumping Mouse, *Zapus hudsonius preblei*, for covered activities conducted within Douglas County, Colorado. The HCP is binding upon the Permittee, and any authorized officer, employee, contractor or agent conducting covered activities.
- H. The Permittee and the Service entered into an Implementing Agreement (IA) regarding the HCP. The provisions of the IA are hereby incorporated into this Permit.
- I. The Permittee, and its authorized officers, employees, contractors, and agents are authorized under the Endangered Species Act of 1973, as amended (Act), to incidentally take the Preble's meadow jumping mouse to the extent that the take of this species would otherwise be prohibited under section 9 of the Act, and its implementing regulations, or pursuant to a rule promulgated under section 4(d) of the Act. Take must occur incidental to otherwise lawful covered activities associated with the covered lands (i.e., the RCZ) in Douglas County, Colorado as described in the HCP and as conditioned herein. During the life of the permit, the Permittee, the other HCP Participants and any agents respectively designated by those entities are authorized on a collective basis the incidental take of Preble's meadow jumping mouse within the form of harm or mortality associated with the permanent loss of a maximum total of 430 acres of the RCZ, and through any harassment of individuals during the Applicants' implementation of associated covered activities. This total impact threshold includes 280 acres of permanent impacts, 122 acres of temporary impacts and 28 acres of emergency impacts to the RCZ. If this level of incidental take is exceeded, the permittee 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.
- J. The Permittee, or agents designated by the Permittee, shall ensure that the mitigation measures described in the HCP to avoid, minimize, and compensate for adverse impacts to the Preble's meadow jumping mouse and its habitat are completed.
- K. The Permittee, or agents designated by the Permittee, shall ensure that workers onsite will be informed by the Permittee, or agents designated by the Permittee, as to the reason for, and importance of, limiting impacts to habitat located outside the designated fenced work area.

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- L. The Permittee shall provide annual reporting of permanent, temporary and emergency impacts to the RCZ in accordance with section 6.3 of the HCP. Such reporting shall be provided to the Service on an annual basis no later than March 1 of the year following the year the impacts occurred.
- M. The Permittee shall conduct annual monitoring of restoration and revegetation of temporary impacts to Preble's meadow jumping mouse habitat and other mitigation efforts as described in the HCP. Monitoring reports shall be provided to the Service on an annual basis no later than March 1 of the year following the year the report addresses.
- N. The Permittee or its designated agents will use temporary construction fences while conducting covered activities to prevent inadvertent impacts to habitat outside the footprint of the covered activity.
- O. The Permittee, or agents designated by the Permittee, shall conduct all monitoring activities as described in the HCP.
- P. Upon finding dead, injured, or sick endangered or threatened wildlife species, the Permittee or designated agents must notify, orally within one business day, the Service's Colorado Field Office (telephone 303-236-4773). Written notification to the Colorado Field Office must be made within three business days and must include the date, time, and location of the specimen and any other pertinent information. Dead animals may be marked in an appropriate manner, photographed, and left on site. Should any sick or injured animals survive, the Service should be contacted regarding final disposition of the animals. Care should be taken in handling sick or injured specimens to ensure effective treatment and care taken in handling dead specimens to preserve biological materials in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered species or preservation of biological materials from a dead animal, the finder has the responsibility to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed. In the event that a species has been taken in contravention of any Federal, State, or local law, all relevant information shall be reported within 24 hours to the Colorado Field Office or the Service's Division of Law Enforcement in Lakewood, Colorado (telephone 303-274-3560).
- Q. A copy of this Permit must be in the possession of the Permittee or designated agents while conducting activities. Please refer to the Permit number in all correspondence concerning Permit activities.
- R. The Permittee and the Service acknowledge that even with the above detailed provisions for mitigating impacts to Preble's, circumstances could arise which were not fully anticipated by this Permit and which are considered unforeseen. Such circumstances may become apparent either to the Permittee, his authorized agents, or to personnel of the Service. For purposes of implementation of this condition, unforeseen circumstances are defined as "changes in circumstances affecting a species or geographic area covered by a conservation plan that

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could not reasonably have been anticipated by plan developers and the Service at the time of the conservation plan's negotiation and development, and that result in a substantial and adverse change in the status of the covered species" (50 CFR § 17.3). If unforeseen circumstances arise, the permittee and the contact office of the Service shall meet within twenty (20) working days following notice of such unforeseen circumstances. In the event that unforeseen circumstances interfere with the success of the conservation program, and additional conservation and mitigation measures are deemed necessary to respond to unforeseen circumstances, adjustments to the HCP may be proposed by the Permittee or the Service to address those circumstances. In the event of unforeseen events, the Service shall not require the commitment of any additional land or financial compensation beyond the level of mitigation provided for in the permit and associated HCP, recognizing that the mitigation herein is adequate to provide for the conservation of the Preble's meadow jumping mouse. If additional measures are subsequently deemed by the Service to be necessary to provide for the conservation of Preble's the obligation for such measures shall not rest with the Permittee, unless the Permittee consents to such measures.

- S. For purposes of administration of the monitoring and compliance aspects, addressing unforeseen circumstances, and other matters associated with implementation of this Permit, the contact office of the Service is:

Field Supervisor
U.S. Fish and Wildlife Service
Colorado Field Office
134 Union Blvd., Suite 670
PO Box 25486 DFC
Denver, CO 80225

- END OF PERMIT TE- 036717 -