

upgrading is appropriate, based on the incremental benefits and costs and applicable statutory criteria, the agency issues an NPRM proposing to upgrade the FMVSS to the level of Country B's std. If upgrading is not appropriate, NHTSA considers issuing an NPRM proposing to add the requirements of Country B's std to the FMVSS as an alternative compliance option. The proposal to add the compliance option would set forth the basis for the agency's conclusion that upgrading the FMVSS is inappropriate. If NHTSA issues an NPRM, it would request comment on the tentative determination and the proposed amendment.

3. *Decision whether to issue a final rule.* Any final decision to make a determination regarding relative benefits and functional equivalency and to amend the FMVSS will be made in accordance with the process in the flowchart and applicable law and only after careful consideration and analysis of the public comments.

Issued on May 6, 1998.

Ricardo Martinez,
Administrator.

[FR Doc. 98-12598 Filed 5-12-98; 8:45 am]

BILLING CODE 4910-59-P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018-AE06

Endangered and Threatened Wildlife and Plants; Final Rule to List the Preble's Meadow Jumping Mouse as a Threatened Species

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The U.S. Fish and Wildlife Service determines the Preble's meadow jumping mouse (*Zapus hudsonius preblei*) to be a threatened species pursuant to the Endangered Species Act (Act) of 1973, as amended. The Preble's meadow jumping mouse, a small rodent in the family Zapodidae, is known to occur in seven counties in Colorado and two counties in Wyoming. Historical records document its former presence in additional counties in Colorado and Wyoming. The Preble's meadow jumping mouse lives primarily in heavily vegetated riparian habitats. Habitat loss and degradation caused by agricultural, residential, commercial, and industrial development imperil its continued existence. This action implements the protection of the Act for Preble's meadow jumping mouse.

DATES: This rule is effective June 12, 1998.

ADDRESSES: The complete file for this rule is available for public inspection,

by appointment, during normal business hours at the U.S. Fish and Wildlife Service's Colorado Field Office, 755 Parfet Street, Suite 361, Lakewood, Colorado.

FOR FURTHER INFORMATION CONTACT: LeRoy W. Carlson, Field Supervisor, Colorado Field Office, U.S. Fish and Wildlife Service, P.O. Box 25486, Denver Federal Center, Denver, Colorado 80225-0207 (telephone 303/275-2370).

SUPPLEMENTARY INFORMATION:

Background

The Preble's meadow jumping mouse (*Zapus hudsonius preblei*) (Preble's) is a small rodent in the family Zapodidae and is 1 of 12 recognized subspecies of the species *Z. hudsonius*, the meadow jumping mouse (Krutzsch 1954, Whitaker 1972, Hafner 1981). The family *Zapus* consists of small to medium-sized mice with long tails and long feet adapted for jumping. Krutzsch (1954) provided a revision of the taxonomy of the genus *Zapus* in North America and recognized three living species, *Z. hudsonius*, *Z. trinotatus*, and *Z. princeps*. As the most recent revision of *Z. hudsonius*, this stands as the authority for taxonomy. Fitzgerald et al. (1994) described *Z. hudsonius* as greyish to yellowish-brown in color with an indistinct mid-dorsal band of darker hair and paler sides, large hindlegs and hindfeet, and a sparsely haired tail that accounts for more than 60 percent of the total length.

In his 1899 revision of North American jumping mice, E. A. Preble referred specimens of the meadow jumping mouse from Colorado and southeastern Wyoming to the subspecies *Z. h. campestris* (Preble 1899, cited by Krutzsch 1954). Krutzsch (1954) described and named *Z. h. preblei* as separate from *Z. h. campestris*, indicating as the holotype a specimen obtained by E. A. Preble in July 1895 from Loveland, Larimer County, Colorado. All records of Preble's are from southeastern Wyoming and eastern Colorado. The coloration of Preble's was described by Krutzsch (1954) as "color dull, back from near Clay Color to near Tawny-Olive with a mixture of black hair forming poorly defined dorsal band; sides lighter than back from near Clay Color to near Cinnamon-Buff; lateral line distinct and clear Ochraceous-Buff; belly white, sometimes faint wash of clear Ochraceous-Buff; tail bicolored, brownish to light brownish-black above, grayish-white to yellowish-white below" (capitalized color terms refer to a scientific standard, while lower case

terms reflect common usage). Krutzsch (1954) also provided a technical description of the skull of Preble's, which can prove important to its identification.

There is a similarity of appearance between the Preble's meadow jumping mouse and *Z. princeps*, which also occurs in portions of Colorado and Wyoming. In general, *Z. hudsonius* may be distinguished from *Z. princeps* by average external size and cranial size (Krutzsch 1954, Whitaker 1972). Preble's may be distinguished from *Z. princeps* by a less pronounced mid-dorsal band, smaller average total length, and a skull that is small and light with a narrower braincase and smaller molars (Fitzgerald et al. 1994). Since coloration of the mid-dorsal band and total length are not definitive characteristics, skull measurements are most useful for positive identification. Ranges of the Preble's and *Z. princeps* are not known to overlap in Colorado but the relationships between respective ranges in Wyoming is less clear (Garber 1995, Armstrong 1972).

Krutzsch (1954) commented on the presence of physical habitat barriers and lack of known intergradation between the Preble's meadow jumping mouse, known only from eastern Colorado and southeastern Wyoming, and other identified subspecies of *Z. hudsonius* ranging to the east and north. Among recognized subspecies, Krutzsch found that Preble's most closely resembled *Z. campestris* from northeastern Wyoming, but summarized differences in coloration and skull characteristics. Krutzsch concluded that considerable differences existed between Preble's and related subspecies. In contrast, Jones (1981) studied specific and intraspecific relationships within *Zapus* and recognized no subspecies of *Z. hudsonius*. Jones did, however cite that *Z. hudsonius* populations in Colorado and southeastern Wyoming were apparently isolated from other populations. Hafner et al. (1981) described an additional subspecies *Z. hudsonius luteus* present in New Mexico and Arizona and differentiated it from Preble's. This subspecies was previously considered *Z. princeps luteus*, a subspecies of the western jumping mouse. Recently, *Z. h. luteus* was found in Las Animas County, Colorado (Riggs et al. 1997), the furthest north that the subspecies has been recorded, but over 100 miles south of the confirmed range of Preble's in Colorado.

Results from genetic analysis of mice from Rocky Flats Environmental Technology Site (Rocky Flats) in Jefferson County, Colorado, *Z.*

hudsonius from Minnesota and Indiana, and, *Z. princeps* from Colorado, provided clear evidence that the Rocky Flats mice were of the species *Z. hudsonius*. However, the analysis did not provide a means of separating subspecies of *Z. hudsonius* (Bruce Wunder, Colorado State University, pers. comm. 1996). Under a cost-sharing agreement with the U.S. Fish and Wildlife Service, the Colorado Division of Wildlife supported genetic studies of Preble's trapped in Colorado and Wyoming during the 1996 and 1997 field seasons. Tissue samples from presumed Preble's trapped at 23 locations in Colorado and 2 in Wyoming were assessed, through mitochondrial DNA analysis, and compared to reference samples of *Z. princeps* and to samples of *Z. hudsonius* from outside the known range of Preble's. The analysis indicated that mice from Albany County, Wyoming (Medicine Bow National Forest) to western Las Animas County, Colorado (San Isabel National Forest) formed a coherent genetic group (Riggs et al. 1997). The report concluded that "data appear consistent with the view that a geographically contiguous set of populations previously recognized as Preble's meadow jumping mouse (*Z. h. preblei*) form a homogenous group recognizably distinct from other nearby populations and from geographically-adjacent species of the genus" (Riggs et al. 1997). However, some specimens of *Z. hudsonius* from outside the known range of Preble's, including *Z. h. campestris* from northern Wyoming, were indistinguishable from Preble's based on the analysis. Hafner (1998) reviewed the report cited above and found no fault with the currently accepted taxonomic relationship of the subspecies *Z. h. preblei*, *Z. h. campestris*, and *Z. h. luteus*. He commented that current recognition of these subspecies is appropriately based on geographic variation of morphological traits and distribution.

Other conclusions of interest from the Riggs et al. (1997) genetic study included a specimen from San Isabel National Forest, Las Animas County, Colorado, which was identified as *Z. princeps* when it was collected, but was later determined to be most similar to Preble's meadow jumping mouse. The presence of Preble's in Las Animas County would significantly expand its known range southward. Reexamination of this specimen confirmed diagnostic dentation of *Z. princeps* (Cheri Jones, Denver Museum of Natural History, *in litt.* 1998). A mouse from Lone Tree Creek, Weld County, Colorado, and six

mice from F.E. Warren Air Force Base, Laramie County, Wyoming, were identified as Preble's when they were trapped and later determined to be most similar to *Z. princeps* (Riggs et al. 1997). Hafner (1998) suggested that the discrepancies in species associations found in the analysis by Riggs et al. (1997) could be due to the specific DNA segment chosen for analysis, or to limited hybridization in areas where the two species' ranges overlap. Riggs et al. (1997), Hafner (1998), Tanya Shenk (Colorado Division of Wildlife, *in litt.* 1998), and David Armstrong (University of Colorado, *in litt.* 1998) encouraged additional genetic and morphological investigations to further define relationships among *Zapus* in the region.

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

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

Some aspects of Preble's meadow jumping mouse life history, behavior,

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

Little information exists on Preble's meadow jumping mouse food preferences. It has been speculated that Preble's may need an open water source to fulfill dietary water requirements. Armstrong et al. (1997) reported that trapping success in ephemeral drainages decreased notably in late summer after creekflow ceased.

Preble's meadow jumping mouse has been shown to move a significant distance along drainages but has not been shown to cross dry uplands to reach adjacent drainages. A male Preble's was recaptured 1.6 kilometers (km) (1 mile) (mi) upstream from a previous capture site and a female Preble's captured 1.2 km (.75 mi) downstream from a previous capture site (Thomas Ryon, PTI Environmental Services, pers. com. 1998).

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

(choke cherry), and other species. Margins of artificial ponds at Rocky Flats are thought to be important foraging sites (Harrington et al. 1996).

Most successful capture sites at Rocky Flats were in dense vegetation that presented burrowing or nesting opportunities. Five nests were located in dense vegetation (Harrington et al. 1995). Based on a single underground hibernaculum, located through use of telemetry, upland habitats may be used for hibernation by Preble's (Fred Harrington, Pawnee Natural History Society, pers. comm. 1995). Robert Schorr (Colorado Natural Heritage Program, pers. com. 1997) reported four apparent hibernacula located by telemetry from 7 m (23 ft) to 31 m (101 ft) from the creek bed of Monument Creek, U.S. Air Force Academy, El Paso County, Colorado. All four hibernacula appeared to be below *Salix exigua*.

Ryon (1996) reported that four of five recent (1990 or later) Preble's meadow jumping mouse capture sites he evaluated in Colorado had five structural habitat components: trees, tall shrubs, short shrubs, herbaceous vegetation, and ground cover. The fifth site had few trees. In contrast, historical capture sites where Ryon failed to capture Preble's generally lacked one or more of these components.

Preble's was captured along Monument Creek within the U.S. Air Force Academy lands primarily in densely vegetated riparian communities where *Salix* spp., *Symphoricarpos occidentalis*, *Populus angustifolia* (narrow-leaf cottonwood), and thick grass understory were dominant (Corn et al. 1995). Garber (1995) characterized capture sites along Lodgepole Creek, Albany County, Wyoming as moist areas near beaver ponds with dense sedges and *Salix* sp. Ryon (1996) suggested that where Preble's occupies habitat along intermittent streams, adjacent wet meadows and seeps may be important habitats in dry periods.

Armstrong et al. (1997, p. 77) described typical Preble's meadow jumping mouse habitat as "well-developed plains riparian vegetation with relatively undisturbed grassland and a water source in close proximity." Also noted was a preference for "dense herbaceous vegetation consisting of a variety of grasses, forbs and thick shrubs." Meaney et al. (1997) suggested that Preble's has a broader ecological tolerance than previously thought and while they require diverse vegetation and well developed cover, this can be met in a variety of circumstances. Recent captures that were exceptions to the typical habitat described include individuals found along a small

irrigation ditch and in a mesic grassy field on City of Boulder Open Space land (Clint Miller, City of Boulder, *in litt.* 1996). Ensign Technical Services (1997) reported instances of Preble's meadow jumping mouse trapped at or near sites of human alteration including ditches along roads and driveways, and wetlands adjacent to highways. Meaney et al. (1997) emphasized that vegetated ditches may be a significant habitat for Preble's and may provide dispersal routes.

Preble's meadow jumping mouse may never have been widespread in the period since western settlement. Armstrong (1972) described it as poorly known in Colorado and apparently nowhere abundant. The known historical range of Preble's may represent a relict of a more southern range of *Z. hudsonius*, occupied when the climate was cooler and more damp (Fitzgerald et al. 1994). The apparent local extirpation of Preble's from historically occupied sites in Colorado and Wyoming, and the difficulty in finding it in patches of apparently adequate but fragmented habitat isolated by human land uses, suggests a decline in populations of Preble's in recent decades.

Records for Preble's meadow jumping mouse define a range including Adams, Arapahoe, Boulder, Denver, Douglas, El Paso, Elbert, Jefferson, Larimer, and Weld Counties in Colorado; and Albany, Laramie, Platte, Goshen, and Converse Counties in Wyoming (Krutzsch 1954, Compton and Hugie 1993). Historical sites in Colorado were further discussed by Meaney and Clippinger (1995), Ryon (1996), and Ryon and Harrington (1996). Garber (1995) discussed historical sites from Wyoming and suggested that some *Zapus* from Wyoming may have been misidentified. He indicated that based on study skins alone (without skulls) positive identification was not possible. Garber concluded that two specimens from the University of Wyoming collection listed as Preble's were probably *Z. princeps*, and that several specimens listed as *Z. princeps* are believed to be Preble's.

As one might expect, given the intensity of recent surveys for Preble's meadow jumping mouse, more individuals have been trapped in the decade of the 1990's than were documented prior to 1990. Preble's is thought to currently exist in seven counties in Colorado and two in Wyoming, but it is not known to be present in three other counties in Colorado and three counties in Wyoming where it was previously documented.

Colorado

Recent (since 1992) presence of Preble's meadow jumping mouse in Colorado has been documented in seven counties along the following watercourses and their tributaries: South Boulder Creek and St. Vrain Creek (Boulder County); Coal Creek, and Ralston Creek, and Rock Creek, Walnut Creek and Woman Creek at Rocky Flats (Jefferson County); East Plum Creek, West Plum Creek, and Indian Creek (Douglas County); Monument Creek and tributaries including West Monument Creek, Smith Creek, Beaver Creek, Pine Creek, Jackson Creek, Dirty Woman Creek, and Cottonwood Creek (El Paso County); Lone Tree Creek (Weld County); Rabbit Creek and Lone Pine Creek (Larimer County); and, Running Creek (Elbert County).

A number of historical and recent records of Preble's meadow jumping mouse exist for Boulder County. A summary of past records and a report of 1995 survey results was provided by Armstrong et al. (1996). In 1995, extensive surveys were conducted, through a challenge grant cost-share agreement with the Service, to determine the presence of Preble's on City of Boulder and Boulder County Open Space lands supporting suitable habitat. Of 13 sites surveyed, Preble's were captured from 2 sites, both along South Boulder Creek (Armstrong et al. 1996). In 1996, 3 Preble's were captured on City of Boulder Open Space along South Boulder Creek, during an extensive study of grassland biodiversity entailing 6,600 trapnights (one trap set for one night equals one trapnight) of effort (Miller *in litt.* 1996). Perhaps indicative of population fluctuations, Carron Meaney (Denver Museum of Natural History, *in litt.* 1998) reported a total of 55 individual Preble's captured during 1997 studies along South Boulder Creek.

Meaney et al. (1996) reported capturing at least seven different Preble's meadow jumping mice at a Boulder County Open Space site on St. Vrain Creek, the only captures on five Boulder County sites they surveyed in 1996. A 1997 survey failed to find Preble's on a site along St. Vrain Creek near the 1996 capture site (Meaney et al. 1997). However, 1997 surveys conducted for the Colorado Department of Transportation along State Highway 36 at St. Vrain Creek, and at various wetland sites up to two miles south, resulted in captures of Preble's in six of seven locations (Ensign Technical Services 1997).

Annual studies have taken place at Rocky Flats since the discovery of the

Preble's meadow jumping mouse there in 1991 (Harrington et al. 1996). Recent populations have been reported in all four major drainages within the Rocky Flats buffer zone. During the 1995 field season, 61 Preble's were trapped at Rocky Flats, bringing the total number of individual mice trapped since 1991 to 161 (Harrington pers. comm. 1995). Estimated density of Preble's in areas trapped during 1995 studies ranged up to 36 per hectare (ha) (15 per acre (ac)). Spring 1996 trapping studies at Rocky Flats, designed to document emergence from hibernation, resulted in 29 captures of Preble's in 3,553 trapnights (PTI Environmental Service 1996a). During summer 1996 studies at Rocky Flats, 3,882 trapnights of effort resulted in capture of only 4 Preble's (PTI Environmental Service 1996b).

During 1996 and 1997 the Colorado Natural Heritage Program reviewed numerous sites on Jefferson County Open Space lands for potential presence of Preble's meadow jumping mouse and trapped at eight sites. In 1996, Preble's were captured on Jefferson County Open Space land near the mouth of Coal Creek Canyon, west of Rocky Flats (Fleming et al. 1996). In 1997, Preble's were captured at Ralston Creek (White Ranch Park, Jefferson County Open Space) (Peterson 1997).

In Douglas County, Preble's meadow jumping mice were captured from a site on East Plum Creek, near Larkspur in 1995 (Harrington 1995). Also in 1995, the Colorado Natural Heritage Program located Preble's at two sites, one on East Plum Creek and one on West Plum Creek, Douglas County. Surveys in 1996 (Meaney et al. 1996) located Preble's at an additional site on West Plum Creek south of Sedalia, and at a Colorado Division of Wildlife property on Indian Creek (a tributary to Plum Creek) south of Louviers. In 1997 the Colorado Natural Heritage Program identified, through aerial photographs, 104 sites in the Plum Creek watershed in Douglas County that appeared to have suitable Preble's habitat. Preble's were captured on 10 of 13 private land sites trapped. Use of a habitat relationships model provided an estimate of 30.6 miles of occupied streamside habitat in the watershed (Chris Pague and Parker Schuerman, The Nature Conservancy, *in litt.* 1998). Meaney et al. (1997) captured Preble's at two of three sites they trapped within the Plum Creek drainage in 1997; Willow Creek in Roxborough State Park, and a site along East Plum Creek currently being purchased by The Conservation Fund.

In El Paso County, the Colorado Natural Heritage Program discovered the Preble's meadow jumping mouse on

U.S. Air Force Academy lands along Monument Creek while performing small mammal surveys in 1994. In comprehensive 1995 studies, 67 Preble's were captured (Corn et al. 1995). Using varying assumptions regarding trapping results and habitat available, total population estimates for Air Force Academy property of 308 and 449 Preble's were generated. These correspond to density estimates in occupied habitat of 2.00 per ha (0.81 per ac) and 2.92 per ha (1.18 per ac). Twenty Preble's were captured in 1996 on private land along Smith Creek, east of the Air Force Academy (Meaney et al. 1996). Trapping surveys submitted to the Service in 1997 from sites of proposed construction documented Preble's within the Monument Creek drainage off of Air Force Academy property at Monument Creek, Pine Creek, Black Squirrel Creek, Cottonwood Creek, and Dirty Woman Creek. Meaney et al. (1997) located Preble's within the Monument Creek drainage on Beaver Creek.

Meaney et al. (1997) reported an improved ability to recognize suitable habitat and, by targeting mostly small drainages with dense vegetation, captured Preble's meadow jumping mouse at 7 of 10 sites trapped, including sites in 3 counties not known to have extant populations. Preble's were captured at Rabbit Creek and Lone Pine Creek, within Cherokee Park State Wildlife Management Area, Larimer County. A single apparent Preble's was captured on private land along Lone Tree Creek, Weld County (see discussion of genetic studies by Riggs et al. 1997). In Elbert County, a single Preble's was found at Hay Gulch, a tributary of Running Creek. Among sites recommended for future surveys were the confluence of Lone Tree Creek and the South Platte River (Weld County), and Bijou Creek, Kiowa Creek, and Running Creek (Elbert County) (Meaney et al. 1997).

Wyoming

In Wyoming, Preble's meadow jumping mouse has been recently documented in two counties, along Crow Creek at F.E. Warren Air Force Base (Laramie County) and in the Lodgepole Creek drainage, within the Medicine Bow National Forest (Albany County). The Wyoming Cooperative Research Unit successfully captured two Preble's on F.E. Warren Air Force Base, Laramie County, in the 1995 field season (Garber 1995). Garber conducted Preble's surveys at four Wyoming sites during the 1995 field season. He was unable to locate any Preble's on F.E. Warren Air Force Base, but did find

Preble's at two locations in the Lodgepole Creek drainage within the Medicine Bow National Forest in Albany County. The Colorado Natural Heritage Program surveyed for Preble's at Warren Air Force Base in 1996 and captured 8 apparent Preble's (see discussion of genetic studies by Riggs et al. 1997) in 2,200 trapnights of effort (Schuerman and Pague 1997).

Previous Federal Action

The Service included the Preble's meadow jumping mouse as a category 2 candidate species in the 1985 Animal Notice of Review (50 FR 37958) and retained that status in subsequent notices, published in the **Federal Register** on January 6, 1989 (54 FR 554), November 21, 1991 (56 FR 58810), and November 15, 1994 (59 FR 58982). In 1996 the Service discontinued the practice of maintaining a list of category 2 species and the Preble's did not appear in the February 28, 1996 (61 FR 7596), Notice of Review. Category 2 species were those species for which information in the Service's possession indicated that listing was possibly appropriate, but for which substantive data on biological vulnerability and threats were not available to support a proposed rule. Candidate species are currently defined as those species for which the Service has sufficient information on file detailing biological vulnerability and threats to support issuance of a proposed rule, but issuance of the proposed rule is precluded by other listing actions.

On August 16, 1994, the Service received a petition from the Biodiversity Legal Foundation to list the Preble's meadow jumping mouse as endangered or threatened throughout its range and to designate critical habitat within a reasonable amount of time following the listing. The petitioner submitted information that Preble's populations in Colorado and Wyoming are imperiled by: ongoing and increasing urban, industrial, agricultural, ranching, and recreational development; ongoing and increasing wetland/riparian habitat destruction and/or modification; small size of known populations; and inadequacy or lack of governmental protection for the species and its habitats.

On March 15, 1995 (60 FR 13950), the Service published notice of the 90-day finding that the petition presented substantial information indicating that listing the Preble's meadow jumping mouse may be warranted, and requested comments and biological data on the status of the mouse. On March 25, 1997, the Service issued a 12 month finding on the petitioned action along with a

proposed rule to list Preble's as an endangered species and announced a 90-day public comment period (62 FR 14093). On May 5, 1997, the Service announced three public hearings regarding the proposed rule and extended the comment period through July 28, 1997 (62 FR 24387). The Service reopened the public comment period on December 23, 1997, for a period of 30 days, through January 22, 1998 (62 FR 67041).

Summary of Comments and Recommendations

In the March 25, 1997, proposed rule and associated notifications, and in subsequent notices to extend or reopen the public comment period, all interested parties were requested to submit factual reports or information that might contribute to the development of a final rule. The public comment period was extended through July 28, 1997 (62 FR 24387) and reopened from December 23, 1997, through January 22, 1998 (62 FR 67041). Various Federal and State agencies, county governments, scientific organizations, and other interested parties were contacted and requested to comment. Newspaper notices were published in the Rocky Mountain News (Denver, CO), the Colorado Springs Gazette-Telegraph (CO), the Boulder Daily Camera (CO), the Casper Star Tribune (WY), and the Wyoming Eagle Tribune (Cheyenne, WY), which invited general public comment and attendance at public hearings.

Public hearings were initiated by the Service and held May 19, 1997, in Cheyenne, Wyoming; May 21, 1997, in Colorado Springs, Colorado; and May 22, 1997, in Denver, Colorado. Each hearing began with opening comments by the Service followed by an opportunity for public comments. In Cheyenne, 8 people attended and 1 commented; in Colorado Springs 28 attended and 8 commented; and in Denver 27 attended and 4 commented.

One hundred and thirty-eight written comments were received. Significant issues are discussed below. Several individuals or groups submitted comments in both the original and the reopened comment periods, or during hearings and later in writing. Senator Craig Thomas of Wyoming opposed the proposal. Two Federal agencies commented and opposed the proposal; the Department of Energy's Rocky Flats Field Office supported a 6-month extension of the proposed rule. The Department of Energy's Western Area Power Administration supported a threatened listing. Six State agencies commented, four from Wyoming and

two from Colorado. From Wyoming, three State agencies opposed the proposal (two of the three supported an extension) and one Wyoming agency neither supported nor opposed the proposed rule. From Colorado, one agency opposed the proposal and supported an extension and one neither supported nor opposed the proposed rule. Of 128 comments by individuals or other groups, 29 supported the proposed rule, 74 opposed it, and 25 were neutral. Five stockgrowers or farm organizations provided comments opposing the proposal. Five of six conservation or environmental groups supported the proposal and one was neutral.

Written comments and oral statements presented at the public hearings and received during the comment periods are addressed in the following summary. Comments of similar nature are grouped under a number of general issues.

Issue 1: The Preble's meadow jumping mouse is not a valid subspecies since genetic studies conducted to date have not conclusively differentiated it from certain other subspecies of *Z. hudsonius*.

Response: Preble's is widely recognized as a valid subspecies by the scientific community. Genetic studies point to an aggregate of similar *Z. hudsonius* populations consistent with ecological, distributional, and morphological information on Preble's (*Z. h. preblei*).

Issue 2: Preble's meadow jumping mouse identification in the field is not possible because of the similarity between Preble's and *Z. princeps*.

Response: Field identification of *Zapus* is difficult when attempted by individuals not thoroughly familiar with both species. To date, no overlap has been documented between the range of Preble's and the range of *Z. princeps* in Boulder, Jefferson, Douglas, and El Paso Counties in Colorado. These counties support the vast majority of currently known Preble's populations. Since the two species may coexist in portions of southeastern Wyoming, some historical records from Wyoming are difficult to confirm. Recent genetic studies may indicate some uncertainty regarding the identity of apparent Preble's trapped in Weld County, Colorado and Laramie County, Wyoming. However, populations of *Zapus* that are consistent morphologically and ecologically with Preble's, will be considered Preble's by the Service pending conclusive studies resolving the identities of the two species. Identification of any *Zapus* captured in Weld County, Colorado (as well as in adjacent Larimer County, Colorado) and in southeastern Wyoming

should be thoroughly documented and tissue samples should be obtained for future genetic analysis.

Issue 3: Historical trapping records support the contention that Preble's meadow jumping mouse has long been a rare mammal and they provide a poor baseline from which to measure current trends in populations.

Response: Conclusions regarding the status and trends of Preble's made by the Service are based on the best available historical and recent population information on Preble's, the distribution of its preferred habitats, and on the significant threats to these habitats. While historical records come from diverse trapping efforts that rarely targeted *Zapus*, they document a former presence in locations where Preble's is not currently found. Recent surveys of several historical sites have failed to locate Preble's. Loss of these populations has been attributed to changes in habitat.

Issue 4: Comprehensive trapping surveys throughout Preble's meadow jumping mouse range are needed to ascertain its true status and distribution.

Response: Existing data are sufficient to determine the overall status of Preble's. Additional trapping studies will be conducted to better document Preble's status within certain portions of its range. Since 1992, numerous studies have addressed the status and distribution of Preble's. Trapping studies supported by the Colorado Division of Wildlife in 1995, 1996, and 1997 helped to document distribution of Preble's in Colorado. In 1997 alone, more than 120 locations in Colorado were trapped, with a minimum of 400 trapnights of effort at each location. Limited access to private lands has hampered survey efforts at some locations and will probably continue to do so in the future.

Issue 5: Since Preble's exists on some sites where grazing, mowing, and other human land uses occur, these activities should not be considered threats.

Response: Land uses that have a dramatic adverse impact on habitats that the Preble's meadow jumping mouse requires can present significant threats to its existence. The relationships between human land use and Preble's populations are undoubtedly complex and need further study. The manner, timing, and extent of grazing or mowing may dictate what effects these activities have on Preble's and its habitat. However, Preble's do coexist in grazed areas such as the Medicine Bow National Forest in Wyoming and Boulder Open Space lands in Colorado, and some ranching and farming practices are thought likely to be

compatible with maintaining Preble's populations. The Service believes that best management ranching and farming practices, which avoid adverse effects on habitat characteristics, are compatible with many natural resource objectives.

Issue 6: Water projects and irrigation may be beneficial to the Preble's meadow jumping mouse, since these activities can create wetland habitat.

Response: Preble's seems largely dependent on moist habitat with dense vegetation in or near riparian corridors. Effects of water projects on Preble's and its habitat can vary greatly. Water projects can effectively eliminate, degrade, or fragment Preble's habitat. However, activities that enhance and extend such habitat can benefit Preble's.

Issue 7: Trapping studies are a significant threat to Preble's meadow jumping mouse.

Response: The scientific value of trapping studies will be measured against the threats such studies represent to Preble's. The Service will issue permits to qualified individuals conducting approved trapping studies on Preble's. While "live traps" are being used, the Service is aware of a few mortalities associated with recent trapping. Trapping techniques that best safeguard Preble's will be required by the Service.

Issue 8: Predators may be a threat to the Preble's meadow jumping mouse and should be controlled.

Response: While Preble's has co-existed with a community of predators over time, little is known regarding the effect of predators or competing species on Preble's populations. Human activities have undoubtedly altered predator populations. Human development may, for example, increase numbers of great-horned owls and raccoons. However, there is presently insufficient evidence to demonstrate that control of predators would benefit Preble's.

Issue 9: Captive breeding and release, and relocation of the Preble's meadow jumping mouse should be used to stabilize populations and eliminate the need for listing.

Response: Scarcity of suitable habitat presumably limits current Preble's distribution. Maintenance of quality habitat is the principal conservation goal. Relocation and reintroduction of Preble's into unoccupied sites with suitable habitat may become a part of the future recovery of this species.

Issue 10: If the Preble's meadow jumping mouse were protected on Federal land there would be no need to protect it on private land.

Response: The Service is working with the U.S. Air Force, the Department of Energy, and the Forest Service to assure that conservation of Preble's is carried out on all Federal lands on which it currently exists. While both the Air Force Academy and Rocky Flats support apparently stable populations of Preble's, these sites compose a small fraction of the total Preble's range. Protection of these sites alone would not alleviate the need for listing of Preble's or achieve recovery.

Issue 11: Local regulations exist that currently protect the Preble's meadow jumping mouse and its habitat.

Response: The Service has received from the Colorado Department of Natural Resources a summary of local regulations, incentive programs, Colorado Water Conservation Board instream flow decrees, and open space purchase programs that help protect habitats that support Preble's. A variety of regulations apply to activities in riparian areas and, in effect, contribute to conservation of Preble's. However, few local ordinances currently provide direct protection of Preble's or its habitat. Natural areas and wildlife habitat may be considered in zoning or development review, but most ordinances will permit significant variance and provide for considerable latitude in interpretation. For example, construction within the 100-year floodplain may be tightly restricted by such measures, but the mowing, cutting, or overgrazing of Preble's habitat is generally not addressed. The City of Boulder wetlands protection ordinance has a specific provision designed to protect rare and declining species including Preble's. Fort Collins provides protection for "endangered species habitat" in development review, but apparently does not address rare, declining, or threatened species. Incentives and purchase programs contribute to riparian conservation but afford no direct legal protection for Preble's. While often beneficial to Preble's, public acquisition of riparian areas may, at times, result in increased human use incompatible with Preble's.

The Service supports use of local land use regulations to conserve Preble's and its habitat; however, the best measure of their past effectiveness in protecting Preble's is the success of these regulations in maintaining the integrity of riparian systems within Preble's range. Direct and secondary effects of human activity continue to cause alteration of riparian areas despite these protections. The Service is currently engaged in discussions with the Colorado Department of Natural Resources and the Colorado Preble's

Meadow Jumping Mouse Working Group to determine how local regulations and acquisition programs can be used more effectively to protect Preble's and its habitat.

Issue 12: The Service should designate critical habitat for Preble's meadow jumping mouse.

Response: The Service has determined that designation of critical habitat will not provide additional benefits beyond that achieved by the listing of Preble's at this time (see the Critical Habitat section of this rule). The Service could reevaluate designation of critical habitat at some future time should circumstances change and more becomes known about Preble's, its habitat, and potential benefit to the species to be gained from designation of critical habitat.

Issue 13: The Service should extend the proposed rule for a period of 6 months.

Response: The Service can only extend a proposed rule when it finds that there is a substantial disagreement among scientists knowledgeable about the species regarding the sufficiency or accuracy of the data available relevant to the listing. The Service finds no substantial disagreement among scientists knowledgeable about Preble's that would serve as a basis for extension of the proposed rule.

Issue 14: The collaborative planning process for Preble's meadow jumping mouse conservation, initiated by the State of Colorado, should be pursued as an alternative to listing.

Response: Consistent with the spirit and intent of the 1995 "Memorandum of Agreement between the State of Colorado and the Department of Interior Concerning Programs to Manage Colorado's Declining Native Species," the Service fully supports the collaborative planning process for Preble's conservation that is under way in Colorado. The intent of the Memorandum of Agreement is to facilitate and promote collaboration and cooperation in managing and conserving fish and wildlife in Colorado. It was not intended to serve as an alternative to listing threatened or endangered species as required by the Endangered Species Act. The collaborative planning process includes stakeholders from local governments, the private sector, the State, and Federal agencies. This final rule to list Preble's as a threatened species is not intended to discourage or detract from this conservation effort; however, the Service recognizes that it will take time and commitment on the part of numerous stakeholders for this process to achieve meaningful protection of Preble's. The Service

believes that, ultimately, this process will produce a conservation plan and implementation agreements that both protect Preble's and its habitat over the long term and will minimize regulatory and economic effects of this listing. These products may form the basis of one or more Habitat Conservation Plans or a rule prepared in accordance with section 4(d) of the Endangered Species Act. To this end, the Service is providing financial support to help move this process forward.

Issue 15: Rodents are destructive and carry disease. Listing the Preble's meadow jumping mouse may impact pest control and lead to disease or increased crop losses.

Response: Preble's has not been implicated as a vector for human disease. Its rarity and dependence on riparian and wetland areas minimize its potential as a pest. Pest control efforts within and around residences and other buildings, and in crop fields when carried out in accordance with pesticide label restrictions, are unlikely to conflict with Preble's conservation. However, in some cases the application or discharge of agrichemicals, or other pollutants, and pesticides, onto plants, soil, ground water, or other surfaces within areas that drain into streams occupied by Preble's may result in the deterioration of Preble's habitat and cause harm to the species. Use of such chemicals in violation of label directions, or any use following Service notification that such use, application or discharge is likely to harm the species, would be evidence of unauthorized use, application or discharge.

Peer Review

In accordance with policy promulgated July 1, 1994 (59 FR 34270), the Service solicited the expert opinions of independent specialists regarding pertinent scientific or commercial data and assumptions relating to the taxonomy, population models, and supportive biological and ecological information for species under consideration for listing. The purpose of such review is to ensure listing decisions are based on scientifically sound data, assumptions, and analyses, including input of appropriate experts and specialists.

The data and assumptions regarding the Preble's meadow jumping mouse were reviewed by three specialists. Peer reviewers were identified through inquiries to research institutions, universities, and museums for individuals with recognized expertise with the subject taxa. The reviewers were asked to comment upon specific assumptions and conclusions regarding

the species. Their comments have been incorporated into the final rule as appropriate and are summarized below.

One reviewer provided a context for species status over time scales reflecting long-term climate change and effects of European settlement within Preble's meadow jumping mouse range. The same reviewer (citing a relative lack of species-specific trapping efforts prior to the 1990's and geographical gaps in recent survey efforts) stated that while conclusions regarding recent Preble's decline might be accurate, they were not strongly supported by capture data. The reviewer suggested that examination of the adverse changes to the riparian habitats required by Preble's could provide additional insight to population status and trends.

The reviewers of the Preble's meadow jumping mouse information concluded that additional study of habitat requirements and population biology are needed to implement effective conservation of Preble's. Specifically, the limited knowledge of hibernation habitat requirements was cited by two reviewers. A better understanding of Preble's movement patterns was cited by two reviewers as important. One reviewer emphasized that more information on Preble's food habits is needed.

All three reviewers discussed threats to the Preble's meadow jumping mouse. One reviewer suggested that known populations at the Air Force Academy and Rocky Flats reflect the long-term protection of these sites from human disturbance rather than presence of optimal Preble's habitat. Another reviewer concluded that currently only two or three sites supporting Preble's are adequately protected. Threats discussed by reviewers included fragmentation of riparian corridors, gravel mining, and alteration of water regimes and the resulting effects on riparian vegetation.

Summary of Factors Affecting the Species

Section 4 of the Act and regulations (50 CFR Part 424) promulgated to implement the listing provisions of the Act set forth the procedures for adding species to the Federal lists. A species may be determined to be a threatened or endangered species due to one or more of the five factors described in section 4(a)(1). These factors and their application to the Preble's meadow jumping mouse (*Zapus hudsonius preblei*) are as follows:

A. The present or threatened destruction, modification, or curtailment of its habitat or range. After reviewing the best scientific data

currently available, the Service believes that Preble's meadow jumping mouse has undergone a decline in range and that populations within its remaining range have been lost. Habitat loss and fragmentation resulting from human land uses have adversely impacted Preble's populations, and continue to do so. Armstrong (*in litt.* 1997) concluded that the meadow jumping mouse, in this region as elsewhere, is a habitat specialist, and that its specialized habitat is declining. As the summary below demonstrates, a variety of known and potential threats to its habitat have been documented.

The Colorado Natural Heritage Program ranks Preble's meadow jumping mouse as T2, imperiled globally, and S2, imperiled in Colorado; the Wyoming Natural Diversity database ranks Preble's as S1, critically imperiled in Wyoming (Schuerman and Pague 1997).

A study by Compton and Hugie (1993), which was funded by the Service, found it difficult to assess historical trends and current status of Preble's meadow jumping mouse due to the scarcity of demographic data. Based on their review, they recommended that Preble's be federally listed as a threatened species. However, after a largely unsuccessful search for suitable habitat in Wyoming and unsuccessful trapping surveys for Preble's at five sites in southeastern Wyoming in 1993, they concluded that Preble's might be extirpated from Wyoming (Compton and Hugie 1994). Their revised recommendation was that Preble's be federally listed as an endangered species.

Since 1993, efforts to document existing populations of Preble's meadow jumping mouse have increased commensurate with rising concern over its status. Recent trapping efforts have located Preble's meadow jumping mouse populations in some areas (Douglas, El Paso, and Elbert counties, Colorado) where few or no historical records exist. However, recent trapping has also failed to produce captures at historical sites and sites with apparently suitable habitat within Preble's historical range. Preble's is not known to be currently present in Adams, Arapahoe, and Denver counties in Colorado where it was historically documented.

Ryon (1996, *in litt.* 1997) investigated nine historical Preble's meadow jumping mouse capture sites in six Colorado counties through trapping and site history. Ryon concluded that Preble's was absent at all nine sites and related absence of Preble's to changes in habitat (see also Ryon and Harrington

1996). Specific human activities impacting habitat at these sites included real estate development, highway construction, stream alteration, and grazing. In addition, offsite impacts may have caused isolation of sites that rendered them unsuitable for Preble's. Ryon concluded that the range of Preble's has decreased, especially adjacent to or east of the Interstate Highway 25 urban corridor.

Extensive studies of public lands in Boulder County in 1995 resulted in capture of 23 Preble's, on 2 of 13 sites surveyed, in 17,800 trapnights of effort (Armstrong et al. 1996). Sites were selected, in part, based on documented historical presence and perceived quality of habitat. Among the authors' conclusions were that Preble's is not abundant in the Colorado Piedmont of Boulder County and that suitable habitat appeared to be present on some sites where trapping was unsuccessful.

Recent surveys for Preble's meadow jumping mouse at certain other sites with potential habitat in Colorado have been unsuccessful in documenting presence. Surveys funded and carried out by the Department of the Army at the Army's Fort Carson Military Reservation in El Paso and Pueblo counties resulted in no Preble's captures despite 3,311 trapnights of effort in apparently suitable habitat (Bunn et al. 1995). Private researchers and U.S. Department of Agriculture Forest Service personnel found no Preble's in limited surveys of seemingly adequate habitats within the Forest Service's Pawnee National Grassland in northern Weld County (Harrington pers. comm. 1995).

Patterns of capture suggest that populations may fluctuate over time at occupied sites (Shenk *in litt.* 1998). This raises questions regarding security of documented populations and significance of unsuccessful trapping reports. However, trapping surveys provide the best available information regarding current status and distribution of Preble's.

Over 150 surveys for Preble's meadow jumping mouse have been conducted in recent years at locations where development is anticipated. In 1997, results of 104 Colorado surveys were submitted to the Service for proposed or potential development sites that supported potential Preble's habitat. Nine of 35 surveys in El Paso County, 7 of 19 in Boulder County, and 1 of 17 from Jefferson County documented Preble's presence. All successful surveys in El Paso County were on Monument Creek and its tributaries upstream from (north of) downtown Colorado Springs. In contrast,

approximately 15 trapping studies from El Paso County downstream of the Cottonwood Creek and Monument Creek confluence (on Monument Creek, Fountain Creek, and their tributaries) failed to document Preble's. Six of 7 successful Boulder County surveys were near a 2-mile segment of State Highway 36 near Lyons (Ensign Technical Services 1997). Thirty-three 1997 surveys from Adams, Arapahoe, Denver, Douglas, Larimer, and Weld counties failed to locate Preble's. Fragmentation and isolation of habitat have apparently caused local extirpation of Preble's in highly developed areas. Shenk (*in litt.* 1998) suggested that development of the Denver metropolitan area has created a north-south gap in Preble's range.

In contrast to surveys above at anticipated development sites, Meaney et al. (1997) targeted likely Preble's meadow jumping mouse habitat throughout its known range and successfully trapped Preble's at 7 of 10 sites in 1997. Their results filled gaps regarding Preble's status in north-central Colorado and suggest that their ability to identify Preble's habitat has improved over their 1995 and 1996 efforts which found Preble's at 0 of 10 and 4 of 10 sites respectively.

While historical status in Wyoming is less clear (Garber 1995), Preble's meadow jumping mouse is not currently known from its former range in Albany, Goshen, and Natrona counties. Garber documented Preble's persisting at only two Wyoming sites, commented on the difficulty of capturing Preble's at these sites, and concluded that substantial additional work was needed to fully determine the status of Preble's in Wyoming. The Wyoming Game and Fish Department (Bill Wichers *in litt.* 1997) concurred with the conclusion that Preble's has likely been extirpated from most or all of its historical range in Wyoming.

Trapping surveys provide evidence that the Preble's meadow jumping mouse has declined throughout portions of its range. This decline and future threats to existing Preble's populations are linked to widespread habitat alteration. The Colorado Piedmont east of the Front Range and adjacent areas of southeastern Wyoming have changed from predominantly prairie habitat intermixed with perennial and intermittent streams and associated riparian habitats, to a more agricultural and urban setting with grazing, residential, commercial, industrial, and recreational development. The Colorado Front Range urban corridor represents only about 4 percent of the State's land area but supports 80 percent of its population (Wright 1993).

Unfortunately, this area of development corresponds almost directly to known Preble's range. Fueled by human population increases, an increase of 1 million people is estimated by 2020, development in this area continues at an unprecedented rate.

Compton and Hugie (1993, 1994) cited human activities that have adversely impacted Preble's meadow jumping mouse including: conversion of grasslands to farms; livestock grazing; water development and management practices; and residential and commercial development. They mentioned the effects of urbanization occurring from Colorado Springs, Colorado, to Cheyenne, Wyoming, as a continuing threat to remaining populations. Ryon (1995) commented that recent capture sites he observed were on large, historically undisturbed lands supporting native plant communities.

Shenk (*in litt.* 1998) linked potential threats to ecological requirements of Preble's meadow jumping mouse and suggested that factors which impacted vegetation composition and structure, riparian hydrology, habitat structure, distribution, geomorphology, and animal community composition must be addressed in any conservation strategy.

Some researchers hypothesize that overgrazing by livestock may be an important cause of the decline of the Preble's meadow jumping mouse. Compton and Hugie (1994) stated that in southeastern Wyoming almost all private land of appropriate topography and hydrology to support Preble's habitat was heavily grazed by livestock and that overgrazing was the most significant factor in reducing habitat for Preble's. While not mentioning grazing specifically, the Wyoming Game and Fish Commission (Wichers *in litt.* 1997) cited riparian degradation as the primary cause of Preble's decline in Wyoming and stated that the situation would not improve without active management. Ryon (1996) cited livestock grazing as a contributor to lack of structural habitat diversity he observed on historical Preble's sites in Colorado. Two of the largest documented populations of Preble's exist on Federal properties (Rocky Flats and the U.S. Air Force Academy) where livestock grazing is excluded.

The importance of "late season obesity" (the buildup of fat reserves) in meadow jumping mice and its positive correlation to hibernation survival, post-hibernation development, and successful reproduction has been well documented (Nichols and Conley 1982, Muchlinski 1980). Preble's meadow jumping mice entering hibernation with

low fat reserves are less likely to survive the winter or to successfully breed the following spring. Late season grazing of Preble's habitat, as well as mowing or burning, could adversely affect Preble's by reducing the availability of food resources essential for buildup of fat reserves.

City of Boulder Open Space lands endured intensive grazing, farming, or haying regimes until they became part of the City of Boulder Open Space system. Grazing and haying continue on sites supporting the Preble's meadow jumping mouse, largely as land management tools. Impacts of current management practices to Preble's and their habitats are largely unknown.

The Preble's meadow jumping mouse has been documented to coexist on sites supporting grazing, including the Medicine Bow National Forest in Wyoming and Plum Creek, Douglas County, in Colorado. Armstrong et al. (1997) suggested that timing and intensity of grazing are probably important factors in maintaining Preble's habitat and that maintenance of woody vegetative cover may be a key consideration.

Human development has produced profound changes in the hydrology of streams flowing east from the Colorado Front Range. Riparian habitat on which the Preble's meadow jumping mouse depends is in turn dependent on surface flows and groundwater. Water development and management in its various forms can alter Preble's meadow jumping mouse habitat, often, but not always, with adverse impacts. Fitzgerald et al. (1994) stated that inundation of riparian areas to create reservoirs had decreased available Preble's habitat. Compton and Hugie (1993) concluded that management of water for commercial and residential use tends to channelize and isolate water resources, and has reduced in size and fragmented riparian habitats used by Preble's. They found development of irrigated farmland had a negative impact on Preble's habitat, and that any habitat creation it produced was minimal. However, Preble's has been shown to use overgrown water conveyance ditches and pond edges and may use ditches for dispersal (Meaney et al. 1997, Shenk *in litt.* 1998).

Water diversions and associated land use changes can impact Preble's meadow jumping mouse habitat directly, as well as through hydrologic alterations to Preble's habitat located downstream. While an integrated natural resource management plan at the Air Force Academy includes specific provisions for Preble's conservation, Corn et al. (1995)

expressed concern over the hydrologic integrity of Monument Creek and its tributaries because of activities upstream of the Air Force Academy. Flood control, through the placement of riprap and other structural stabilization options, has been proposed on areas that support Preble's, including portions of Monument Creek and its tributaries.

While Rocky Flats supports one of the largest known populations of Preble's meadow jumping mouse and has served as a refuge for Preble's, the future conservation of Preble's at this site is uncertain due to possible impacts to occupied habitats. Without careful planning, Preble's meadow jumping mouse habitats at Rocky Flats could be impacted by the Department of Energy's planned bioremediation (the detoxification of toxic substances using biological agents) and hazardous contaminant cleanup, associated water management practices designed to contain hazardous materials spills and prevent their migration offsite, and dam safety and maintenance activities. An additional threat is potential disruption of the current hydrology by mining operations. There are proposals to expand existing commercial sand and gravel extraction and processing activities in the Rock Creek drainage both outside and within the boundary of Rocky Flats. The Department of Energy does not control mineral rights on the land in question. The Service is currently working with the Department of Energy to provide permanent protection of Preble's habitat at Rocky Flats.

Alluvial aggregate extraction, often in or near riparian habitats, continues to expand as development intensifies along the Colorado Front Range. Ryon (1996) and Armstrong et al. (1997) suggested that such mining can destroy and fragment Preble's meadow jumping mouse habitat. Armstrong (*in litt.* 1997) suggested that mining impacts are significant and, unlike some other human uses, cause permanent changes to Preble's habitat. Mining also targets gravel deposits that may provide key hibernation sites.

Residential and commercial development, accompanied by highway and bridge construction, and instream alterations to implement flood control, directly remove Preble's meadow jumping mouse habitat, or reduces, alters, fragments, and isolates habitat to the point where Preble's meadow jumping mouse can no longer persist. Corn et al. (1995) proposed that a 100 m (328 ft) buffer of unaltered habitat be established to protect the floodplain of Monument Creek from a range of human activities that might adversely effect

Preble's or its habitat. At some historical capture sites, habitat appears intact, but isolation has probably rendered the sites unsuitable for Preble's (Ryon 1996). Roads, trails, or other linear development through Preble's habitat may act as barriers to movement. Shenk (1998) suggested that on a landscape scale, maintenance of acceptable dispersal corridors linking patches of Preble's habitat may be critical to its conservation.

Development and heavy use of trails within occupied Preble's meadow jumping mouse habitats may impact the species by destroying its habitat, nests, and food resources, or by disrupting behavior. Recreational trail systems have been established or are proposed along many riparian corridors within Preble's range. Heavily used recreational trails currently exist on City of Boulder Open Space lands, including sites that support Preble's. A current study near a new paved trail along South Boulder Creek is assessing impacts to a known Preble's population (Meaney *in litt.* 1998).

Habitat alteration may encourage invasion of weeds. While little is known regarding impact of invasive, nonnative vegetation on Preble's meadow jumping mouse, Ryon (1996) expressed concern and Garber (1995) stated that this may represent one of the most serious problems facing the mouse. Corn et al. (1995) discussed both the problem of invasive weeds degrading Preble's habitat and the potential problem of weed control programs removing cover and thereby impacting Preble's habitat.

In summary after reviewing the best scientific data currently available, the Service finds that Preble's meadow jumping mouse has undergone a decline in range and that populations within its remaining range have been lost. Habitat alteration, degradation, loss, and fragmentation resulting from residential, commercial, recreational, flood control and water development, and agricultural and livestock grazing land uses have adversely impacted and fragmented Preble's populations. Significant threats to the continued existence of Preble's are also posed by hazardous materials, mining, and highway and bridge construction. This species is also highly susceptible to localized extinction from naturally occurring events such as flooding, predation, and disease outbreaks.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* The Preble's meadow jumping mouse has no known commercial or recreational value. Scientific and educational collecting has not been widespread over the past century. While

the Service is aware of a small amount of incidental mortality associated with recent scientific studies, this is not thought to present a threat to Preble's populations.

C. Disease or predation. The Preble's meadow jumping mouse, as well as other native rodents, carries parasites and diseases that may reduce vigor, curtail reproductive success, and cause death. There is no evidence whether or not any epizootic disease has caused significant impact to Preble's. While plague is regularly found in other rodent species within Preble's range, its impact to Preble's populations is not known.

Predation on the Preble's meadow jumping mouse has always existed as a naturally occurring association between predator and prey. While evidence is scant, human development may have altered this relationship. Armstrong et al. (1996) recommended studies be conducted on influences of the suburban environment and associated densities of species such as striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), and the domestic cat (*Felis catus*) on Preble's. Free-ranging domestic cats may locally present a problem to Preble's. Corn et al. (1995) recommended a 1.5 km (.9 mi) setback of housing development from Preble's habitat to exclude predation by "house cats." As an alternative they suggested a strict prohibition on free-ranging cats. More information is needed about the effects from predation by domestic and feral cats, and perhaps dogs (*Canis familiaris*), on Preble's.

D. The inadequacy of existing regulatory mechanisms. The decline of the Preble's meadow jumping mouse is partially due to the inherent weakness or non-application of the existing laws and regulations that could serve to protect Preble's and its habitat. Relevant Federal laws include the Clean Water Act, Endangered Species Act, Federal Power Act, Fish and Wildlife Coordination Act, Food Security Act, and National Environmental Policy Act. Federal regulations and policies have limited protection authority and scope for non-listed species. These statutes only recommend, not require, that projects carried out, funded, or permitted by the Federal government attempt to mitigate impacts to species of special concern due to scarcity or decline.

Colorado Division of Wildlife Regulations (Chapter 10, Article IV) classify *Z. hudsonius* as a "nongame" species. This designation means that permits must be obtained for take of Preble's meadow jumping mouse related to scientific, educational, or rehabilitation purposes. Preble's is a

"species of special concern" in Colorado; however, this is not a statutory designation. Preble's is currently under consideration for endangered species designation in Colorado. In Wyoming, the Wyoming Game and Fish Department has classified *Z. hudsonius* as a nongame species protected under Wyoming Game and Fish Department Nongame Wildlife Regulations promulgated by WF23-1-103 and 23-1-302. This designation protects Preble's from takings and sales by only issuing permits for the purpose of scientific collection. While the above regulations limit the taking of Preble's, they provide no measures to protect the species' habitats. State listing encourages State agencies to allocate funds and exercise authority to achieve recovery, stimulate research, and allow redirection of priorities within State natural resource departments. However, without additional measures to protect habitat, such State laws are generally inadequate.

There are few regional or local laws, regulations, or ordinances that specifically protect Preble's meadow jumping mouse or its habitat from inadvertent or intentional adverse impacts. A myriad of local regulations, incentive programs, and open space programs exist, as documented in materials forwarded to the Service by the Colorado Department of Natural Resources. While certain regulations are designed to conserve wetlands or floodplains, it is unlikely that they effectively control land uses (grazing, mowing, cutting, burning) that may impact vegetation on which Preble's depends. Further, Preble's may be dependent on hibernacula sites outside the protected wetlands or floodplains. Many existing local regulations create a process of site plan review which "considers" or "encourages" conservation of wildlife, wetlands, and natural habitats. Effectiveness of local regulations in maintaining naturally functioning riparian corridors may vary greatly depending on how these apparently flexible regulations are implemented. Beyond direct impact to Preble's habitat, secondary impacts of development (increased recreational use, altered flow regimes and groundwater levels, and increase in domestic predators) may not currently be addressed at the local level.

Of note is the 1997 creation of a Preble's Meadow Jumping Mouse Working Group, organized by the Colorado Department of Natural Resources to initiate a collaborative planning process designed to produce a legally and scientifically sound approach to conservation of Preble's.

This effort is supported in part by appropriations from Congress, specifically for the Preble's planning process. The Service is an active participant in this process and is fully supportive of the goal of developing a Preble's conservation plan and implementing agreements. However, there are no such plans or agreements currently in place. The Service anticipates that this planning process may lead to the creation of one or more Habitat Conservation Plans or to the application of the Service's discretionary rule-making authority pursuant to section 4(d) of the Endangered Species Act.

E. Other natural or manmade factors affecting its continued existence. Use of pesticides and herbicides has undoubtedly increased across known Preble's meadow jumping mouse range as human land use has intensified. These chemicals could directly poison Preble's or may be ingested through contaminated food or water. Specific impacts to Preble's from pesticides and herbicides are not currently known. Intensive human development creates a range of additional environmental impacts (including but not limited to noise, and the degradation of air and water quality) that could alter Preble's behavior, increase the levels of stress, and ultimately contribute to loss of vigor or death of individuals, and extirpation of populations.

In summary, the Preble's meadow jumping mouse, historically a rare mammal, has declined. Seven counties in Colorado and two in Wyoming are known to support Preble's populations. Riparian habitats required to support Preble's have been severely modified or destroyed by human activities in many areas east of the Colorado Front Range and in southeastern Wyoming. With current human population increases, the loss and modification of riparian habitat continues. Existing regulations have proven to be inadequate to protect Preble's, as witnessed by its apparent decline and the continued destruction and modification of its habitats.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species in developing this rule. Based on this evaluation, the preferred action is to list the Preble's meadow jumping mouse as a threatened species. The Service has determined that the Preble's meadow jumping mouse is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and therefore meets the requirements to be listed as threatened. Based on 1997

survey data, Preble's is now known to exist in several additional sites in Colorado. In addition, 1997 studies in Douglas County, Colorado, suggest substantial occupied habitat exists along East Plum Creek and West Plum Creek. For this reason, the Service believes that a designation as threatened more accurately reflects the threats facing this species than the endangered status that was identified in the March 25, 1997, proposed rule. The Service knows of no substantial disagreement among scientists knowledgeable about Preble's regarding the sufficiency or accuracy of the available data relevant to this determination, which would serve as a basis for extension of the proposed rule. Critical habitat is not being proposed for the reasons stated below.

Critical Habitat

Critical habitat is defined in section 3 of the Act as: (i) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management considerations or protection; and, (ii) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. "Conservation" means the use of all methods and procedures needed to bring the species to the point at which listing under the Act is no longer necessary.

Section 4(a)(3) of the Act, as amended, and implementing regulations (50 CFR 424.12) require that, to the maximum extent prudent and determinable, the Secretary designate critical habitat at the time the species is determined to be endangered or threatened. Service regulations (50 CFR 424.12(a)(1)) state that designation of critical habitat is not prudent when one or both of the following situations exist: (1) The species is threatened by taking or other human activity, and identification of critical habitat can be expected to increase the degree of threat to the species, or (2) such designation of critical habitat would not be beneficial to the species. The Service finds that designation of critical habitat is not prudent for Preble's meadow jumping mouse for the reasons described below.

Critical habitat receives consideration under section 7 of the Act with regard to actions carried out, authorized, or funded by a Federal agency (see Available Conservation Measures section). As such, designation of critical habitat may affect activities on Federal

lands and may affect activities on non-Federal lands where such a Federal nexus exists. Potential benefits of critical habitat designation derive from section 7(a)(2) of the Act, which requires Federal agencies, in consultation with the Service, to ensure that their actions are not likely to jeopardize the continued existence of listed species or to result in the destruction or adverse modification of critical habitat of such species.

Critical habitat, by definition, applies only to Federal agency actions. 50 CFR 402.02 defines "jeopardize the continued existence of" as meaning to engage in an action that would reasonably be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species. Both jeopardizing the continued existence of a species and adverse modification of critical habitat have similar standards and thus similar thresholds for violation of section 7 of the Act. In the section 7(a)(2) consultation process, the jeopardy analysis focuses on potential effects on the species' populations, whereas the destruction or adverse modification analysis focuses on habitat value, specifically on those constituent elements identified in the critical habitat listing.

Common to both jeopardy and destruction or adverse modification biological opinions is the requirement that the Service find an appreciable effect on both the species' survival and recovery. This is in contrast to the public perception that the adverse modification standard sets a lower threshold for violation of section 7 than that for jeopardy. Thus, Federal actions satisfying the standard for adverse modification are nearly always found to also jeopardize the species concerned, and the existence of designated critical habitat does not materially affect the outcome of consultation. Biological opinions that conclude that a Federal agency action is likely to adversely modify critical habitat but is not likely to jeopardize the species for which it is designated are extremely rare historically; none have been issued in recent years. Thus, the Service believes that, from a section 7 consultation perspective, little or no additional conservation benefit would be achieved for Preble's meadow jumping mouse by the designation of critical habitat.

Additionally, designation of critical habitat provides protection only on Federal lands or on non-Federal lands when there is Federal involvement, through authorization or funding or

participation, in a project or activity. Four populations of the Preble's meadow jumping mouse are located on Federal lands administered by the U.S. Forest Service, U.S. Air Force and the Department of Energy. These agencies are aware of the species' occurrence at these sites and the requirement to consult with the Service. The Department of Energy (DOE) at Rocky Flats and the Air Force Academy have both been active in Preble's meadow jumping mouse survey, research and conservation. The DOE continues to study Preble's at Rocky Flats, has mapped occupied and potential habitat, and is developing a PMJM Protection Plan for the facility. The Air Force Academy has been active in surveying for Preble's and continues to support research into habitat use including radio tracking of animals. Warren Air Force Base and the Forest Service have supported some survey work with additional work remaining to be accomplished. In each case these facilities, Rocky Flats and the Air Force Academy, both of which support important populations, are well aware of their responsibilities regarding section 7. The designation of critical habitat would provide no change in their present operations and impart no additional benefit. Therefore, informing these agencies of the species location and need to consult is unnecessary.

Designation of critical habitat provides no limitations or constraints on private landowners if there is no Federal nexus, and, as such, provides the species no benefit. Activities on private lands rarely have a federal nexus. A Federal nexus may in some cases be found for parcels of lands where there is an activity either funded, authorized or permitted by a Federal agency. Under the Clean Water Act section 404 a permit is required for any activity resulting in the discharge of dredge and fill material from jurisdictional waters. Generally such activities on small parcels of private lands are excluded from individual permit requirements under the Corps section 404 Nationwide Permit program. In all cases where there is a Federal nexus to an activity occurring on private lands, any underlying Federal action (the issuance of a permit) triggering the standard for adverse modification would also be found to trigger the jeopardy standard, with the existence of designated critical habitat not materially affecting the outcome of consultation. Therefore such designation of critical habitat on balance would not afford the Preble's meadow jumping mouse any additional benefit.

Expansive blocks of public lands ensures that Federally sponsored activities will receive the benefit of section 7 consultation, regardless of whether or not critical habitat is designated. Protection of the habitat of the species will also be addressed through the Act's recovery process. Only through the recovery process will a recovery plan be created that will prescribe specific management actions and the establishment of numerical population goals. In addition, the landowners may choose to develop a habitat conservation plan through the section 10 permitting process that will manage for the conservation of the species. Thus, protection of habitat can be addressed through the recovery, section 10 and section 7 consultation processes, and designation of critical habitat would afford the Preble's meadow jumping mouse no additional benefit.

Listing of the Preble's meadow jumping mouse as a threatened species also publicizes the present vulnerability of this species and, thus, can be reasonably expected to increase the threat of vandalism or intentional destruction of the species habitat. In light of the vulnerability of this species to vandalism or the intentional destruction of its habitat (for example poisoning, lethal trapping, burning or cutting of habitat), the designation of critical habitat in and of itself and the publication of maps providing its precise locations and descriptions of essential elements, as required for the designation of critical habitat, would reasonably be expected to increase the degree of threat to the species and its habitat, increase the difficulties of law enforcement, and further contribute to the decline of Preble's.

The Service acknowledges that critical habitat may provide some minor benefit in that it may identify areas important to a species, call attention to those areas in special need of protection and contribute a positive influence for securing funding or land acquisitions, etc., if a parcel of land is designated as critical habitat. However, in this case, where identification of such areas is expected to exacerbate a potentially serious additional threat (vandalism), information regarding the special needs of the species for protection can be disseminated more effectively through alternative means, and such designation could also impart negative connotations and dissuade people from participating in conservation activities simply because an area is designated critical habitat.

Therefore, because of the increased threat of taking, the fact that designation

of critical habitat would provide little different or greater benefit than that provided by the jeopardy standard under section 7 regulations, and that any minor benefits accruing from such designation are outweighed by its negative effects, the Service has determined that the designation of critical habitat for the Preble's meadow jumping mouse is not prudent.

The Service will continue its efforts to obtain more information on Preble's meadow jumping mouse biology and ecology, including essential habitat characteristics, current and historical distribution, and existing and potential sites that can contribute to conservation of the species. The information resulting from this effort will be used to identify measures needed to achieve conservation of the species, as defined under the Act. Such measures could include, but are not limited to, development of conservation agreements with the States, other Federal agencies, local governments, and private landowners and organizations.

Available Conservation Measures

Conservation measures provided to a species listed as endangered or threatened under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing results in public awareness and conservation actions by Federal, State, and local agencies, private organizations, and individuals. The Act provides for possible land acquisition, cooperation with the States, and requires that recovery actions be carried out for all listed species. The protection required of Federal agencies and the prohibitions against taking and harm are discussed, in part, below.

Section 7(a) of the Act requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened, and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(2) requires Federal agencies to insure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of the species or destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service.

The Preble's meadow jumping mouse occurs on lands administered by the U.S. Air Force, Department of Energy, U.S. Forest Service, Colorado Division of Wildlife, Colorado State Parks, Boulder County, Jefferson County, City of Boulder, and on private lands. For Federal lands where Preble's occur, the Act would require the appropriate land management agency to evaluate potential impacts to Preble's that may result from activities they authorize or permit. The Act requires consultation under section 7 of the Act for activities on Federal, State, county, or private lands, including tribal lands, that may impact the survival and recovery of Preble's, if such activities are funded, authorized, carried out, or permitted by Federal agencies. The Federal agencies that may be involved as a result of this proposed rule include the Service, Department of Energy, Forest Service, U.S. Army Corps of Engineers, Natural Resources Conservation Service, Bureau of Land Management, Bureau of Reclamation, Department of the Army, Department of the Air Force, Office of Surface Mining, Western Area Power Administration, Rural Utilities Service, Federal Energy Regulatory Commission, Department of Housing and Urban Development, Federal Highway Commission, and Environmental Protection Agency. Federally listing Preble's as a threatened species will require these agencies to consider potential impacts to Preble's prior to approval of any activity authorized or permitted by them (e.g., Clean Water Act's section 404 permits, grazing management, military maneuvers, bioremediation and hazardous materials cleanup, mining permitting and expansion, highway construction, etc.).

Federal agency actions that may require consultation as described in the preceding paragraph include: removing, thinning or altering vegetation; implementing livestock grazing management that alters vegetation during warm seasons; construction of roads or access along or through riparian areas; channelization and other alteration of perennial and intermittent streams and their hydrological regimes for flood control and other water management purposes; permanent and temporary damming of streams to create water storage reservoirs or deviate the stream's course; human activities in or near Preble's meadow jumping mouse habitats; construction of residential, commercial, and industrial developments, including roads, bridges, public utilities and telephone lines, pipelines, and other structures; bioremediation and hazardous materials

management, containment, and cleanup efforts such as those at Rocky Flats; and, sand and gravel and other types of mining activities within or upstream of Preble's meadow jumping mouse habitats.

The Act and implementing regulations set forth a series of general prohibitions and exceptions that apply to all listed wildlife. The prohibitions codified at 50 CFR 17.21, in part, make it illegal for any person subject to the jurisdiction of the United States to take (including harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect; or attempt any of these), import or export, ship in interstate commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce any listed species. It also is illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions apply to agents of the Service and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving listed wildlife under certain circumstances. Regulations governing permits are codified at 50 CFR 17.22 and 17.23. Such permits are available for scientific purposes, to enhance the propagation or survival of the species, and/or incidental take in connection with otherwise lawful activities. Information collections associated with these permits are approved under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.*, and assigned Office and Management and Budget clearance number 1018-0094. For additional information concerning these permits and associated requirements, see 50 CFR 17.32.

Requests for copies of the regulations regarding listed wildlife and inquiries about prohibitions and permits may be addressed to U.S. Fish and Wildlife Service, P.O. Box 25486, Denver Federal Center, Denver, Colorado 80225 (telephone 303/236-8155, Facsimile 303/236-8192).

The Service adopted a policy on July 1, 1994 (59 FR 34272), to identify to the maximum extent practicable at the time a species is listed, those activities that would or would not constitute a violation of section 9 of the Act. The intent of this policy is to increase public awareness of the effect of the listing on proposed and ongoing activities within a species' range. The Service believes that, based upon the best available information, the following actions will not result in a violation of section 9, provided these activities are carried out in accordance with existing regulations and permit requirements:

(1) Activities authorized, funded, or carried out by Federal agencies (e.g., grazing management, agricultural conversions, wetland and riparian habitat modification, flood and erosion control, mineral development, housing and commercial development, recreational trail development, road and dam construction, hazardous material containment and cleanup activities, prescribed burns, pest control activities, pipelines or utility lines crossing riparian/wet meadow habitats, logging, military maneuvers and training) when such activity is conducted in accordance with any incidental take statement prepared by the Service in accordance with section 7 of the Act;

(2) Activities such as grazing management, flood and erosion control, agricultural conversions, wetland and riparian habitat modification, mineral development, housing and commercial development, road and dam construction, recreational trail development, hazardous material containment and cleanup activities, prescribed burns, pest control activities, pipelines or utility lines crossing riparian/wet meadow habitats, logging, military maneuvers and training when such activity does not occur in habitats suitable for the survival and recovery of the Preble's meadow jumping mouse, does not alter downstream hydrology or riparian habitat supporting Preble's, and does not result in actual death or injury to the species by significantly modifying essential behavioral patterns;

(3) Within the hibernation period and outside denning areas, controlled burns and mowing, or other activities that temporarily alter the Preble's meadow jumping mouse food sources. The period when mowing and burning activities would not impact the Preble's meadow jumping mouse nourishment may vary at specific locations, but would usually fall between October 15 and April 15 of every year;

(4) Human recreational activities undertaken on foot or horseback at breeding, feeding, and hibernating sites that do not degrade Preble's meadow jumping mouse habitat (e.g., waterfowl hunting, bird watching, sightseeing, photography, camping, hiking); and,

(5) Application of pesticides in accordance with label instructions, in areas that do not drain into Preble's meadow jumping mouse habitats.

Activities that the Service believes could potentially result in a violation of section 9 include, but are not limited to:

(1) Unauthorized or unpermitted collecting, handling, harassing, or taking of the species;

(2) Activities that directly or indirectly result in the actual death or

injury death of Preble's meadow jumping mice, or that modify the known habitat of the species, thereby significantly modifying essential behavioral patterns (e.g., plowing, mowing, or cutting; conversion of wet meadow or riparian habitats to residential, commercial, industrial, recreational areas, or cropland; overgrazing; road and trail construction; water development or impoundment; mineral extraction or processing; off-highway vehicle use; and, hazardous material cleanup or bioremediation); when such activities are not carried out pursuant to either a section 10(a)(1)(B) permit issued by the Service; a protective regulation issued under section 4(d) necessary and advisable for the conservation of the species, or in accordance with any reasonable and prudent measures given by the Service under section 7(b)(4)(C)(ii) of the Act.

(3) The application or discharge of agrichemicals, or other pollutants, and pesticides, onto plants, soil, ground water, or other surfaces in violation of label directions, or any use following Service notification that such use, application or discharge is likely to harm the species; would be evidence of unauthorized use, application or discharge.

Questions regarding whether specific activities, such as changes in land use, will constitute a violation of section 9 should be directed to the Colorado Field Office (see ADDRESSES section).

The prohibition against intentional and unintentional "take" of listed species applies to all landowners regardless of whether or not their lands are within designated critical habitat (see 16 U.S.C. 1538(a)(1), 1532(1a) and 50 CFR 17.3). Section 10(a)(1)(B) authorizes the Service to issue permits for the taking of listed species incidental to otherwise lawful activities such as agriculture, surface mining, and urban development. Take permits authorized under section 9 must be supported by a habitat conservation plan (HCP) under section 10 that identifies conservation measures that the permittee agrees to implement to conserve the species, usually on the permittee's lands. The Service would approve an HCP, and issue a section 10(a)(1)(B) permit only if the plan would minimize and mitigate the impacts of the taking and would not appreciably reduce the likelihood of the survival and recovery of that species in the wild.

National Environmental Policy Act

The Service has determined that Environmental Assessments and Environmental Impact Statements, as defined under the authority of the

National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to Section 4(a) of the Act. A notice outlining the Service's reasons for this determination was published in the **Federal Register** on October 25, 1983 (48 FR 49244).

Required Determinations

The Service has examined this regulation under the Paperwork Reduction Act of 1995 and found it to contain no information collection requirements. This rulemaking was not subject to review by the Office of Management and Budget under Executive Order 12866.

References Cited

A complete list of all references cited is available upon request from the Colorado Field Office (see **ADDRESSES** above).

Author. The primary author of this document is Peter Plage of the Colorado Field Office (see **ADDRESSES** section).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

Regulation Promulgation

Accordingly, the Service amends part 17, subchapter B of chapter I, title 50 of

the Code of Federal Regulations, as amended, as set forth below:

PART 17—[AMENDED]

1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Pub. L. 99–625, 100 Stat. 3500, unless otherwise noted.

2. Section 17.11(h) is amended by adding the following, in alphabetical order under Mammals, to the List of Endangered and Threatened Wildlife to read as follows:

§ 17.11 Endangered and threatened wildlife.

* * * * *
(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
Mammals:							
*	*	*	*	*	*		*
Mouse, Preble's meadow jumping.	<i>Zapus hudsonius preblei.</i>	U.S.A. (CO, WY)do	T	636	NA	NA
*	*	*	*	*	*		*

Dated: May 8, 1998.
John G. Rogers,
Director, Fish and Wildlife Service.
[FR Doc. 98–12828 Filed 5–12–98; 8:45 am]
BILLING CODE 4310–55–P