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Comments on Preble's Meadow Jumping Mouse Delisting Proposal

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Subject Comment Letter RE Delisting of PMJM

Peter,

Please receive our letter providing comments concerning the delisting of the Preble's Mouse. We are individuals from the scientific community that have conducted research in various capacities with the Preble's Mouse and want to express our views concerning the delisting.

Sincerely,

Thomas Ryon
Certified Ecologist



Wildlife Biologist Comment Response Zh preblei delisting.doc

Delisting of *Zapus hudsonius preblei* - Comment to U.S. Fish and Wildlife Service

Introduction

We, the undersigned, are individuals who have worked on Preble's meadow jumping mouse (*Zapus hudsonius preblei*) in various scientific capacities. We address issues concerning genetics, ecology, and population vulnerability of the *Z. h. preblei*. In this letter, we take issue that the U.S. Fish and Wildlife Service is basing a delisting of a rare and imperiled subspecies of *Z. hudsonius* on unpublished and therefore unfounded research results.

Genetics

Analysis of genetic variation within and among populations provides the basis for INFERRING whether geographically separate groups of individuals, like Preble's and the Bear Lodge meadow jumping mice, comprise distinct gene pools or not. Ideally, assessments of the connectedness of recognizably distinct groups rely on multiple genetic markers because any one gene can show a pattern that is anomalous because of the effects of natural selection or hybridization. In addition, because the fate of alleles in populations is governed by stochastic processes, inferences of demographic parameters, like estimates of gene flow between groups, are uncertain. When only a single gene marker has been used when estimating gene flow, as is the case for the analysis of *Zapus* subspecies, the uncertainty is especially great. In addition to the uncertainty associated with estimation of demographic parameters, sampling DNA is limited because only a small fraction of the genome is sampled; in the case of the data presented by Ramey et al, only about 300 base pairs of a maternally-inherited cytoplasmic genome were examined. The genome of the mouse (*Mus musculus*) is 2.6 billion base pairs; thus, Ramey et al. surveyed less than 0.0001% of the genome, and only examine bits of DNA passed on through females. Finally, Ramey et al. reported that because there is evidence of recent gene flow between Preble's and Bear Lodge meadow jumping mice, that the two subspecies should be synonymized and considered the same subspecies. However, gene flow is only a homogenizing force if the number of migrants per generation exceeds 1, and then only if there is no selection influencing the fate of migrant alleles. More realistic estimates suggest that homogenization occurs when the number of migrants per generation exceeds 5-10. When the estimated gene flow is less than 1, populations will diverge due to genetic drift and, if all things remain the same, the two populations are sufficiently isolated (genetically) for speciation to occur. The best estimate of the number of migrants per generation for the mtDNA data assembled by Ramey et al. is about 0.5, much less than the value of one or more required to homogenize population under ideal conditions. We are not advocating that the results support that there are two subspecies in nature; we are simply underscoring that the data are much too preliminary and the results shrouded in uncertainty to make biological conclusions. Effective delisting of endangered subspecies (or species) should be based on an exhaustive analysis of the species' biology, not a cursory look at an infinitesimally small, peculiar, uniparentally-inherited DNA sequence. When consequences are irreversible, accounting for uncertainty is important.

Ecology and Status

Z. h. preblei is restricted to riparian and marshy areas in an arid environment. We suspect that *Z. h. campestris* is as well, however much less is known about this subspecies when compared to *Z. h. preblei*. Dense vegetative cover is apparently necessary for the maintenance of populations of *Z. h. p.* (Clark and Stromberg 1987, Bakeman 1987). *Z. h. preblei* is known to wander, shifting nightly or seasonally in response to drying conditions or abundance of food sources (Clark and Stromberg 1987, Fitzgerald et. al. 1994, Shenk and Sivert 1998). *Z. h. preblei* are true hibernators spending considerable time underground in torpor living on fat stores. In order to enter hibernation, individuals need substantial food sources to put on fat stores. These natural history facts illustrate how *Z. h. preblei* must range widely in a contiguous habitat corridor in order to thrive. Putting on fat stores depends on ready supplies of food at the proper time of year. If habitats are fragmented, individuals may not be able to move to new food sources at critical times of the year or may need to move across areas of poor cover exposing them to predation or harsh environmental conditions. Due to their habitat requirements and natural history, *Z. h. preblei* requires contiguous riparian corridors with ample vegetative cover.

State natural heritage programs in the U.S. track the status of wildlife and wild plant species and are each state's primary comprehensive biodiversity data center and also conduct studies to document the status of mammal species. In Colorado and Wyoming, *Z.h. preblei* is listed as "critically imperiled due to rarity...or vulnerability to extinction" (CNHP 2005 and Keinath, et.al. 2003). *Z. h. campestris* is considered a species of special concern and is listed as "high risk because of critically imperiled due to rarity" or as "very rare or only locally abundant in Wyoming (Keinath, et.al. 2003), Montana (MNHP 2004), and South Dakota (SDNHP 2005) where this rodent is known to occur. These databases illustrate the rarity of this taxon and the concern for its conservation.

Genetics is a powerful tool in conservation biology, but other observations are also valid in detecting taxonomic divisions. Biogeography is the study of the patterns of distribution of organisms across the landscape and aids in our understanding that "physiographic barriers" exists within the high plains of Wyoming and Colorado. These barriers prevent movement and apparently limit gene flow between *Z. h. preblei* and *Z. h. campestris*, and between populations of *Z. h. preblei*. These barriers are natural and man-made and include:

1. The Wyoming Basin Dispersal Barrier (Noonan 2001) creates a break between *Z. h. preblei* and *Z. h. campestris* as illustrated in Wyoming Mammals (Clark and Stromberg 1987). This barrier restricts movement and dispersal of many plant and animal species including *Z. hudsonius* subspecies. Butterflies (DeChaine and Martin 2004), beetles (Noonan 2001) and plants are known to be limited by this physiographic barrier dividing the North Platte River and watersheds to the north (e.g. Niobrara River).
2. The Denver Metro Area presents a barrier to movement between *Z. h. preblei* populations in northern and southern Colorado. The U.S. Fish and Wildlife Service has granted a block exclusion area for the Denver area (USFWS 2004).

3. The Palmer Divide is a natural barrier and separates *Z. h. preblei* in the South Platte River and Arkansas River drainage basins.

Considering these barriers to movement between subspecies *Z. h. preblei* and *Z. h. campestris* in Wyoming and between populations of *Z. h. preblei* in Colorado gives support to the idea that genetic separation of these groups within this taxon is a very likely phenomena. Given current climatic and geographic conditions, these separations will exist for many generations creating the potential for more genetic divergence among these groups.

Population Vulnerability

There are few long-term population data to indicate whether Preble's are declining or increasing within their known range. *Zapus* population data were collected from several sites within Colorado in the late 1990s to assess population status. Using comparable field methods and data analysis techniques, it was determined that the mean linear density of *Zapus* from several Colorado sites was 32 animals km⁻¹ of stream (White and Shenk 2001). We do not know of any comparable studies within the *Z. hudsonius preblei* range in Wyoming.

Most of these study areas were surveyed for two years, but there were three areas in particular where longer term population data were collected: South Boulder Creek (4 years of data, Boulder County), East Plum Creek (7 years of data, Douglas County) and Dirty Woman Creek (7 years of data, El Paso County).

Data from 1997-2000 along South Boulder Creek show a high degree of population variation between trapping sessions and sites (7 sites, 2 trapping sessions per year, 4 years). For example, linear population estimates ranged from 0 to 105 Preble's km⁻¹ At one site between July and August of 1997 (Meaney et al. 2003). There were no discernable trends over the 4 years, and it was suggested that a period of 10 or more years may be necessary to assess trends in this subspecies.

Data from East Plum and Dirty Woman Creeks also show a high degree of population variability between years. Population estimates peaked in the late 1990s at both sites, and crashed in 2002, a drought year. One site at the East Plum Creek study area had a 1999 linear density estimate of > 200 Preble's km⁻¹ of stream (the highest recorded density of any site to date), but was reduced to 0 Preble's km⁻¹ of stream in 2002. Data from this same study area suggest that Preble's populations here may be on a 9-year cycle, but more data are needed to support this hypothesis. It is also apparent at both the East Plum and Dirty Woman Creek sites that Preble's populations are slowly increasing in the years following the 2002 drought.

This does illustrate the following points: 1) Long-term data on Preble's populations are generally lacking for much of the known range, 2) at sites where population data have been collected for longer periods, it appears that Preble's populations are highly variable

and can be reduced to dangerously low levels, and 3) the detailed mechanisms that cause this variability are unknown.

Threats

Within the South Platte and Arkansas watersheds in Colorado, Preble's are known from some of the most rapidly developing areas in the United States. Douglas County was the fastest growing county in the United States from 1990 to 1999, with a population increase of 160% (U.S. Census Bureau 2005). El Paso County grew by 102,980 people during this same time frame (25.9% increase), and is projected to have an additional 200,000 new residents by 2025. Both upland and riparian habitat of Preble's has been directly and indirectly affected by these changes, with habitat fragmentation and loss of riparian habitat and function some of the more serious consequences.

Development impacts the hydrology of the stream system and causes stormwater runoff to be diverted into streams. The flow intensity impacts creek topography and the riparian and wetland habitats along the creeks, including areas far downstream. Many plant and animal species are impacted, and especially the riparian obligate *Z. h. preblei*.

It is evident that considerable former Preble's habitat has been lost. Ryon (1995) discovered no Preble's mice at sites where they were captured historically throughout the Front Range Urban Corridor. Habitat lost and land conversions were given as likely causes (threats) for why Preble's mice were no longer present at these sites. Recently, USFWS has granted "Block Exclusions" for the Denver and Colorado Springs metropolitan areas. These exclusion areas indicate locations where habitat is unlikely to occur in areas that likely had habitat at one time. Preble's habitat has been especially fragmented within the Arkansas watershed in El Paso County. In the late 1990's this was considered the largest population of Preble's, originally composed of mainstem Monument Creek through the U.S. Air Force Academy and 7-11 occupied tributaries. All these tributaries have been fragmented and presently there are 7 small, disconnected populations, vulnerable to extirpation due to their small size and isolation. If delisting occurs, the incentive to carry out important conservation programs, such as restoration of movement corridors, will likely fade and eventually fail.

Recent trapping data suggest that montane populations of Preble's in the Pike National Forest have similarly experienced habitat fragmentation and loss, especially following the Hayman Fire of 2002. Population estimates at these high-elevational zones are consistently low despite enormous trapping efforts. Delisting would allow federal and state land managers to proceed with forest treatment projects, such as mechanical thinning or prescribed burning, unrestrained by regulations that control activities within these scarce riparian corridors. The impacts of these projects on populations and habitat, particularly on the movement patterns of Preble's within and between montane drainages, are not fully understood and are likely to further subject the vulnerable mountain populations to risk.

Conclusions

One of the primary reasons for originally listing Preble's in 1998 was loss of habitat, and this factor has not changed in Colorado. The Preble's Recovery Team has recommended various population goals (small, medium, large and combinations thereof) for protection in Colorado counties within the known range. Even if these population goals are met within the designated watersheds, the best-case realistic scenario for Preble's within the Front Range of Colorado is simply stability; protection of existing populations and habitat. Delisting will result in a further continuation of habitat loss and fragmentation, and result in squeezing many of the smaller populations in the Colorado Front Range into extinction.

The current body of knowledge for *Z. h. preblei* concerning genetics, ecology and population vulnerability is extremely uncertain. We simply do not know enough to base sound conservation decisions. A basic premise of conservation biology is to be conservative in the face of uncertainty until such time that enough is known to make educated decisions (Pague and Grunau 2000) especially when concerning small populations (Soule and Wilcox 1980).

We consider *Z. h. preblei* to be an extremely vulnerable taxon and worthy of continued federal protection. Real estate development of the Colorado Front Range Urban Corridor will continue. If federal protection is removed now, we will only find ourselves, as a community, returning to list meadow jumping mice when the habitat and our waterways are further degraded sometime in the future. It is far less expensive to maintain protection now than to try bring this subspecies back from the brink of extinction later.

This letter is respectfully submitted by the following individuals:

Dr. Mark Bakeman
Mr. Craig Hansen
Dr. Andrew Martin
Dr. Carron Meaney
Dr. Ann Ruggles
Mr. Thomas Ryon

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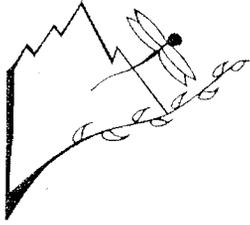
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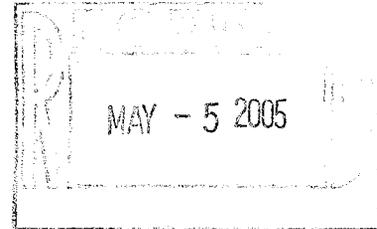
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3 May 2005

BY ELECTRONIC AND U.S. MAIL

Dear Susan,

Center for Native Ecosystems, Biodiversity Conservation Alliance, Forest Guardians, and Native Ecosystems Council submit the following comments in response to the U.S. Fish and Wildlife Service's ("USFWS's") proposed rule to delist the Preble's meadow jumping mouse (*Zapus hudsonius preblei*) ("proposed rule") under the Endangered Species Act ("ESA"). See, 70 Fed. Reg. 5404-5411. Because the proposed rule is not based on the best available scientific information and fails to show a relationship between the data cited and/or presented and the regulatory action being proposed, we request the USFWS rescind the proposed rule. Furthermore, because the Preble's meadow jumping mouse is a declining species, is an important indicator of the health of riparian habitats throughout the Front Range of Colorado and southeastern Wyoming, and continues to be threatened with endangerment and/or extinction throughout all or a significant portion of its range, the species must continue to receive the protection of the ESA, which is considered a safety net for wildlife on the brink of extinction.

We have already submitted extensive comments regarding the status of the Preble's meadow jumping mouse and hereby incorporate by reference every comment ever submitted to the USFWS by our groups, whether individually or collectively, that relates in any way, no matter how remote, to the species¹.

Our comments today are less exhaustive than they would have been because we were under the impression that the comment period had been extended. On Monday, April 25th, Pete Plage spoke with Erin Robertson and explained that the comment deadline had been extended until June 1st, and that a Federal Register notice would be published later in the week. On Friday, April 29th Erin Robertson searched the Federal Register, found no extension notice, and

¹ For the purposes of this incorporation, we hereby also reference any and all comments submitted by the Biodiversity Legal Foundation. In addition, for the purposes of this incorporation by reference, comments include, but are not limited to, written letters and their attachments, meeting notes, phone conversation notes, facsimiles, e-mails, and petitions.

contacted Seth Willey in the Regional Office. Seth explained that an extension had not yet been secured, but that the Service would likely reopen the comment period later. Today Pete also confirmed to Erin Robertson that the Service intends to reopen the comment period. We offer these comments today to ensure that we will have some opportunity to respond to the Service's delisting proposal, but we also trust that the Service will follow through with the verbal commitments it has made to reopen the comment period in the near future, and we intend to provide more information at that time. In addition, we hereby formally request reopening of the comment period.

The proposed rule represents yet another politically motivated drive to strip much-needed protection from the Preble's meadow jumping mouse and the fragile riparian habitats it depends upon for survival. The USFWS knows full well that riparian habitats comprise an extremely small proportion of western landscapes, yet support the majority of life, including humans, in the region. The USFWS also knows that the Preble's meadow jumping mouse is an indicator of the health of riparian habitats and that its status is a telling sign that riparian habitats up and down the Front Range of Colorado and Wyoming have been degraded and destroyed, and remain threatened by a host of factors.² Given the importance of riparian habitats in filtering clean water, in controlling floods, in providing shade for fish, and overall in enhancing the quality of our life, it is disappointing that the Service would turn a blind eye to science and cave into political pressure instead.

The Proposed Rule Is Not Based on the Best Available Science

The proposed rule is not based on the best available scientific and commercial information regarding the status of the Preble's meadow jumping mouse. The rule hinges entirely on the preliminary findings of Ramey et al. (2004) to support the contention that the Preble's meadow jumping mouse is actually the same as the Bear Lodge meadow jumping mouse (*Zapus hudsonius campestris*). The USFWS states, "At this time, we consider Ramey et al. (2004) as the best scientific and commercial information available regarding the taxonomy of the Preble's and Bear Lodge meadow jumping mouse." The proposed rule proceeds to assert that, because of this preliminary taxonomic revision proposal, the original listing of the Preble's was in error.

To begin with, although the USFWS and the Colorado Division of Wildlife have subjected Ramey et al. (2004) to limited and informal peer review, it is telling that of 14 reviews, 9 do not fully support the findings of Ramey et al. (2004) by USFWS's own reckoning. As the USFWS states in the proposed rule, "Of the 14 peer reviews, 5 supported the Ramey et al. (2004) study and its conclusions[.]" 70 Fed. Reg. 5407. While the USFWS seems to recognize the obvious disparity in favorable reviews, the agency nevertheless concludes that Ramey et al. (2004) represents the best available scientific information. There is no explanation as to how this conclusion was reached. Indeed, while the proposed rule summarizes the peer reviews of Ramey et al. (2004), nowhere does the USFWS explain why and /or how it believes the 9 unfavorable reviews are flawed and/or otherwise invalid scientific information. At the least, the USFWS

² See e.g.:

Clippinger, N. W. 2002. Biogeography, community ecology, and habitat of Preble's meadow jumping mouse (*Zapus hudsonius preblei*) in Colorado. PhD. Dissertation, University of Colorado, Boulder, Colorado.

does not explain at all how it balanced unfavorable reviews with favorable reviews, and consequently how it determined that Ramey et al. (2004) represented the “best available” scientific information. Although the USFWS is afforded some discretion in determining what constitutes the best available scientific information, the agency must at least explain how it reached such a determination, especially when its determination runs counter to the views of a majority of scientists.

Aside from the fact that Ramey et al. (2004) is anything but accepted among the scientific community, the USFWS readily admits, the findings of Ramey et al. (2004) have “not yet been published in a peer-reviewed journal and [have] not been incorporated into the formal taxonomy of the [*Zapus*] genus.” 70 Fed. Reg. 5407. The fact that Ramey et al. (2004) has not been published (or even accepted for publication, to the best of our knowledge) in a peer-reviewed scientific journal, which is the accepted vehicle for formal taxonomic revisions based on scientific consensus, is a telling indication that the findings may not withstand the review that accompanies publication. The obvious controversy surrounding the Preble’s mouse, as well as the fact that over half of those scientists who have already reviewed Ramey et al. (2004) disagree with its findings, are strong indications that the best and only way to resolve this issue is to wait until Ramey et al. (2004) is formally published and garners scientific consensus. As it stands, the USFWS’s decision to rely on such a contested, unpublished study flies in the face of standard scientific practice and again is a strong indication that the proposed rule is not based on the best available scientific information.

Probably the most telling indication that Ramey et al. (2004) is not the best available science, however, is the USFWS’s admission that it is not currently in possession of convincing information needed to demonstrate the Preble’s and Bear Lodge meadow jumping mice should be synonymized. As the agency states in its finding, “Within the next year, the Service expects additional genetics information (i.e., nuclear DNA results) that will verify (or refute) the conclusions of Ramey et al.” 70 Fed. Reg. 5410. While the words “or refute” seem to have been inserted only as a parenthetical afterthought, this statement nevertheless indicates 1) That the USFWS does not currently have data necessary to conclusively support the validity of Ramey et al. (2004) and 2) does not currently have data necessary to convincingly support delisting the Preble’s meadow jumping mouse based on any purported taxonomic revision. The USFWS has no basis to conclude that Ramey et al. (2004), which suggests a radical change to taxonomic conclusions that have been accepted for over 50 years, is the best available scientific information and thus, no basis for delisting. The fact that the agency “expects” to gather additional data in the coming year to “verify” its position only bolsters the fact that the agency merely crafted a proposed rule to fit a predetermined agenda, not to respond to the best available scientific information or to public comment. The agency seems to be engaging in rulemaking on the fly, rather than engaging in a thorough, measured, and deliberate process.

We also question how it is possible that the original listing of the Preble’s meadow jumping mouse, which occurred in 1998, was “in error” given the fact that the findings of Ramey et al. (2004) were not available in 1998 and given that the USFWS has not yet evaluated how the suggested taxonomic change may affect the taxon’s status. Regulations at 50 CFR § 424.11(d)(3) state that delisting based on data error is allowed only when “Subsequent investigations may show that the best scientific or commercial data available when the species

was listed, or the interpretation of such data, were in error.” By all accounts, however, the listing of the mouse in 1998 was based on the best available science at the time, not erroneous science and/or erroneous interpretation, and the USFWS has not demonstrated that listing is in error if the taxonomy is revised. The fact that new information has since been gathered has no bearing on the prudence of the initial rule, and the USFWS has yet to analyze what impact taxonomic revision would have on the listed taxon’s status relative to the criteria for listing.

The USFWS has, on several occasions, dealt with the delisting of species based on taxonomic revisions. In every one of these cases, however, the Service delisted, not solely because of a data error, but because the taxonomic entity no longer qualified for protection based on the five factors set forth at 16 USC § 1533(a)(1) and 50 CFR § 424.11(c). For example, in delisting the *Bidens cuneata*, a Hawaiian plant, the USFWS concluded that, while the species was no longer valid due to a recent taxonomic revision, the correct taxon did not meet the five factors used to determine whether a plant or animal warrants listing as threatened or endangered. See, 61 Fed. Reg. 4373. The species was not delisted only because of taxonomic revision, but rather because it did not meet the five factors set forth at 50 CFR § 424.11(c).

The proposed rule states that the Service is now “initiating a status review” to analyze threats to the Preble’s and Bear Lodge meadow jumping mouse in the final rule. This proposal seems to fly in the face of the ESA, as well as rulemaking procedures under the Administrative Procedures Act. See, 5 USC § 553. For one thing, the ESA and USFWS regulations are clear that a status review of a species that may warrant listing or delisting as threatened or endangered is supposed to occur before a proposal to list or delist is issued. Regulations at 50 CFR § 424.11(d) clearly state that a species may only be delisted “after conducting a review of the status of the species” (emphasis added). It is difficult to understand how the USFWS could possibly conclude delisting is warranted before it has conducted a review of the status of the Bear Lodge and Preble’s meadow jumping mouse. At the least, the USFWS has no basis for issuing a proposed rule before conducting a status review.

Furthermore, how can we possibly comment on the proposed rule when the USFWS readily admits information, such as additional and necessary DNA analyses and necessary status information, is not even available yet? Through previous rulemakings, the USFWS has made every effort to ensure that information relevant to the listing and/or delisting of a species was available to the public to ensure adequate public involvement.

Finally, because of all the aforementioned flaws, it is clear that the USFWS has failed to show a relationship between the data cited and/or presented and the regulatory action being proposed. See, 16 USC § 1533(b)(8) and 50 CFR § 424.16(b). Indeed, while the USFWS is proposing to delist, it has failed to show that the status of the Prebles and Bear Lodge meadow jumping mouse is such that it does not warrant listing based on the five factors set forth at 50 CFR § 424.11(c). The agency’s regulations specifically state:

The factors considered in delisting a species are those in paragraph (c) of this section as they relate to the definitions of endangered or threatened species. Such removal must be supported by the best scientific and commercial data available to the Secretary after conducting a review of the status of the species.

This regulation sets forth a clear standard for data that is referenced and/or cited in support of a proposed listing or delisting rule. In essence, it requires that data used to support a proposed rule show that the status of a species is such that it no longer meets the definition of a threatened or endangered species and be based on the best available scientific information. Such a requirement is echoed at 50 CFR § 424.16(b), which requires that proposed delisting rules “include a summary of factors affecting the species and/or critical habitat.” By any measure, the proposed rule fails to meet this threshold and clearly fails to show a relationship between the data cited and/or presented and delisting of the Preble’s meadow jumping mouse.

The delisting proposal mischaracterizes some of the peer reviews.

The delisting proposal attempts to score each of the 14 peer reviews as either those that “supported the Ramey *et al.* (2004) study and its conclusions” (70 Fed. Reg. 5407 (Feb. 2, 2005)), those that “leaned toward support of the study and its conclusions” (70 Fed. Reg. 5407 (Feb. 2, 2005)), or those that “were generally critical of the study or skeptical of its conclusions” (70 Fed. Reg. 5407 (Feb. 2, 2005)). This is a dangerous way of handling the reviews – the reviewers were not asked to cast an up or down vote on delisting; instead, they were asked to comment on Ramey’s work. Many of the reviewers supported some aspects of Ramey’s study and interpretations while disagreeing with other portions. The delisting proposal ignores this subtlety, and scores the proposal as five supporting Ramey *et al.* (2004), three leaning toward support, and six opposing. Later, the delisting proposal states “The peer reviews of the report suggested a majority (8 out of 14) either support or lean toward supporting the taxonomic conclusions of Ramey *et al.* (2004)” (70 Fed. Reg. 5409 (Feb. 2, 2005)). In other words, the Service appears to be proceeding with delisting because 57% of the scientists who reviewed Ramey’s study did not object to its conclusions, according to the Service’s reckoning. Dr. Andrew Martin from the University of Colorado makes a powerful point in his recent “Response to petition to de-list Preble’s meadow jumping mouse”: “Interestingly, the USFWS service [sic] noted that the decision to go ahead with the delisting process stemmed from peer reviews of the work in which a slight majority agreed with [sic] genetic analysis. Science as a way of knowing about nature does not proceed by a majority vote” (p. 5).

Clearly the Service should take any concerns raised by peer reviewers seriously, especially when what is at stake is continued protection of a listed entity. The Service should assiduously attempt to resolve any perceived deficiencies in the existing scientific research before proceeding with delisting.

That said, the Service has characterized several peer reviews as supporting or leaning toward support of Ramey’s work when they do not support delisting at this time. Part of this discrepancy stems from the fact that on page 5407 of the delisting proposal, the Service characterizes these reviews as supporting “study and its conclusions”, while on page 5409 the Service characterizes these eight reviews as supporting “the taxonomic conclusions” of the Ramey study. The Ramey study included far more than taxonomic conclusions, and instead ventured into the realm of policy by recommending against continued protection for the Preble’s meadow jumping mouse as a Distinct Population Segment under the Endangered Species Act. Some of the reviewers who supported synonymization of the Preble’s and Bear Lodge mice

thought it was likely that the Preble's mouse still merited protection as a DPS (or the more-or-less biologically equivalent Evolutionarily Significant Unit). Furthermore, Ramey has made clear throughout this process that he does not support Endangered Species Act protection for the Bear Lodge mouse (including the Preble's mouse segment), and several of the reviewers who supported Ramey's taxonomic conclusions thought that the combined subspecies may well merit listing. In short, support for taxonomic revision does not necessarily indicate support for removal of protections under the Act.

For example, the Service scores Dr. Brett Riddle's review as one of the five in support of Ramey's conclusions. However, he clearly advocates for conservation attention for both *Z. h. campestris* and *Z. h. preblei*: "even if the two subspecies are taxonomically synonymized, I would strongly urge agencies and recovery teams to regard all remaining populations as potentially valuable within a recovery plan" (p. 3); "What this study has done, in my opinion, is not reduced the conservation concern for a set of vulnerable populations along the western periphery of the species' distribution, but rather, established that the issue of evolutionary distinction needs to be addressed at a different geographic and sampling scale" (p. 3); "I believe that there is still a case to be made for considering the collective set of populations originally represented as separate subspecies as an evolutionary lineage of conservation concern" (p. 3). Dr. Riddle's review strongly suggests support for protection of both the Preble's and Bear Lodge mouse, yet his comments are being used by the Service as the part of the basis of its rationale for delisting.

Similarly, the Service scores Dr. Lisette Waits's review as one that supports Ramey's conclusions. However, Dr. Waits repeatedly states that Ramey's work does not address whether *Z. h. preblei* constitutes an Evolutionarily Significant Unit. She writes, "Because of potential recent isolation (within the last 5,000 yrs) of this population, it may be on a unique evolutionary trajectory that might have future importance under Waples [sic] (1991, 1995) definition of evolutionary legacy" (p. 2).

She also writes:

the authors state that based on the Crandall approach the two species [sic] would be considered a single population for management purposes. I think it is a premature overstatement to conclude this without microsatellite data. The Crandall approach or others might support classification as separate populations maybe even different management units (under Moritz 1994) or ESUs (under Waples definition) depending on the results of microsatellite analysis" (p. 2)

Dr. Dave Hafner's review is also scored as one supporting Ramey's conclusions, even though he says he "disagrees strongly" (p. 1) with Ramey's premise that the Bear Lodge meadow jumping mouse is secure and thus the Preble's mouse should be delisted:

While I support the taxonomic interpretations of Ramey et al., I disagree strongly with their implied conclusion that synonymy with *campestris* automatically translates into conservation security for the geographically expanded taxon. Yes, the expanded subspecies is "more common and widespread than previously

thought,” but that does not necessarily mean that the new taxon is secure, or that this represents a “misallocation of scarce conservation resources to populations that are not genetically or ecologically unique.” Here Ramey et al. went well beyond their data, and failed to consider the conservation status of *campestris*. It would have been quite simple for Ramey et al. to consult the IUCN Status Survey and Conservation Action Plan for North American Rodents (Hafner et al. 1998; <http://www.iucn.org/themes/ssc/actionplans/northamericanrodents/5geo.pdf>). In the section on *Zapus hudsonius*, Hafner and Yensen (1998) consider *preblei* to be Endangered (EN): B1; B2c (IUCN Red List Category; IUCN 1994), but also consider *campestris* to be of concern: Vulnerable (VU): B1; B2c.

EN: B1; B2c = Endangered, facing a very high risk of extinction in the wild in the near future; extent of occurrence estimated to be less than 100 km², and estimates indicating: B1) severely fragmented; and B2c) Continuing decline, observed, inferred, or projected, in area, extent, and/or quality of habitat.

VU: B1; B2c = Vulnerable, facing a high risk of extinction in the wild in the medium-term future; extent of occurrence estimated to be less than 100 km², and estimates indicating: B1) severely fragmented; and B2c) Continuing decline, observed, inferred, or projected, in area, extent, and/or quality of habitat.

Overgrazing and loss of riparian habitat has been implicated as the major deleterious impact on populations of *campestris* in Wyoming, South Dakota, and Montana (Hafner and Yensen 1994). Thus, although the expanded *campestris* enjoys a larger geographic range, it (including populations previously assigned to *preblei*) is of conservation concern throughout its range.

The Service even acknowledges Dr. Hafner’s concern in the delisting proposal, yet holds him up as one of the scientists supporting the proposed delisting.

Dr. Carron Meaney’s review is scored as one leaning toward support for Ramey’s conclusions, yet she presents several arguments that call those conclusions into question. She says that the Preble’s mouse, or the Preble’s and Bear Lodge mice combined, “may fit case #6” (p. 2) in Crandall *et al.* (2000). This scenario involves populations that have recently lost ecological exchangeability, and the authors recommendation is to “treat as distinct populations” (p. 293). Dr. Meaney writes, “I find the important question of potential ecological differences between the two taxa, or between the combined *Z. h. preblei* and *Z. h. campestris* and the remaining subspecies, nonetheless unanswered” (p. 2). Like Dr. Hafner and Dr. Riddle, her overall conclusion is that the merged subspecies may require conservation attention: “I think the status of *Z. h. campestris* now becomes an important biological question, as very little is known about this subspecies. This taxon is categorized as vulnerable by the International Union on the Conservation of Nature. Thus although *Z. h. preblei* may not be distinct, there is the possibility that the two subspecies together may be imperiled” (p. 2).

Finally, Dr. Jack Sites's review is scored as one leaning toward support for Ramey's conclusions, but he clearly says that he thinks additional research is necessary before synonymization may occur:

Because so much rests on this decision, I would interpret the Ramey et al. report as tentative evidence for synonymizing *Z.h. campestris* and *Z.h. preblei*, and recommend two things. First, implement tests for neutrality of the mtDNA sequences, and if the null hypothesis (neutrality) cannot be rejected, then Ramey et al. have a stronger basis from which to infer ongoing or historically very recent gene flow between these entities. Second, Ramey et al. (or someone) should definitely conduct a follow-up study using nuclear markers, ideally using the same samples used by Ramey et al. (p. 3)

Dr. Sites also suggests that the Preble's meadow jumping mouse may constitute what amounts to a DPS:

what is now *Z.h. preblei* represents a very large and disjunct portion of *Z.h. campestris*, and its loss would almost certainly represent a substantial loss of the evolutionary legacy of *campestris*. This may be especially true in this case because of the peripheral distribution of *Z.h. preblei* relative to *Z.h. campestris* – these kinds of populations are thought to represent a major component of future “speciation potential” of any taxon (Frey, 1993; Lesica and Allendorf, 1995). The application of high resolution molecular markers such as microsatellites might very well reveal that unique alleles are segregating in these peripheral demes, and while such a result would not support continued taxonomic recognition of this entity, it would highlight the evolutionary value of the populations in this part of the range. (p. 4)

Drs. Riddle, Waits, Hafner, Meaney, and Sites are cited by the Service as five of the eight scientists who support the conclusions of Ramey's research, but none of these reviews appear to support the immediate removal of protections under the Endangered Species Act for the Preble's meadow jumping mouse. Furthermore, the Service admits in the delisting proposal that the other six peer reviewers (Drs. Armstrong, Ashley, Conner, Douglas, Oyler-McCance, and White) do not support synonymization based on Ramey *et al.* (2004), let alone delisting. Therefore, delisting clearly is not based on the best available science, and if these highly respected scientists have not been convinced that delisting is warranted, the Service cannot possibly have met the “convincing information” and “reasonable person” standards.

The Service avoids the questions of retaining listing as a DPS or listing both the Preble's and Bear Lodge meadow jumping mice (or retaining the current listing after nuclear DNA research occurs) in the delisting proposal by saying that it will do a status review to answer these questions before the final rule is published. However, the status review is supposed to be part of the 12-month finding, and its results are to be incorporated in any delisting proposal. By deferring publication of the results of this status review until the final delisting rule, the Service is preventing the public from commenting on the status review's results. The Service has an affirmative legal duty to maintain protections for the Preble's mouse if they are warranted, and

should not pursue delisting until it has ruled out the possibility that these mice warrant listing under all other taxonomic scenarios.

Our comments focus on the peer reviews of Ramey's research involving *Z. h. campestris* and *Z. h. preblei* because the study including *Z. h. intermedius* evidently was not included in the Service's delisting analysis. We understand that the Service has solicited peer reviews for this study that are due later this month, according to Pete Plage. Again, the Service is impeding public comment by closing the comment period before these peer reviews are available (both to the Service and to the general public). The analysis of reviews presented above is extremely relevant, however, because it suggests that the Service may mischaracterize future reviews as well, and it documents that the delisting proposal was not supported by the best available science. While it is possible that the *Z. h. intermedius* study could lead some reviewers to change their positions, the one documented response by a former reviewer, Dr. Hafner, was to withdraw his support for synonymization between *Z. h. campestris* and *Z. h. preblei*, as we discuss below. Therefore, it is far from clear that Ramey's current stance that all three subspecies should be considered one subspecies will be supported by future reviewers.

Since the delisting proposal was published, the Service has received new information from scientists who disagree with Ramey's conclusions

In February the Service both announced the delisting proposal and circulated a newer version of Ramey's research that included *Z. h. intermedius*. Upon reviewing the newer research report, Dr. Dave Hafner contacted the Service and indicated that he was changing his position on synonymization for the Preble's and Bear Lodge mice, because if these taxa were lumped *Z. h. pallidus* and *Z. h. luteus* would have to be lumped as well, and he knew that this did not make sense for these taxa that he was well acquainted with: "Why? Because they are geographically well separated, and ecologically quite distinct (*luteus* has moved into montane as well as riparian meadows, very different from the standard *pallidus* prairie habitat)" (p. 1). Dr. Hafner wrote, "What I'm saying is that the mtDNA show me that of all five subspecies, *preblei* is probably the most unique" (p. 1), and "I was wrong in agreeing with Ramey's initial taxonomic interpretation" (p. 2). Dr. Hafner also mentioned that sorting errors and signs of past interbreeding are to be expected since these taxa are subspecies. Therefore, it appears that seven of the original 14 reviewers currently do not support synonymization for the Preble's and Bear Lodge mouse. In the recent ruling on grizzly bear Biological Opinions, the court found that when there is credible doubt about how to proceed, the Service must defer to the species' welfare. We strongly believe that the Service must not delist the Preble's mouse given any credible dispute over Ramey's research, but to have fully half of the reviewers now disagree with his taxonomic conclusions should meet even the Service's unorthodox vote-casting method for determining whether delisting should proceed.

Secondly, Dr. Andy Martin has reanalyzed Ramey's data and submitted comments to the Service including his findings that MDIV analysis predicted that "the two subspecies appeared [sic] to have diverged" (p. 4), "gene flow is limited" (p. 4), and that "unidirectional gene flow suggests that there may be barriers to reproduction" (p. 4). Dr. Martin compared the Preble's and Bear Lodge mouse analyses to those he performed for "two geographically remote populations of fish" (p. 3), which predicted that the fish populations had experienced essentially no divergence

and had high rates of gene flow. Therefore it appears that Dr. Martin has documented divergence greater than one might expect simply along a geographical cline of a single taxon. Dr. Martin concludes, “the recognition of distinct subspecies is a better explanation of the genetic data than to synonymize the subspecies” (p. 5). Dr. Martin also points out that some gene flow is to be expected across subspecific boundaries.

Recently Drs. Devers, Grobler, and Hallerman and Ph.D. student Nathaniel Hitt at Virginia Polytechnic Institute and State University submitted comments to the Service regarding Ramey’s research. They raised several important points, and concluded, “We find that the conclusions of the Ramey et al. (2004) manuscript do not support the downlisting of *Zapus hudsonius preblei*....We believe that Ramey et al. (2004) does not incorporate the best available science for the task of taxonomic delineation” (p. 5). Many of their criticisms have been raised by other reviewers: the mtDNA sequence analyzed was comparatively short, nuclear data were not analyzed, multiple lines of evidence should be required to revise taxonomy, the Preble’s mouse specimens grouped out together, sorting error should be expected, ecological information should be evaluated, more morphometric measurements should have been conducted, and the use of AMOVA to delineate subspecies is inappropriate. Their language on this last factor is especially strong. They cite studies were accepted species did not meet the criteria employed by Ramey, and state, “It is thus extremely unlikely that an AMOVA-based analyses of subspecies would reveal more diversity between than within subspecies. The criterion used is therefore dubious, and the conclusion drawn from failure to meet this criterion is not valid” (p. 5).

How many times does the Service need to hear these criticisms before taking them seriously? We also believe that other similar comments are forthcoming from the scientific community. All of these scientists are extremely busy. For them to take the time to familiarize themselves with this research, submit comments, and word them as strongly as many of these scientists have given the collegiality they usually share should indicate to the Service how firmly they believe that the Service is making a colossal error in judgment by pursuing delisting based on Ramey’s research. Not only an error in judgment, but an illegal action that we will seek to rectify if need be.

The Best Available Scientific Information Continues to Demonstrate that, Whether Considered as One or Two Distinct Species, the Preble’s and Bear Lodge Meadow Jumping Mouse Warrant Listing as Threatened or Endangered

While the proposed delisting rule is silent on the actual status of either the Preble’s or the Bear Lodge meadow jumping mouse, the best available scientific information continues to demonstrate that the species warrant listing as threatened or endangered as either one or two distinct taxa based on the five factors set forth at 16 USC § 1533(a)(1) and 50 CFR § 424.11(e). We have already submitted extensive scientific information in support and hereby incorporate by reference any and all comments submitted by our groups with regards to the status of these species. We also wish to provide additional comments on the status of these species. However, because the proposed rule lacks any information whatsoever on the USFWS’s perceived status of these species, the comments below may not address the USFWS’s full rationale for delisting.

The Bear Lodge Meadow Jumping Mouse

A wealth of scientific information exists demonstrating that habitat loss and degradation has occurred throughout the range of the Bear Lodge meadow jumping mouse and threatens the species with endangerment or extinction. Indeed, the widespread loss and degradation of riparian habitat in the Black Hills region is well-documented, as we have discussed in our previous comments. While population data are sparse for the Bear Lodge meadow jumping mouse, this is due to the fact that no specific efforts have been undertaken to ascertain the population status of the species. Additionally, ESA does not require that populations first decline before being listed as threatened or endangered. The Act clearly states, that a species shall be listed as threatened or endangered because of “present or threatened destruction, modification, or curtailment of its habit.” 16 USC § 1533(a)(1)(A).

Cryan (2004) seems to suggest that the lack of quantitative habitat information and accurate population data precludes an accurate assessment of the impacts of habitat loss and degradation to the Bear Lodge meadow jumping mouse. While clearly more information would be helpful, as it stands, the best available scientific information clearly indicates that the Bear Lodge meadow jumping mouse is negatively impacted by riparian habitat loss and degradation. As Cryan (2004) states, “It is likely that loss of adequate riparian habitat in the Black Hills and Bear Lodge Mountains negatively impacts *Z. hudsonius* occurring there” (p. 11).

The threshold of certainty cannot be raised so high as to preclude the USFWS from responding in order to prevent the extinction or endangerment of a species. Enough scientific information exists demonstrating that the Bear Lodge meadow jumping mouse is, at the least, threatened by the loss and degradation of riparian habitat, but most likely declining toward extinction or endangerment as a result.

Although the best available scientific information demonstrates the Bear Lodge meadow jumping mouse is threatened with endangerment or extinction because of habitat loss and degradation throughout all or a significant portion of its range, we are encouraged that the USFWS has promised to further investigate the status of the species in the coming year.

The Preble’s Meadow Jumping Mouse

Scientific data strongly indicate the Preble’s meadow jumping mouse, if in fact the same taxon as the Bear Lodge meadow jumping mouse, may warrant listing as a distinct population segment (“DPS”).

Indeed, the USFWS has made clear that many of the characteristics of the Preble’s meadow jumping mouse render the population both discrete and significant. In terms of discreteness, the USFWS’s own DPS policy states that complete reproductive isolation is not an indication of whether a population is discrete. See, 61 Fed. Reg. 4724. However, as it stands, the best available scientific information strongly suggests the Preble’s mouse is currently reproductively isolated from the Bear Lodge meadow jumping mouse, as we clearly explained in our previous comments.

Furthermore, the Preble's meadow jumping mouse is significant in many ways. For one thing, it exhibits a low level of genetic diversity as compared to other populations. Low genetic diversity has been identified by the USFWS as a unique characteristic that can indicate significance. See, e.g. 66 Fed. Reg. 22991. The species is also morphologically distinct with regards to certain morphological characteristics, as Ramey et al. (2004) report and as we discussed in previous comments. The Preble's meadow jumping mouse also persists in an ecosystem that is unique to the taxon. There are distinct differences between the Southern Rockies Ecosystem inhabited by the species along the Front Range of Colorado and Wyoming and the Black Hills ecosystem (see, Hall et al. 2002 for a discussion of the Black Hills ecoregion vs. Southern Rockies Ecosystem Project 2004). It is also important to note that the USFWS has explicitly stated that significance is not defined in terms of the significance of the range that a population occupies in comparison to a larger species. As the USFWS stated in its 2001 "warranted, but precluded" finding for the western yellow-billed cuckoo, "we emphasize that the "significant gap in the range" analysis required for a DPS is different than the "significant portion of the range." 66 Fed. Reg. 38622. Finally, in assessing whether the loss of the Preble's meadow jumping mouse would represent a significant gap in the range of the species, we request the USFWS utilize the same standards and assessments as were utilized in the agency's "warranted but precluded" finding for the Washington population of western sage grouse. See, 66 Fed. Reg. 22984-22994.

Inadequate Regulatory Mechanisms Exist to Protect Either Species

Regulatory mechanisms continue to be inadequate to ensure the protection of both the Preble's meadow jumping mouse and Bear Lodge meadow jumping mouse.

If the Preble's meadow jumping mouse were delisted, recently developed and developing Habitat Conservation Plans would cease to be unenforceable and voluntary. Such measures would not serve to adequately protect the Preble's meadow jumping mouse. Other requirements under the ESA, such as protection of critical habitat and Section 7 consultation requirements would also cease to apply for the Preble's mouse. Although the proposed rule cites comments from the Colorado Department of Natural Resources and the El Paso County Board of County Commissioners that claim state and local governments will continue to protect the Preble's meadow jumping mouse after it is delisted, there is little evidence of any present, mandatory and enforceable measure that will actually be implemented on the ground. As the USFWS knows full well, voluntary, future, unenforceable, and/or promised conservation measures are to be given no weight in assessing whether existing regulatory mechanisms are adequate. Our understanding is that many counties and landowners ceased working on HCPs as soon as rumors of taxonomic revision were raised, crossing their fingers that delisting would occur so that conservation measures would not need to be implemented.

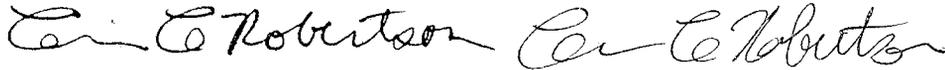
Furthermore, the petitions to delist the Preble's meadow jumping mouse seem to assert that regulatory mechanisms are only inadequate if population declines of a species are documented. Such a claim is patently absurd. The USFWS is to assess the effectiveness of regulatory mechanisms in preventing population and/or habitat declines altogether, not simply whether or not populations are declining in the face of existing regulatory mechanisms.

With regards to the Bear Lodge meadow jumping mouse, no regulatory mechanisms have been emplaced that would ensure the protection of the species since our last comment letter.

Conclusion

For all of the reasons outlined above, the Service must not proceed with the delisting of the Preble's meadow jumping mouse.

Sincerely,



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Cryan, P.M. 2004. Synthesis of existing information on meadow jumping mice (*Zapus hudsonius*) in the Northern Great Plains. An Information Review Compiled for the U.S. Fish and Wildlife Service, Region 6. Denver, CO.

Hall, J.S., H.J. Marriott, and J.K. Perot. 2002. Ecoregional Conservation in the Black Hills. The Nature Conservancy, 1313 5th St. Ste. 314, Minneapolis, MN 55414. 176 p.

Southern Rockies Ecosystem Project. 2004. The state of the Southern Rockies Ecoregion: a report by the Southern Rockies Ecosystem Project. The Colorado Mountain Club Press, Golden. 137 pp.

USFS. 1996. Revised Land and Resource Management Plan Final Environmental Impact Statement for the Black Hills National Forest. Custer, South Dakota.



Pauline P Reetz
<reetzfam@juno.com>
05/03/2005 09:20 PM

To FW6_PMJM@fws.gov
cc
bcc
Subject Fw: Fw: Delisting of Preble's Mouse

Below are the comments of the Audubon Society of Greater Denver on the proposed delisting of the Preble's Meadow Jumping Mouse. Contact information:

Audubon Society of Greater Denver
9308 S. Wadsworth Blvd.
Littleton, CO 80218
Tel. 303-973-9530
FAX 303-973-1038

May 3, 2005

United States Department of the Interior
Fish and Wildlife Service
Field Supervisor, Ecological Services
Colorado Field Office
755 Parfet Street, Suite 361
Lakewood, Colorado 80215
FW6_PMJM@fws.gov

Re: Comments on delisting petition for Preble's Meadow Jumping Mouse (*Zapus hudsonius preblei*)

Dear Field Supervisor,

Following are comments on the petitions to remove Preble's Meadow Jumping Mouse from the Federal List of Threatened and Endangered Wildlife and Plants pursuant to the Endangered Species act of 1973.

The Audubon Society of Greater Denver opposes the delisting for the following reasons:

1. According to scientific protocols with which we are familiar, scientific decisions should not be made based upon one experiment or study that has not yet been published in any well-known scientific journal that we are aware of. The real process of peer review has not yet occurred and other researchers have not had a chance to examine the results. We are not aware that the studies have been replicated and their results confirmed, as is usually the process before new theories are accepted. We feel that the petitions were filed prematurely before the one study

was published, reviewed, and repeated with similar results.

2. We also are concerned about the ethics of the case. One of the petitioners (the State of Wyoming) is also a major funder of the study (\$61,430). If the research is repeated, it should be funded by a neutral party.

3. It has also been brought to our attention that the Bear Lodge mouse (*Zapus hudsonius campestris*) which the study says should be combined genetically with the Preble's, may in itself be endangered. We laud the statement in your letter of February 8, 2005 that you will look at " additional genetics information and other data regarding Preble's and related taxa prior to a final decision."

Thank you for your interest in our comments. We feel at the time of this petition there is not enough accepted data to warrant delisting of Preble's Meadow Jumping Mouse.

Sincerely,

Ann Bonnell, 2nd Vice President, Audubon Society of Greater Denver
Polly Reetz, Board Member and Conservation Chair



United States
Department of
Agriculture

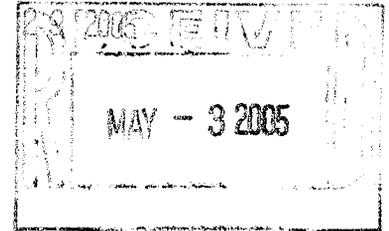
Forest
Service

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Mountain
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File Code: 2670-4

Date: APR 29 2005



Susan Linner
Field Supervisor, Colorado Field Office
U.S. Fish and Wildlife Service
755 Parfet Street
Suite 361
Lakewood, CO 80215

On February 2, 2005, you published a notice of the 12-month petition finding and a proposed rule to de-list the Preble's meadow jumping mouse (*Zapus hudsonius preblei*). In the Federal Register notice, you indicated that you would conduct a status review of the combined *Z. h. campestris* entity, and specifically requested any survey data, life history information, threats, and effects of current land management on the Bear Lodge meadow jumping mouse in the Black Hills.

We do not have any survey data beyond that already available through the State Heritage Program databases. As part of a Forest Plan amendment, the Black Hills National Forest has recently evaluated the status of the Bear Lodge meadow jumping mouse, which is proposed to be given special emphasis as a "Species of Local Concern". The evaluation of this species (enclosed), as well as the following documents may be of interest to you:

Draft Species of Local Concern Report and appendices:

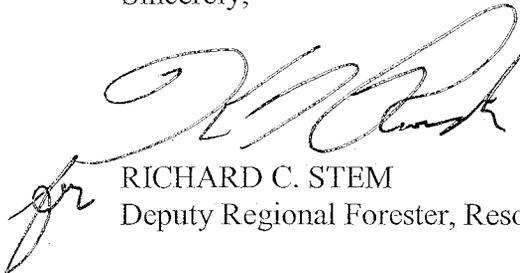
http://www.fs.fed.us/r2/blackhills/projects/planning/assessments/phase_II/solc/solc.pdf

Draft Phase II Amendment Environmental Impact Statement: (see page 3-140 through 3-142):

http://www.fs.fed.us/r2/blackhills/projects/planning/amendments/phase_II/deis/toc_ltr_etc/cover.pdf

If you have any further questions regarding the Bear Lodge meadow jumping mouse, please contact Nancy Warren at this office (303-275-5064) or Kerry Burns, Forest Wildlife Biologist on the Black Hills National Forest (605-673-9232).

Sincerely,



RICHARD C. STEM
Deputy Regional Forester, Resources

Enclosure

cc: Marc Bosch, Marisue Hilliard



Black Hills National Forest
Species of Local Concern Analysis
Species Ranking Sheets

Species: Meadow Jumping Mouse (<i>Zapus hudsonius campestris</i>)			
Criteria	Rank	Rationale	Literature Citations
1	B	<ul style="list-style-type: none"> • Resident • Endemic subspecies 	<ul style="list-style-type: none"> • Jones et al. 1983 • Turner 1974 • Froiland 1990
2	C	<ul style="list-style-type: none"> • Known in Lawrence, Pennington, and Custer Counties in SD and Crook and Weston Counties in WY • Frequent below 6500 feet 	<ul style="list-style-type: none"> • Turner 1974 • Jones et al. 1983 • Luce et al. 1999 • Higgins et al. 2000
3	A	<ul style="list-style-type: none"> • Endemic to the Black Hills and the Bearlodge Mountains and adjacent isolated mountain ranges of MT and WY • Listed as Vulnerable on IUCN Red List 	<ul style="list-style-type: none"> • Jones et al. 1983 • Turner 1974 • Fertig and Beauvais 1999 • Hilton-Taylor 2000 • Froiland 1990
4	C	<ul style="list-style-type: none"> • Common throughout the Black Hills • Most frequent up to 6,500 feet 	<ul style="list-style-type: none"> • Turner 1974
5	A	<ul style="list-style-type: none"> • No local population trend data • Habitat trend may be decreasing • Loss of riparian habitat and long-term drying of forest 	<ul style="list-style-type: none"> • Allen et al. 2002 (Appx B) • Parrish et al. 1996
6	B	<ul style="list-style-type: none"> • May be affected by heavy grazing • Most frequently occurs in riparian areas or in open, moist habitats within coniferous forest with low undergrowth. 	<ul style="list-style-type: none"> • Jones et al. 1983 • Turner 1974 • Higgins et al. 2000

Black Hills National Forest
Species of Local Concern Analysis
Species Ranking Sheets

Species: Meadow Jumping Mouse (*Zapus hudsonius campestris*)

Criteria	Rank	Rationale	Literature Citations
7	B	<ul style="list-style-type: none"> • Individuals may abandon an area and reappear elsewhere • Relatively small home ranges 0.1 to 4.0 acres • Disperse along riparian corridors which are often on private land 	<ul style="list-style-type: none"> • Jones et al. 1983 • USDA-Forest Service 2001b and 2002a
8	B	<ul style="list-style-type: none"> • High reproductive rate; litter size of 2-8 young and 2-3 litters per year • Life span 2-3 years • Susceptible to predation, parasites, and environmental factors • High mortality during hibernation 	<ul style="list-style-type: none"> • Jones et al. 1983 • Whitaker 1989 • Turner 1974 • Higgins
Determination: <input checked="" type="checkbox"/> Species of Local Concern <input type="checkbox"/> Not of Local Concern <input type="checkbox"/> Insufficient Information Available		Rationale: Common in suitable habitat. May be impacted by overgrazing and loss of riparian habitat. 50% of riparian areas within forest boundary are privately owned which may limit dispersal of this species. Need more recent abundance data.	
USFS Review Team: Alice Allen, Patti Lynch, Brad Phillips, and Jill Reeck.		Date: April 6, 2000	
SAIC Reviewers: Christiana Manville		7/24/2002	

American Society of Mammalogists

U.S. FISH & WILDLIFE SER.
ECOLOGICAL SERVICES

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26 April 2005

Mr. Seth Wiley
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Ecological Services
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Denver, CO 80225

RE: Notice of Rule 69 FR 16944 to remove Preble's meadow jumping mouse from protection as Threatened species under Endangered Species Act

The American Society of Mammalogists (ASM) is a non-profit, professional scientific society consisting of over 4,000 members from the United States and 60 other countries worldwide. It was founded in 1919 and is the world's oldest and largest organization devoted to the study of mammals. ASM is deeply concerned about the future of mammals worldwide in increasingly threatened habitats, and thus we strongly support conservation and responsible use of wild mammals based on sound and accurate scientific research.

We find that the decision by the USFWS to remove *Zapus hudsonius preblei* from the list of Threatened species under the Endangered Species Act (USFWS 2005b) at this time is unwarranted and unsubstantiated by the available scientific data. We have come to this conclusion after reviewing the delisting petitioners' briefs, two unpublished studies by staff at the Denver Museum of Natural History (DMNH; Ramey et al. 2004a; Ramey et al. 2004b), 14 independent scientific reviews of the first DMNH study by Ramey et al. (2004a), and opinions of additional experts we have contacted. Our primary arguments against delisting are three-fold: 1) most of the independent reviews of the Ramey et al. (2004a) study supported continued protection (i.e., retention of listed status); 2) the scientific evidence produced by Ramey et al. (2004a) was incomplete and misinterpreted; 3) the two studies on which USFWS's decision to delist *Zapus hudsonius preblei* are based (Ramey et al. 2004a; 2004b) have not been through sufficient scientific peer review, which can only be done under the supervision of a scientific journal editor. This latter point, as a general rule for government agencies making ESA decisions, has been well articulated by Ramey (2004) himself.

We find the report by Ramey et al. (2004a) to be inconclusive, at best, and methodologically flawed, at worst, with respect to resolving the question of the taxonomic validity of *Zapus hudsonius preblei*. Of the 14 independent reviews of the study by Ramey et al. (2004a) (USFWS 2005a website), only 5 state the unqualified opinion that the study was conclusive with respect to its demonstration of taxonomic synonymy between *Z. h. preblei* and *Z. h. campestris*. At least four (arguably six; USFWS 2005b) of the 14 reviewers felt strongly that this taxonomic conclusion was unwarranted and that there were methodological problems with the study. The remaining five reviewers expressed some reservations about the study's conclusion of synonymy. One reviewer notes that Ramey et al. (2004a) ignore the pattern in their own data of pronounced genetic differentiation between *Z. h. preblei* and *Z. h. campestris* based on frequencies of the four mtDNA haplotypes. Failure by Ramey et al. (2004a) to report F_{st} values, but interpret them as artificially inflated, raises questions about selective reporting of results in favor of their *a priori* hypothesis.

Synonymizing an endangered subspecies is not to be taken lightly, and the failure of a single study, employing a single mtDNA marker, to detect genetic differentiation according to the strict criterion of "reciprocal monophyly" (problematic due to the impact of ancestral polymorphism on the time required for groups to become reciprocally monophyletic after gene flow ends) (Ramey et al. 2004a) is not sufficient. Indeed, mitochondrial sequence data would not be expected to resolve a dichotomy with such a recent divergence time. As noted by one reviewer (M. Douglas, cited in USFWS 2005a), 355 base pairs is far short of the generally accepted *minimum* sequence data requirement of 1,000 base pairs for population-level analyses to be conclusive. Further, the practice of using a single-locus gene tree to define taxonomy has repeatedly been refuted in the literature (Brumfeld et al. 2003; Edwards and Beerli 2000) and is generally not accepted as sole evidence for the reclassification of any taxonomic groups. Failure to use additional nuclear loci to resolve the genetic divergence question or microsatellite DNA to investigate patterns of gene flow between populations reflects the incomplete and inadequate nature of the study and supports our conclusion that the evidence produced therein is not sufficient to refute previous studies of genetic and morphologic differentiation.

The morphologic analysis reported in Ramey et al. (2004a) was inadequate in that it ignored bacular data entirely and it failed to include skull-height measurements or analysis of the qualitative skull characters cited by Krutzsch (1954). Instead, they included many characters that likely are highly correlated, which limits the statistical power to discriminate. Finally, it would have been more appropriate to perform a Principal Components Analysis of the morphometric characters, rather than the Discriminant Analysis that was performed instead.

A possible methodological problem not raised by the reviewers is that Ramey et al. (2004a) relied exclusively on museum specimens and did not indicate how or if verification of the species and subspecies identity was made for their study. Misidentifications of specimens borrowed from numerous museums is a common problem hampering such studies, and is of particular concern with this study due to the apparent lack of prior experience by its investigators with this taxon. Having just a few misidentifications in the group of specimens included in the two studies could invalidate the genetic and morphologic results of Ramey et al. (2004a; 2004b).

We further note that four of the five reviewers who believed that Ramey et al. (2004a) made the case for synonymy, went further to emphasize that there was ample evidence to suggest that the loss of *Z. h. preblei* would constitute a critical loss of genetic and ecological diversity and/or that the newly combined *Z. h. campestris* itself is imperiled across its range due to fragmentation and loss and degradation of its habitat. Indeed, Hafner et al. (1998) consider *Z. h. campestris* to be a species of conservation concern: (Vulnerable (VU): B1; B2c; IUCN Red List Category; IUCN 1994).

In response to the concerns of the 14 original reviewers, Ramey et al. (2004b) produced a second unpublished study concluding that *Z. h. campestris* (into which they had already subsumed *Z. h.*

preblei) should be synonymized with the more widely distributed *Z. h. intermedius*. However, this study suffers from most of the same methodological and theoretical problems that plagued the original study.

A key component of the question of genetic distinctiveness between subspecies is how recently gene flow has occurred, in this case, between Front Range populations of *Z. h. preblei* and other *Z. hudsonius* populations. The second study by Ramey et al. (2004b) used the program MDIV to test for the presence of gene flow and concluded that there has been "very recent gene flow" between these two populations. We asked the author of the MDIV program, Dr. Rasmus Nielsen to review Ramey's study, and in his review he commented that: "The results obtained by Ramey *et al.* (2004a) could very well be consistent with the absence of gene-flow during the past, say, 10,000 years. The program MDIV is not designed to identify when the divergence of the populations gene-flow has taken place, only if it has taken place (Rasmus Nielsen, *in litt.*)." Therefore, the possibility of genetic isolation of *Z. h. preblei* for the past 10,000 years remains, even if we assume they used the technique correctly.

The petition for delisting *Z. h. preblei*, filed by Coloradans for Water Conservation and Development (CWCD), obviously is influenced heavily by the overstated conclusions of the Ramey, et al. (2004a) study. In their petition, CWCD presented unpublished data on numerous "new localities" for the species since the 1998 listing. New localities are not surprising, given the far more intensive trapping surveys that took place after listing, rather than before. However, the fact remains that the species is still absent from 3-4 counties in Colorado and Wyoming where it had been previously collected, and its range is now bisected by the urban area of Denver. Urban development subsequent to 1998, when threats to the survival of Preble's meadow jumping mouse were exhaustively detailed by USFWS, can have only further fragmented its distribution. It is possible to address questions concerning the impact of this fragmentation on current gene flow, information that is essential for predicting persistence of these populations; however no effort has been made in this regard. We see this as an additional shortcoming of the Ramey et al. (2004a; 2004b) studies and the proposal to delist in general.

CWCD makes a repeated point of the original intent of Congress that the Distinct Population Segment (DPS) option of the ESA be used "sparingly." Yet they present no data to indicate that use of that option to protect the population(s) currently classified as *Z. h. preblei* would violate that intent, if this population was indeed synonymized with *Z. h. campestris* (or even with *Z. intermedius*). In fact, the scientific consensus from the several reviewers mentioned above is that this disjunct population, regardless of its taxonomic status, is threatened by habitat loss and does warrant ESA protection either as a DPS or as part of a vulnerable combined taxon *Z. h. campestris*. We agree with this view and urge the USFWS to maintain ESA protection of the Front Range populations of *Z. hudsonius*, either as part of a distinct taxon or as a DPS of the newly combined taxon, pending completion of more conclusive genetic and morphologic analyses.

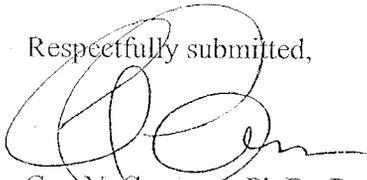
A final essential point and one that was not addressed at all by Ramey et al. (2004a; 2004b) or by the CWCD is the potential ecological distinctiveness of the populations in question. Ecological divergence can be indicative of separate and distinct evolutionary trajectories, and would further support protection of those populations under the Endangered Species Act. Due to the high potential for such divergence between these geographically distant groups, we urge that any decision regarding the protected status of meadow jumping mouse populations currently recognized as *Z. h. preblei*, *Z. h. campestris*, and *Z. h. intermedius* include field-collected data designed to test the ecological distinctiveness of these populations. Fieldwork should also be conducted to test the hypothesis that populations of meadow jumping mice in northeastern Wyoming are continuous with those in southeastern Wyoming and adjacent Colorado. If these populations are indeed disjunct, then gene flow between them will be impossible.

In summary, we have reviewed the available data and, in so doing, identified several specific misinterpretations and shortcomings of the evidence and conclusions presented by petitioners and one

unpublished study partially funded by a petitioner. Results from our review do not support the conclusion that *Zapus hudsonius preblei* should be delisted. The available evidence, primarily one study, which has not received the standard vetting of the scientific community, namely peer review as part of the publication process, is not sufficient to serve as the basis for a decision to delist this taxon. We are concerned that a delisting decision based on this evidence could be interpretable as an inappropriate application of the scientific process in agency decision-making (Union of Concerned Scientists 2005). Ironically, the senior author of the study upon which the USFWS has based its decision (Ramey et al. 2004a), criticized the ESA listing process in an appearance before Congress as too often being based on studies that were not properly peer-reviewed (Ramey 2004). We strongly agree with this aspect of his general advice to the Congressional committee. Ramey's failure to meet the criteria he himself advocated reduces the ability of USFWS to rely on that study as the basis for the decision to delist Preble's meadow jumping mouse.

In conclusion, the American Society of Mammalogists (ASM) recommends that the USFWS not remove *Zapus hudsonius preblei* from the list of Threatened species under the Endangered Species Act at this time. Further, ASM stands ready to make available our expertise on the technical questions raised by proposed rule 69 FR 16944. We greatly appreciate the opportunity to provide comments on this very important issue and will be glad to expand on or clarify these comments if needed.

Respectfully submitted,



Guy N. Cameron, Ph.D., President
American Society of Mammalogists

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US Fish and Wildlife Service. 2005b. Endangered and threatened wildlife and plants; 12-month finding on a petition to delist the Preble's meadow jumping mouse (*Zapus hudsonius preblei*) and proposed delisting of the Preble's meadow jumping mouse. Federal Register 70(21):5404-5411.



Sharon R Rose/R6/FWS/DOI
05/04/2005 09:06 AM

To Peter Plage/R6/FWS/DOI@FWS
cc
bcc
Subject Prebles Meadow Jumping Mouse Comments

Mr. Kruse was unable to get his comments to forward to the fw6pmjm@fws.gov address. I said we'd check into what the problem was.... Seth said you had some other things going on with comments yesterday---maybe all the same problem?? I sent Mr. Kruse a confirmation note last night per his request.

Sharon Rose
External Affairs
P.O. Box 25486
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303-236-4580
sharon_r_rose@fws.gov

----- Forwarded by Sharon R Rose/R6/FWS/DOI on 05/04/2005 09:09 AM -----
Don't Expand



"Paul Kruse"
<pkruise@wyoming.com>
05/03/2005 04:49 PM

To: sharon_r_rose@fws.gov
cc:
Subject: Prebles Meadow Jumping Mouse Comments

Attached please find comments that I am submitting on behalf of Albany, Converse, Goshen, Laramie and Platte Counties Wyoming.

In addition to the electronic format, I am sending a hard copy of these comments via the U.S. Postal Service.

Thank you.

Paul Kruse



Comments on PMJM Delisting 050305.c

May 3, 2005

Field Supervisor
Colorado Field Office
Ecological Services
755 Parfet Street
Suite 361
Lakewood, Colorado 80215.

Re: 12-Month Finding on a Petition to Delist the Preble's Meadow
Jumping Mouse (*Zapus hudsonius preblei*) and
Proposed Delisting of the Preble's Meadow Jumping Mouse
(70 FedReg 21, February 2, 2005)

Dear Sir/Madam:

These comments regarding the 12-Month Finding on a Petition to Delist the Preble's Meadow Jumping Mouse (*Zapus hudsonius preblei*) and Proposed Delisting of the Preble's Meadow Jumping Mouse are submitted on behalf of Albany, Converse, Goshen, Laramie and Platte Counties, Wyoming (Counties).

The Counties, which have a combined population of 146,628 and encompass a geographic landmass of 15,524 acres, include 100% of the designated Critical Habitat in Wyoming.

We appreciate the opportunity to comment on this action and commend the U.S. Fish and Wildlife Service for a well-written document that comprehensively details the process the Service will use to evaluate the populations and locations of the Preble's mouse.

Representatives of the Counties have reviewed the scientific and commercial information submitted as part of the administrative record and agree with the U.S. Fish and Wildlife Service that the original Preble's classification was in error and therefore, this proposed delisting is warranted.

The Counties are pleased by the level of diligence the Service has demonstrated in reaching its decision. The USFWS goes beyond the requirements of the Act, which mandate these decisions are based on the best scientific and commercial information.

Not only has the Ramey et al. (2004) report undergone peer review by nine separate scientists, but the Service also solicited peer reviews from seven additional scientists who focused on specific aspects of the report, maps of the meadow jumping mouse range, the final rule to list Preble's and a November 5, 2003, working draft of a recovery plan for the Mouse.

Moreover, within the next year, the Service should have available additional genetics information (i.e., nuclear DNA results) that we anticipate will further confirm the conclusions of Ramey et al.

Given the way that the Endangered Species Act has been construed at times, the Counties understand the Service's decision to conduct a status review and evaluate threats to the combined *Z. h. campestris* entity in all or a significant portion of its range and to analyze whether the Preble's portion of *Z. h. campestris* qualifies as a Distinct Population Segment in need of protection.

However, we question whether this is the best use of Service's limited budget and employees' time, given the number of truly imperiled species in this nation. We urge the Congress to make common sense changes to the Act, which will allow the Service to focus more of its assets on those species that are truly in peril.

The Counties agree with the position earlier taken by the Colorado Department of Natural Resources that called for the immediate delisting of the Preble's based on genetic studies by Ramey et al. (2004a) who contended that essential conservation efforts to protect the Preble's in Colorado would be carried on by State and local governments regardless of Federal listing status.

Similar efforts by the State of Wyoming, its counties and private landowners, are underway to conserve habitats within the Preble's range. Although these may not be as extensive as in Colorado, it is crucial to note that development and other threats to the mouse's habitat are not as great here, as they are in our neighboring state.

The Counties concur with the Service that the Preble's mouse does not meet the definition of a subspecies and that it was listed in error. This is crucial, because Section 4(g)(1) of the Act requires the USFWS to monitor a species for at least five years after it is delisted based on recovery.

Because Preble's is being delisted due to new information that demonstrates that the original classification was in error, rather than due to recovery, the Act does not require the Service to monitor this species following its delisting.

It is regrettable that those who have been injured by this devastating error cannot be made whole since, in Wyoming, the burden for the additional costs associated with the listing have been staggering.

Generally, the local communities, small businesses and private landowners, most of which are small family-owned farms and ranches, have unfairly had to bear them, since there is no mechanism in the Act to recover these costs. And the costs will continue to mount until the species is delisted in throughout its entire range.

The Mouse's listing could have served a purpose by educating the public on the need to practice sound land management techniques. Unfortunately, various decisions exempted many of the municipalities, particularly in Colorado.

In order to be more complete in its future decision making, it is crucial that Service continues to press the public and other concerned governmental agencies, the scientific community, industry, and any other interested party for comments concerning this proposed rule for information, data, and comments concerning the taxonomic classification and conservation status of Preble's and Bear Lodge meadow jumping mouse.

The Counties support the Service's goal that the final action resulting from this proposal is as accurate and effective as possible.

Sincerely,

Paul R. Kruse
On behalf of the Counties

cc: Albany County Commission
Converse County Commission
Goshen County Commission
Laramie County Commission
Platte County Commission
State of Wyoming

STATE OF COLORADO

OFFICE OF THE EXECUTIVE DIRECTOR

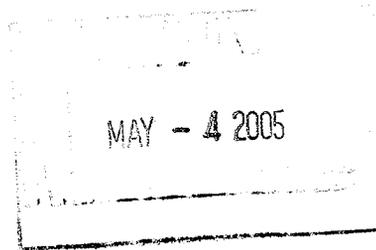
Department of Natural Resources
1313 Sherman Street, Room 718
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TDD: (303) 866-3543
Fax: (303) 866-2115



DEPARTMENT OF
NATURAL
RESOURCES

Bill Owens
Governor

Russell George
Executive Director



May 3, 2005

Ms. Susan Linner
Field Supervisor
Colorado Field Office, U.S. Fish and Wildlife Service
Ecological Services
755 Parfet Street, Suite 361
Lakewood, CO 80215

Re: Colorado's Comments: 12-Month Finding on a Petition To Delist the Preble's meadow jumping mouse (*Zapus hudsonius preblei*) and Proposed Delisting of the Preble's meadow jumping mouse.

Dear Ms. Linner:

The Colorado Department of Natural Resources (DNR) reiterates its strong support of the delisting of the Preble's meadow jumping mouse as contained in the proposed rule mentioned above. Clearly the genetic analysis by Dr. Ramey, and the succeeding peer review conducted by the Colorado Division of Wildlife, provide sufficient underpinning for a decision to delist the Preble's meadow jumping mouse.

The Ramey genetic analysis is well-supported by the distribution data and threat analysis that are contained in both petitions filed by the State of Wyoming and Coloradans for Water Conservation and Development. The distribution demonstrates a dramatic increase in the number of trapping sites since the original listing in 1998. Furthermore, the review of the threat analysis performed by petitioners provided extensive discussion concerning the primary types of habitat alteration that allegedly constituted threats prompting the original listing and effectively refutes many if not all of those threats.

Proposed status review of *Zapus hudsonius campestris* and proposed consideration of Distinct Population Segment status (“DPS”) for the “Preble’s portion” of *Z. h. campestris* – Procedural Comments

Conducting a status review on *Z. h. campestris* and considering a new potential DPS for the Preble’s portion of *Z. h. campestris* raises numerous procedural questions about this delisting process, including the following:

1) Although the Endangered Species Act (ESA) provides for a status review on the listing or delisting of any species or subspecies, it does not necessarily follow that there should be a consequent status review of *Z. h. campestris*. Additionally, the consideration of a DPS is not a necessary task to undertake to complete the work of the proposed delisting. Launching in these two additional directions does more to distract the U.S. Fish and Wildlife Service (USFWS) and does not complete the work of delisting whatsoever. In fact, the USFWS would be better served in the remaining time of the proposed rule to undertake an analysis of the distribution data in both petitions and to analyze the threat analysis contained in those petitions. This would only serve to bolster the USFWS’ position in defending a final delist rule.

2) The proposed status review and consideration of a DPS will only serve to slow the process of delisting. Both are processes that can be considered wholly separate and apart from delisting, if they should be considered at all. These additional processes will only serve to interfere with the delisting process.

3) Undertaking a brand new status review of *Z. h. campestris*, a subspecies previously not considered for listing, appears counter to the USFWS’ need to direct resources for listing processes to those species in dire need or for those already pending due to lawsuits or as part of a candidate list. Undertaking a whole new status review is wholly contrary to the sound public policy determinations of the USFWS on how candidate species should be managed.

4) Any amount of information gathered on *Z. h. campestris* or on a proposed DPS at this late stage of the delisting of the Preble’s surely warrants an additional comment period to analyze new information from parties that are thoroughly invested in the current delisting process. This again prolongs the current delisting at issue. If this is the route the USFWS intends to go, Colorado reserves its right to review data gathered by the USFWS on the *Z. h. campestris* status review and the proposed consideration of a DPS.

5) In the March 31, 2004 posting entitled *90-Day Finding for a Petition to Delist the Preble’s Meadow Jumping Mouse*, the USFWS initiated a status review of the Preble’s meadow jumping mouse. 69 FR 16944, 16945(March 31, 2004) While such a status review of the Preble’s is appropriate under both the ESA and the Petition Management Guidance, there appears to be no authority nor guidance extended to the USFWS to conduct an additional status review upon a subspecies to which a delisted subspecies is to be synonymized.

6) The 90-Day Finding also states that the USFWS would “address the appropriate application of the DPS policy during the status review of the listed species as it is required by the DPS policy”. 69 FR 16944, 16945 (March 31, 2004). No conclusion regarding DPS is in this 12-month finding, and it appears that the USFWS has delayed any discussion or decision about a DPS until some indeterminate time in the future. The 90-day finding also stated that the proper time to review a DPS designation would be in the five-year review, yet nothing has been accomplished in that regard as of the twelve-month finding.

Proposed status review of *Zapus hudsonius campestris* and proposed consideration of Distinct Population Segment status (“DPS”) for the “Preble’s portion” of *Z. h. campestris* – Substance

The USFWS’ unwillingness to address the distribution data and threat analysis in this preliminary rule creates a near predetermined conclusion for the status review and DPS determinations. Colorado adheres to the petitioner’s conclusions about biogeographical connections between *Z. h. preblei* and *Z. h. campestris*, as well as the genetic synonymization. However, should the USFWS conclude to designate a DPS, Colorado urges the USFWS not to “relist” the former Preble’s in a DPS, but instead pay close attention to the analysis conducted in the delisting petitions regarding distribution and threats to the subspecies. It is clear that petitioners’ scientific conclusions should win the day and preclude any possible re-listing of the *Z. h. campestris* in the former Preble’s range. In order to bolster petitioner’s distribution data and threat analysis, Colorado has undertaken a review of the criticism of the delist petition offered by the Center for Native Ecosystems and Biodiversity Conservation Alliance outlined in the publication *The Conservation Status of Preble’s Meadow Jumping Mouse and Bear Lodge Jumping Mouse*. For the sake of this analysis, Colorado has chosen to compare conclusions from both sources to bear out the strength of the information documented in the delist petitions. What follows is the center’s arguments against what appears in both petitions:

- 1) The center states that researchers’ ability to better predict where the mouse might be found for trapping purposes “do not represent an actual increase or distribution of the mouse..... (because).... [T] he mouse is still restricted to stream corridors along the Front Range Center for Native Ecosystems and Biodiversity Conservation Alliance(Conservation Status, p. 2). The logic of this conclusion is strained inasmuch as trapping success increased as much as five- and six-fold. It is illogical to demand an expansion of range for a subspecies known to occupy stream corridors to prove an increase or distribution. Besides, the center pays little attention to the fact that new captures have expanded the range of the mouse by three hydrological units (Petition, p. 72) and that capture locations along man-made ditches have bolstered the population numbers. (Petition, p. 66).

- 2) The center criticizes the petitions for citing overall population health of the mouse as a “result of increased trapping efforts, not of increasing populations,” and further pointing out that “declining population trends are not one of the five criteria used to determine whether to list or delist species under the ESA.” (Conservation Status, p.6). While both statements bear some grain of truth, better trapping and population increase or stability go a long way to defeat the argument that habitat degradation (16 USC sec. 1533(a)(1)(A)) is occurring within the subspecies’ range.
- 3) The center’s criticism of surveys that discover new populations “before habitat destruction” (Conservation Status, p. 7) fails for lack of specificity as to which surveys may be included in that category, and it fails to mention the extensive mitigation resulting from such surveys should habitat need to be altered.
- 4) Reference to habitat conversion (Conservation Status, p. 8). The center refuses to articulate specific habitat conversion projects and fails to describe any required mitigation.
- 5) The center’s argument that “Listing the Preble’s meadow jumping mouse has not had significant effects on Front Range development,” (Conservation Status, p.26), while a fallacy, is simply a red herring to distract all readers. The ESA only pays attention to the health of the species and its habitat, regardless of effects on development.
- 6) Citing consultations and habitat conservation plans as “habitat loss” for the Preble’s meadow jumping mouse (Conservation Status, p. 27), the center only offers up another red herring if it is unwilling to discuss the conservation measures that have emanated from these processes.
- 7) The center articulates arguments backwards by stating “if current (trapping) records are clustered in more remote areas and/or lands off-limits to development, this suggests that development does lead to extirpation of the Preble’s meadow jumping mouse,” (Conservation Status, p.27). Rather, petitioners were forced to research the effects of urbanization by the initial listing rule’s mention of urbanization as a cause for listing.
- 8) The center reports “conspicuous absence of Preble’s meadow jumping mouse in certain areas, such as Denver, Adams, and Arapahoe Counties, Colorado and around Cheyenne, WY, where the subspecies was historically reported,” (Conservation Status, p. 28). In all of the hydrologic units represented by these political entities, the petitioners showed dramatic increases in trapping. (Petition, pp. 72-74).

- 9) The center's critique of the petition states: ".....[A] sserting that all historically occupied hydrological units are currently occupied is irresponsible," (Conservation Status, p. 28). The center neglects the actual occurrence of dramatic increases in almost all hydrologic units based on new trapping information.
- 10) The center engages in pure conjecture by criticizing the petitioner's dismissal of the loss of 10 percent of the historical sites by stating "the Service appropriately concluded that the mouse probably was extirpated from other areas where riparian habitat has been converted or lost even though there were no historical records from these areas," (Conservation Status, pp. 28-29).
- 11) The center does not qualify and quantify loss of cropland along the Front Range, which "almost always is due to conversion of agriculture to urbanization," (Conservation Status, p. 30).
- 12) The center criticizes the petitioners for ignoring "the general climate calling for increased storage along the Front Range," (Conservation Status, p. 31). It would behoove the center to also mention Colorado's resounding defeat of the water development Amendment 13 in 2002.
- 13) The center impugns petitioners by misquoting a "galling comment" in the petition stating "the Service's assumption that habitat fragmentation is 'bad' for meadow jumping mice is not a significant demonstrable effect and does not justify listing the species as threatened pursuant to the Act," (Conservation Status, p. 31). The sentence that follows this statement puts it all in context: "**There are 126 currently known extant populations of Preble's scattered across southeastern Wyoming and eastern Colorado,**" (Petition, p. 90).
- 14) The center believes the "inadequacy of regulatory mechanisms" requirement for listing is met the Colorado Division of Wildlife's stance that the agency will not "actively be implementing conservation plans if the subspecies is delisted," (Conservation Status, p. 32). In fact, the Colorado Department of Natural Resources is in constant contact with counties and other organizations doing conservation measures for the Preble's mouse, and has received numerous assurances that conservation efforts will continue regardless of delisting. (See attached Comments, Colorado Department of Natural Resources, June 1, 2004)

Conclusion

Colorado applauds the USFWS' bold step in issuing a preliminary rule recommending delisting of Zapus hudsonius preblei based on Dr. Ramey's genetic work. This enthusiasm is tempered by the USFWS' unwillingness to analyze distribution data and the threat analysis which takes up 97 percent of the delist petition as part of this delisting effort.

The next step is to determine if the former Preble's population and range should qualify as a distinct population segment, and whether a status review of Zapus hudsonius campestris warrants a listing of that particular subspecies. Colorado vehemently disagrees with the DPS and any further listing. Should a DPS be warranted, we have amply stated above why that DPS should not be relisted.

In any listing or delisting effort, the USFWS must take into consideration those efforts undertaken by states to protect a species. Colorado made it clear in comments submitted regarding the 90-day finding on June 1, 2004 that numerous conservation efforts were underway throughout the state in order to preserve habitat should the USFWS decide to consider the delisted Preble's Mouse as a "Distinct Population Segment of Zapus hudsonius campestris." Colorado resubmits these comments as an appendix to reiterate that extraordinary efforts toward habitat conservation, especially in riparian corridors in Colorado's Front Range, have been undertaken and sustained.

Thank you for your consideration of these comments.

Sincerely,

A handwritten signature in black ink that reads "Russell George". The signature is written in a cursive style with a large, looping initial "R".

Russell George
Executive Director

STATE OF COLORADO

OFFICE OF THE EXECUTIVE DIRECTOR

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DEPARTMENT OF
 NATURAL
 RESOURCES

Bill Owens
 Governor

Russell George
 Executive Director

June 1, 2004

Ms. Susan Linner
 Field Supervisor
 Colorado Field Office
 U.S. Fish and Wildlife Service
 755 Parfet Street, Suite 361
 Lakewood, Colorado 80215

Re: Colorado's comments in response to the U.S. Fish and Wildlife Service's request for public comment on its status review for the 12-month finding and five-year review of the Preble's meadow jumping mouse.

Dear Ms. Linner:

Colorado supports immediate delisting of the currently-designated Preble's meadow jumping mouse. A delisting is justified based on a compelling genetics study by Dr. Rob Ramey aligning the currently-designated subspecies Preble's meadow jumping mouse (*Zapus hudsonius preblei*) with the Bear Lodge meadow jumping mouse (*Zapus hudsonius campestris*), combined with the fourfold increase in distribution based on trapping data obtained since the 1998 listing of the currently-designated Preble's.

Knowing that the United States Fish and Wildlife Service (USFWS) must look at all factors in addition to the dramatic conclusions of the Ramey genetics study and the new distribution, Colorado will examine the conservation measures on the ground, which are likely to stay in place without federal jurisdiction under the aegis of a "threatened" listing. Current regulatory status, habitat preservation initiatives, state and local initiated scientific study, and infrastructure development are in place and will continue regardless of federal listing status, and must also be part of the USFWS' delisting analysis.

A primary reason considered in a listing decision is whether or not regulatory mechanisms are adequate to affect conservation of the species. Regardless of the ultimate genetic determination of the currently designated Preble's mouse, the region has moved forward to affect conservation in numerous ways, initially under federal guidance. State and local governments are now equipped to carry on with the essential conservation to enhance the health of the species and its habitat, independent of federal oversight.

While there is a strong likelihood that some of the habitat conservation plans currently on the "drawing board" may be withdrawn should the USFWS decide to delist, many of the

components of these plans are likely to stay in place, affecting conservation with minimum disruption to the land use processes already underway. Furthermore, many of the infrastructure changes to preserve habitat or habitat connectivity are currently in place with no plans for change or redesignation should a delisting occur.

With expenditures and construction changes now behind them, state and local governments now have adapted to these infrastructure changes with their operations and maintenance.

Colorado's intent here is to strengthen the logical conclusion that should be drawn from the Ramey study, and enhanced distribution of the currently-designated Preble's. More than just a piling on of data advocating the delisting, Colorado aims to demonstrate that individuals, businesses, local governments, and the state can take charge of species preservation – so much so that the elements of conservation can occur without federal jurisdiction. Believing that the subject subspecies is in fact widespread and healthy, Colorado will demonstrate that conservation efforts along the Front Range will sustain this portion of what we consider the Bear Lodge meadow jumping mouse.

The Delisting Petitions

The focus of all science related to the currently-designated Preble's meadow jumping mouse has now shifted to the genetic analysis by Dr. Rob Ramey, questioning and confirming the lack of the mouse's distinction as a subspecies *zapus hudsonius prelei*, and the wider distribution and numbers of the mouse throughout the Colorado and Wyoming Front Range. The compelling genetics study put forward by Dr. Ramey, buttressed by the trapping data that now shows a fourfold increase in the trapping sites for the species currently designated as the Preble's meadow jumping mouse, presents individually and together a solid case to delist the species currently designated as the Preble's mouse.

Colorado chose to assure that the science presented for the delisting process would in fact be “the best available science” under the Endangered Species Act by conducting a rigorous peer review by a range of experts on genetics, habits, and morphology of the currently-designated Preble's meadow jumping mouse. While Colorado has always believed delisting is a constructive step, especially in light of the current science, it is a worthless exercise if the delisting effort cannot withstand the scientific scrutiny to meet the standard of “best available science.” Colorado believes science should be analyzed not on a pre-determined outcome or a particular point of view, but with a focus on the scientific method, correct processes, proper hypothesis, and defensible conclusions as the foundation of a delisting action. The science should stand on its own.

Colorado urges the USFWS to move forward with delisting of the currently-designated Preble's meadow jumping mouse immediately after receipt of these and other comments by the June 1, 2004, deadline. In particular, we urge the USFWS not to be distracted by the “background noise” that has recently crowded the local press regarding the ultimate future of the subspecies *zapus hudsonius campesteris* under the Endangered Species Act, nor any issues

concerning distinct population segments of *campesteris*, nor any potential legal issues that may arise in lawsuits challenging an ultimate delisting decision.

Colorado believes the genetic analysis to be sound, the distribution data to be nothing short of dramatic, compared to the trapping data upon which the currently-designated Preble's was listed. Additionally, Colorado believes that the conservation efforts in place along Colorado's Front Range are more than adequate to ensure the ability of the currently-designated Preble's to thrive. The Colorado Division of Wildlife has consistently demonstrated an ability to establish and enforce conservation practices focused on species preservation and survivability that justify withdrawal of federal jurisdiction to focus scarce resources on other more pressing and certainly more "endangered and threatened" species. Colorado, in cooperation with Front Range counties, can effectively take over the work of conservation of the currently-designated Preble's. The scientific underpinnings combined with solid, ongoing conservation practices and expenditures warrant an immediate delisting.

What Colorado has done

Financial Resources: Species Conservation Trust Fund

Colorado has provided enormous amounts of financial backing and assistance to species conservation. In 1998, the year the currently-designated Preble's was listed, the Colorado Legislature passed HB 98-1006, the Species Conservation Trust Fund (SCTF), dedicating \$10 million to species conservation and recovery throughout the state. Two years later in 2002, the Legislature dedicated another \$5 million to the SCTF (HB 00-1429). To date, the state has funded **\$830,000** in biological and technical research, capital outlays for easement purchases, and legal work from the SCTF, all dedicated to conservation and recovery of one species – the currently-designated Preble's meadow jumping mouse.

Financial Resources: Great Outdoors Colorado – Direct Funding to the Colorado Division of Wildlife

The Great Outdoors Colorado (GOCO) Trust Fund, established by Colorado voters in 1992, is made up of proceeds from the state lottery dedicated toward purchase of open space, park enhancements, wildlife values, and recreation.

The Colorado Division of Wildlife (DOW) has sought and received funding from GOCO for Preble's conservation and research since 1995, when the DOW sought \$30,000. This money funded surveys for presence/absence of the Preble's, a future needs analysis, and identified 1996 survey sites. The money also addressed taxonomic questions related to the differentiation of the currently-designated Preble's mouse from other jumping mice. Finally, these monies funded survey work and genetic analysis of tissue from Preble's and other jumping mice.

For Fiscal Year '97-'98, GOCO granted \$272,391 to CDOW to complete the following tasks: evaluate five potential habitat sites; draft a conservation strategy, to be finalized in the following six months; explore genetic similarity between Preble's and other species and

subspecies of jumping mouse; evaluate five potential habitat sites for presence of Preble's and; establish conservation agreements for five viable populations of Preble's.

GOCO granted \$106,341 operating to the DOW in FY '98-'99 and \$56,660 operating in FY'99-'00. In the early days of the listing, and in the years that have followed, both capital and operating dollars from GOCO were regularly dedicated, including: \$155,726 operating and \$48,911 capital in FY '00-'01; \$79,662 operating in FY'01-'02; \$61,504 operating and \$65,360 capital in '02-'03 and \$54,494 operating and \$787,500 capital in FY '03-'04. A request of \$54,494 operating and \$600,000 capital has been made of GOCO by the DOW for FY '04-'05. Much of this funding was devoted to assisting the USFWS in drafting a 4(d) rule, preparing Habitat Conservation Plans and in developing a recovery plan for the Preble's.

The combination of GOCO monies with \$250,000 in capital funding from the SCTF allowed the creation of the Preble's Meadow Jumping Mouse Habitat Protection Grants program. The program has taken the form of acquisition of fee title, conservation easements, long-term leases, or habitat improvement or restoration. These monies were dedicated to two conservation easements for habitat preservation in Douglas County (Duncan Ranch and Perry Park), restoration and fencing on Upper Coal Creek in Boulder County, and fencing at Cherokee Park in Larimer County. These projects were put in place in order to enhance and restore habitat for the currently-designated Preble's meadow jumping mouse.

The following chart describes additional DOW participation in land acquisition specifically directed toward conservation of Preble's habitat:

1) Columbine State Wildlife Area (see Duncan Ranch). Perpetual Conservation Easement; DOW Control: May 1, 1998; \$200,000 from GOCO; 150 acres; Douglas County.

2) Sharptail Ridge State Wildlife Area. Perpetual Conservation Easement; DOW Control: January 28, 2000; \$750,000 from GOCO; 698 acres; Douglas County.

3) Rabbit Creek Unit. Fee Title; DOW Control: August 31, 2000; \$1,950,000 from Wildlife Cash; \$3,000,000 from Federal Aid PR; 5400 acres; Larimer County.

4) Swanstrom Property (Project pending as of May 20, 2004). Third Party Perpetual Easement; \$60,000 from GOCO; 23 acres; Boulder County.

5) Peterson Property (Project pending as of May 20, 2004). Third Party Perpetual Easement; \$692,000 from GOCO; 480 acres; Larimer County.

Financial Resources: Great Outdoors Colorado – Open Space and Legacy Open Space Sub-Grants in Colorado's Front Range

Great Outdoors Colorado (GOCO) has dedicated substantial resources to open space preservation along Colorado's Front Range. A number of these parcels have had tremendous ancillary benefit of preserving Preble's habitat, and are designated in the following list by county. The total of these GOCO Grants is \$25,111,483 and total project budgets total

\$251,641,700. Although these totals cannot be exclusively attributed to Preble's conservation, they are indicative of the level of financial effort dedicated to open space and habitat conservation on Colorado's Front Range.

Larimer County (GOCO)

- 1) Parrish Ranch Conservation Easement: (Primary Land Type: Agricultural; Property Interest: Conservation Easement; Acreage: 347 acres; Grantee: Larimer Land Trust; Year of Grant: 2000); **GOCO Grant: \$260,000; Total Project Budget (including all other sources including local contribution): \$1,075,510.** Grant documentation referencing Preble's habitat or presence: "According to Dr. David Armstrong, Professor of EPO Biology at the University of Colorado at Boulder, streamside thickets and adjacent alluvial terraces make the Parrish Ranch a likely habitat for the meadow jumping mouse (*Zapus hudsonius*), of which the local subspecies (*Z. h. preblei*) has been listed by the U.S. Fish & Wildlife Service as 'Threatened.' This species relies on complex riparian vegetation in the summer months; alluvial terraces along the Front Range have been mined for gravel, reducing the likelihood of suitable habitat for the Preble's meadow jumping mouse. The gravel terraces in the southwestern portion of the J. Parrish Ranch have not been mined, so intact winter habitat exists next to an ideal assemblage of riparian vegetation. Prevention of riverfront development on the J. Parish Ranch will protect this critical, and increasingly rare, habitat." (Grant Application)
- 2) Sylvan Dale/Cache La Poudre-Big Thompson Legacy: (Agricultural, Conservation Easement; 444.27 acres; Larimer County Parks and Open Lands; 1997); **GOCO Grant: \$100,000; Total Project Budget: \$521,005:** "The riparian corridor of the Big Thompson river and Sulzer Gulch draws eastern species (Preble's remains a distinct possibility as a resident of Sulzer Gulch, but has not yet been captured). (Baseline Documentation; Larimer County Parks & Open Lands Development)
- 3) Yates-Park Creek Ranch (Buckeye Conservation Area/Preserving Colorado Landscapes Legacy: (Agricultural, Conservation Easement; 205 acres; Legacy Land Trust a/k/a Larimer Land Trust; 1999); **GOCO Grant: \$67,618; Total Project Budget: \$95,319).** "...contains Riparian shrublands with potential Preble's jumping mouse habitat..." (Application)
- 4) DeSmith and Hendren – Left Hand Ranch (Buckeye Conservation Area)/Preserving Colorado Landscapes Legacy: (Agricultural, Conservation Easement; 179 acres; Legacy Land Trust a/k/a Larimer Land Trust; 1999); **GOCO Grant: \$47,477; Total Project Budget: \$67,522.** "Riparian shrublands with potential Preble's jumping mouse habitat..." (Application)
- 5) Miller Ranch (Buckeye Conservation Area)/Preserving Colorado Landscapes Legacy: (Agricultural, Conservation Easement; 100 acres; Legacy Land Trust a/k/a Larimer Land Trust; 1999); **GOCO Grant: \$51,905; Total Project Budget: \$72,994.** "Riparian Shrubland with potential Preble's Meadow Jumping Mouse habitat." (Application)

- 6) Five Card Draw - Eisenman/Cache la Poudre – Big Thompson Legacy (I-994): (Natural Area/Wildlife Habitat, Fee Title; 309 acres; The Nature Conservancy; 1997): **GOCO Grant: \$296,000; Total Project Budget: \$851,650:** List of Species Present in existing habitat has both the Western jumping mouse and the Meadow jumping mouse. (Application)
- 7) Golden Marmot – Laramie Foothills/Cache la Poudre – Big Thompson Legacy (L-992): (Natural Area/Wildlife Habitat, Conservation Easement; 925 acres; The Nature Conservancy; 1997). **GOCO Grant: \$460,000; Total Project Budget: \$902,512.** List of Species Present in existing habitat has both the Western jumping mouse and the meadow jumping mouse. (Application)
- 8) Roberts Ranch Conservation Easement – Phase One: (Natural Area/Wildlife Habitat, Conservation Easement; 4,960 acres; The Nature Conservancy; 2004) **GOCO Grant: \$750,000; Total Project Budget: \$4,015,000.** List of Species Present in existing habitat has both the western jumping mouse and the meadow jumping mouse. (Application)
- 9) Eagle’s Nest Conservation Project: (Natural Area/Wildlife Habitat; Fee Title; 770 acres; Larimer County Parks and Open Lands; 2002) **GOCO Grant: \$200,000; Total Project Budget: \$2,012,490.** Preble’s mentioned in executive summary of the application. Also, p. 12: “...the riparian area is potential habitat for the Preble’s.” (Application)
- 10) Spight/Cache la Poudre – Big Thompson Legacy (B-991): (Natural Area/Wildlife Habitat, Fee Title; 4.25 acres; City of Loveland; 1997). **GOCO Grant: \$100,000; Total Project Budget: \$121,295.** Listed under “sensitive species.” (Management Plan)
- 11) Morey Land & Water Acquisition / Cache la Poudre – Big Thompson Legacy (B – 992): Natural Area/Wildlife Habitat, Fee Title; 27. 49 acres; City of Loveland; 1997) **GOCO Grant: \$175,240; Total Project Budget: \$238,743.** “...property contains suitable habitat for the federal and state listed threatened species, the Prebles meadow jumping mouse.” (Application)
- 12) Horsetooth Mountain Park Expansion, Phase II: (Urban Open Space, Fee Title; 288 acres, Larimer County Parks and Open Lands; 2003) **GOCO Grant: \$325,000; Total Project Budget: \$1,514,050.** Species listed in Appendix A species list p. 5-1, Culver Open Space Document Report.

Boulder County (GOCO)

- 1) Braly A & C Property / St. Vrain (Boulder) Legacy: (Greenway/Stream Corridor, Fee Title; 90 acres; Boulder County, 1999) **GOCO Grant: \$950,000; Total Project Budget: \$1,200,000.** Lists “meadow jumping mouse” in proposal
- 2) Dawson Property: (Natural Area/Wildlife, Fee Title; 666 acres; Boulder County; 1998). **GOCO Grant: \$275,000; Total Project Cost; \$4,885,368.** “The entire

length of Boulder Creek is mapped as potentially suitable habitat for the Preble's meadow jumping mouse. (Application)

- 3) Ramey (a/k/a Sevier) Property /St. Vrain (Boulder) Legacy: (Natural Area/Wildlife Habitat, Fee Title; 22 acres; Boulder County; 1999). **GOCO Grant: \$280,000; Total Project Budget: \$675,000.** "The Federally listed Preble's meadow jumping mice have been successfully captured along ditches adjacent to St. Vrain Creek immediately west of 75th Street in 1996, 1998 and 1999, as well as in various locations along the St. Vrain Creek and South Branch on the Western Mobile property just west of the Braly property. The St. Vrain is mapped as a Mouse Management Area on the Boulder County Habitat Conservation Plan for the mouse." (Application)
- 4) Keyes Property/St. Vrain (Boulder) Legacy: (Natural Area/Wildlife Habitat; Fee Title; 256.67 acres; Boulder County; 1999). **GOCO Grant: \$1,000,000; Total Project Budget: \$1,570,000.** Virtually the entire length of St. Vrain Creek in Boulder County is mapped as Preble's habitat.

Jefferson County (GOCO)

- 1) Stevens/Coal Creek Legacy: (Natural Area/Wildlife Habitat, Fee Title; 83 acres, Jefferson County; 1998). **GOCO Grant: \$205,046; Total Project Budget: \$655,800.** "According to a Preble's mouse expert who visited the Stevenson property, the riparian zone of the Stevens property (along Coal Creek) contains woody shrubbery suitable as habitat for the Preble's. The Stevens land lies one-half mile upstream of successful live-trapping sites for that species and contains similar vegetation." (Application, p. 4)
- 2) Ramstetter/Clear Creek Legacy: (Natural Area/Wildlife Habitat, Fee Title; 274 acres, Jefferson County; 1998). **GOCO Grant: \$767,661 Total Project Budget: \$2,747,420.** "Meadow jumping mouse" listed under "Mammal Species - Marsh Habitat," Appendix 6 of baseline inventory. Also on "Rare and Imperiled Animals, Plants, and Plant Communities, Jefferson County," p.6.
- 3) Clark – North Table Mountain / Clear Creek Legacy: (Natural Area/Wildlife Habitat; Fee Title; 57 acres; Jefferson County; 1998). **GOCO Grant: \$32,000; Total Project Budget: \$72,050.** Meadow jumping mouse listed under "Marsh Habitat." (Appendix 6 of baseline inventory)
- 4) South Table Mountain – Camp George West / Clear Creek Legacy: (Natural Area/Wildlife Habitat; Fee Title; 175 acres; Jefferson County; 1998). **GOCO Grant: \$491,965; Total Project Budget: \$983,930.** Preble's meadow jumping mouse "may potentially occur in the property area." (Baseline Inventory, p.12)
- 5) Coors Brewery/Clear Creek Legacy: (Natural Area/Wildlife Habitat; Fee Title; 195 acres; Jefferson County; 1998). **GOCO Grant: \$526,244; Total Project Budget:**

\$2,104,976. Preble's habitat may potentially occur in the property area." (Baseline Inventory, p. 12)

- 6) Argentine Mine/Clear Creek Legacy: (Natural Area/Wildlife Habitat, Fee Title; 907 acres; Jefferson County; 1998). **GOCO Grant: \$3,107,874; Total Project Budget: \$9,107,022.** "Preble's habitat may potentially occur in the property area." (Baseline Inventory, p. 12)
- 7) Standley Lake Buffer: (Buffer/Inholding; Fee Title; 80 acres, Jefferson County; 1998). **GOCO Grant: \$375,000; Total Project Budget: \$849,057.** "The Preble's meadow jumping mouse has been identified in the Woman Creek drainage of which the Snow Property is a key element. The protection of the Snow property will maintain the integrity of the drainage and protect the water quality entering the creek and Standley Lake." (Application)

Douglas County (GOCO)

- 1) Duncan Ranch/Chatfield Basin Legacy: (Agricultural, Conservation Easement, 475 acres, Douglas County Land Conservancy; 2000). **GOCO Grant: \$250,000; Total Project Budget: \$1,564,450.** Colorado Department of Natural Resources – Preble's habitat on this property prompted the Colorado Division of Wildlife to invest in this property through the Species Conservation Trust Fund – also see item 4.
- 2) J.A. Ranch/I-25 Corridor Legacy: (Agricultural, Conservation Easement, 6261.11 acres; The Conservation Fund; 1996). **GOCO Grant: \$2,682,403; Total Project Budget: \$9,765,534.** "There may be potential habitat for this species on the J.A. Ranch although it is unlikely because no permanent waterways are present on the ranch." (Early analysis)
- 3) Greenland Ranch/I-25 Corridor Legacy: (Agricultural; Conservation Easement; The Conservation Fund; 1996) **GOCO Grant: \$9,200,000; Total Project Budget: \$76,950,000.** "The properties also provide habitat for the federally listed threatened Preble's meadow jumping mouse."
- 4) Duncan Ranch/TNC/DOW Preserving Colorado Landscapes Legacy: (Agricultural; Conservation Easement; 475 acres; Douglas County Land Conservancy; 1999). **GOCO Grant: \$250,000; Total Project Budget: \$250,000.** Inhabited Preble's habitat.
- 5) Jones Ranch Buffer/Castlewood Canyon State Park: (Buffer/Inholding; Fee Title; 66 acres; Douglas County Land Conservancy; 1996). **GOCO Grant: \$131,886; Total Project Budget: \$247,344.** "Meadow jumping mouse" on Exhibit 3 Species List of analysis by Douglas County Land Conservancy.

- 6) Castlewood East Canyon – Winkler Ranch: (Buffer/Inholding; Fee Title; 90 acres; Colorado State Parks; 1996). **GOCO Grant: \$200,000; Total Project Budget: \$506,366.** “Meadow jumping mouse” described in application.
- 7) Castlewood East Canyon – Prairie Canyon Ranch: (Buffer/Inholding; Fee Title; 978 acres; Douglas County; 1996). **GOCO Grant: \$300,000; Total Project Budget: \$2,984,275** “Meadow jumping mouse” described in application.
- 8) Norton Farms Open Space Acquisition: (Community Separator; Fee Title; 72 acres; Town of Parker; 2000). **GOCO Grant: \$250,000; Total Project Budget: \$1,639,500.** The application describes that the Preble’s is known to inhabit riparian areas along Cherry Creek. Suitable habitat exists on the Norton Property. Not yet trapped on this property but trapped one mile north along Cherry Creek in 2000. (ERO Resources, Land Management Plan; November, 2000)
- 9) Willow Creek Ranch – Southern Acquisition: (State Park; Fee Title; 590 acres; Colorado State Parks; 1997). **GOCO Grant: \$500,000; Total Project Budget: \$1,189,500.** “The Preble’s meadow jumping mouse is being considered for listing under the federal endangered species act. There has been an effort by the DOW to inventory and recover this species, in order to keep its management at the state level rather than being federally mandated. The woodhouse SWA was inventoried, and had a higher density of Preble’s than any other area sampled along the front range. Most of the Willow Creek ranch is not suitable habitat for Preble’s, however, there is some potential to create some habitat conducive to this species around the stock ponds. With such a good population on the Woodhouse, they could easily be transplanted to these new areas to aid with the recovery effort. (Application).

El Paso County (GOCO)

- 1) Tudor/Pike’s Peak Greenway Legacy: (Natural Area/Wildlife Habitat; Fee Title; 14 acres; City of Colorado Springs; 1997). **GOCO Grant: \$400,000; Total Project Budget: \$1,036,559.** “The affected parcel has been identified as habitat for the Preble’s meadow jumping mouse. The mouse is being considered for listing as an endangered species...The relevant mouse habitat consists of the riparian zone adjacent to Monument Creek. (Appraisal)
- 2) LeHouillier Open Space Project: (Urban Open Space, Fee Title, 5221 acres, City of Fountain; 2003). **GOCO Grant: \$103,164; Total Project Budget: \$254,590.** “Wildlife species for subject property area ...meadow jumping mouse.” (Application)

DOW Scientific Investigations

The Colorado Division of Wildlife (DOW) has dedicated significant efforts to conducting numerous scientific studies concerning habitat use and distribution, temporal and spatial variation, and movement patterns of the currently designated Preble’s meadow jumping mouse.

- 1) **Habitat Use and Distribution of Preble's Meadow Jumping Mouse (*Zapus hudsonius preblei*) in Larimer and Weld Counties, Colorado (Shenk and Eussen, 1998):** Thirty-nine sites in Larimer and Weld Counties were surveyed, and 71 individual mice were captured. Soil samples were collected at the 0-12 inch and 12-24 inch level, and some soil samples at the 12-24 inch level were too rocky to collect. Nine fecal samples were also collected from traps. Initial results indicated that arthropods, fungus and willows seem to be components of the *Zapus* diet.
- 2) **Temporal and Spatial Variation in the Demography of Preble's Meadow Jumping Mouse (*zapus hudsonius preblei*). (Shenk and Sivert, 1998):** One hundred and eighty-six mice were PIT-tagged at three study sites (for reference: the Maytag Property, PineCliff Ranch and Woodhouse Ranch). Density increases due to birth pulses in late June and late July-August were observed at the Maytag Property. Mouse densities increased at the Woodhouse Ranch from June to July but showed no further increase in September trapping. Woodhouse ultimately showed the least density likely due to higher densities of other mammals at the site (primarily house mice and voles). The highest densities of mice occurred at the PineCliff Ranch, a location that has much willow vegetation and a main stem and tributary stream. Mean density of Preble's over all sites was 40.5 mice per kilometer of stream stretch.
- 3) **Movement Patterns of Preble's Meadow Jumping Mouse (*Zapus hudsonius preblei*) as they vary across time and space (Shenk and Sivert, 1998):** The study concentrated on movement data from radio-collared Preble's. Due to the pendency of the proposed USFWS 4-D Rule advocating a 300-foot buffer zone from the center of each stream, the data showed a high number of captures both within the buffer zone (150-300 feet) and beyond 300 feet. Some mice moved as much as 90 meters away from their September nighttime locations to hibernate. Mortality included predation from house cats, garter snakes, rattlesnakes, and fox, as well as drowning and road kill. Fecal samples demonstrated a diet of arthropods and fungus. The study results were based on the first year of a multi-year study, carrying at least over to the 1999 field season.

Landowner participation

Colorado has also actively sought out individual landowners who agree to partner with the state to assist in species conservation efforts, and in particular on behalf of the currently-designated Preble's meadow jumping mouse. The Colorado Species Conservation Partnership, under the direction of the Colorado Division of Wildlife (DOW), allows landowners to put in place conservation measures on their lands to enhance habitat, which in the case of the currently designated Preble's mouse, primarily means working to restore prime riparian habitat. This project has met with strong success and the DOW anticipates carrying it over into 2005.

Activity at the County Level

While the status of the Habitat Conservation Plans remains tenuous depending on the ultimate delisting decision, the following three counties are putting in place the conservation efforts which should be considered separate and apart from the plans, should delisting occur.

El Paso County

Since 1997, the El Paso County participants (Colorado Springs Utilities, City of Colorado Springs, and El Paso County) have spent an extensive amount of time and money conducting numerous conservation efforts related to the currently designated Preble's meadow jumping mouse. The participants have conducted an extensive review of the existing literature regarding the ecology of the mouse. From this review, the participants developed a protocol that could predict mouse habitat throughout El Paso County. The county participants developed this protocol through many years of extensive research conducted on mouse habitat requirements, populations, and movements, both within and outside of El Paso County.

This research included trapping surveys conducted over several years, on the ground population studies, and habitat evaluations. Participants have used this protocol to develop an extensive Geographic Information System database that can be used by various planning departments to advise citizens on mouse related issues. Examples of conservation strategies include identifying and preserving linkage corridors between known populations, providing linkages of mouse populations within the county to those on the United States Air Force Academy, identifying areas of conservation values, and tailoring conservation strategies to protect these areas.

El Paso County has performed extraordinary work to mitigate effects on the currently-designated Preble's mouse. Of particular note is the mitigation undertaken after the rebuilding of Monument Dam, wherein the county constructed a bypass for the mouse around the lake, substituting mouse habitat that had developed on the dam face itself. Due to the current drought, the bypass has not yet received much use. Biologists are confident, however, that the subspecies will return to this area with rising water levels.

The Colorado Department of Transportation (CDOT) has done some extraordinary things in El Paso County to mitigate interference with mouse habitat, or to set aside known habitat adjacent to highway construction and infrastructure. CDOT has set aside 65 acres on the southeast corner of Baptist Road and Interstate 25, which is known to be mouse habitat, and has used Dellacross Ranch as offsite mitigation for the mouse.

CDOT has also adjusted infrastructure needs to accommodate the mouse, its habitat, and its movements. Most markedly is the off-ramp from Interstate 25 to Monument, which bypasses Preble's habitat, while following a bit of a circuitous route. The Powers bridge over Pine Creek has a special arrangement to accommodate the mouse, as does the I-25 bridge over Cottonwood Creek south of Woodman Road.

While many private development infrastructure adjustments made to accommodate the mouse could change with the absence of federal jurisdiction under a federal listing, some have progressed so far that a delisting will not cause a change in planning or progress. The Briargate Subdivision in El Paso County has designed its infrastructure to accommodate mouse habitat, yet that infrastructure is laid out such that it cannot expand, and open space is preserved. The development has set aside over 100 acres both on and offsite, including Kettle Creek, which has an easement in perpetuity.

Finally, Colorado is prepared to contribute \$75,000 in biological and technical assistance, and \$25,000 in legal assistance as part of a match for El Paso County's Section 6 Habitat Conservation Planning Grant. Depending on the timing of delisting, much of the scientific work and data collection from the biological and technical assistance may be in place providing benefit regardless of whether the HCP is required to stay in place due to delisting.

Douglas County

Colorado has supported Douglas County in much of the science the county has used in preparing for its habitat conservation plan. One particular study analyzed mouse movement and habitat preferences. Contrary to the *Shenk and Sivert study of 1998*, this study demonstrated that while the currently-designated Preble's mouse thrives in a riparian habitat, it does not necessarily need the extraordinary riparian setbacks of 300 feet on either side of a stream to survive as it has. This current research has concluded that over 90 percent of the mice live within 150 feet of the stream.

As mentioned earlier, the State of Colorado has contributed significantly to preservation of currently-designated Preble's mouse habitat. Included in this was a grant for \$200,000 from the state to purchase mouse habitat in 1997 (the Maytag property, now know as Columbine open space). Douglas County owns the property and the Colorado Division of Wildlife holds the conservation easement. Additionally, the grant assisting in the purchase of Duncan conservation easement (\$200,000) came from the State of Colorado, as did the grant assisting in the purchase of Perry Park conservation easement (\$90,000).

On its own initiative, Douglas County has protected approximately 3,653 acres of riparian habitat in Douglas County since the currently-designated Preble's was listed. Of that, Douglas County owns in fee over 1,100 acres of riparian habitat managed in such a way that benefits currently-designated Preble's. The county has established its own collaborative planning process, with the assistance of state funding, to benefit the county in the form of trapping and surveying work, a science team-developed priority list of threats, public meeting assistance, and assistance in establishing a mailing list.

From a regulatory standpoint, Douglas County has adopted its own Grading, Erosion and Sediment Control Manual (Douglas County GESC Manual, 2002), which increases protection of streams and riparian areas in the County. The GESC Manual establishes strict criteria to control and minimize erosion and sedimentation, and requires revegetation of disturbed areas. These criteria are of benefit to the currently-designated Preble's.

Boulder County

The City of Boulder has had a dedicated open space sales tax in place since 1967, and Boulder County has had one since 1993. To date, the two jurisdictions have acquired management control by the purchase of development rights, conservation easements, and fee title purchases for over 100,000 acres of land. A primary focus for both jurisdictions has been acquisition or control over riparian corridors in recognition of their enormous ecological, environmental and hydrological significance - over 80 percent of Colorado's fauna and other species depend on these corridors for their existence, including the currently-designated Preble's meadow jumping mouse. This focus will continue into the future regardless of the mouse's federal status or the development of a Boulder County Habitat Conservation Plan (HCP).

The Boulder County draft HCP currently proposes recognition of four Preble's conservation zones: Mouse Management Areas (where there have been positive trappings); Suitable Contiguous Habitat (where riparian areas are contiguous to mouse management areas and contain habitat that corresponds to the needs of the Mouse); Potential Restoration Contiguous (areas that are contiguous to mouse management areas that are missing some elements of mouse habitat but could be restored); and Potential Linkages (corridors connecting two or more known mouse populations or existing/potential habitat).

In total, these four conservation zones cover 10,780 acres (linear riparian corridor miles multiplied by 600 feet on either side of water course banks). As of fall, 2002, 5,375 acres or 50 percent of these four habitat areas have been protected by the purchase of development rights, conservation easements, or fee title acquisition. In particular the two mouse management areas with the greatest known populations - South Boulder Creek/Boulder Creek and St. Vrain Creek between Lyons and Longmont - are 64 percent protected (3,200 acres of the 5,000 acres designated). That figure may be higher today since this data is 1-1/2 years old. The fact that mice have a strong presence in these two areas is due almost entirely to public acquisitions made by the city and county before the mouse was listed in 1998.

In October of 2002, the county conducted an inventory of vacant undeveloped parcels entirely within or intersecting riparian corridors (again using the USFWS' required 600-foot width from either side of the banks). The corridors included all six zones identified by the science team in 2000, including the four zones proposed in the draft county HCP. The tally added up to 185 parcels, 30 of which were entirely within a corridor and thus having little "wiggle room" insofar as HCP requirements were concerned, and 155 that intersected a corridor with some opportunity to locate potential development out of the mouse zone.

Boulder County's Site Plan Review regulations (SPR) require an on-site analysis of any parcel for which a building, grading, or other type of permit from the county has been requested (Article 4-800, Boulder County Land Use Code). The purpose of the SPR is to design and locate structures in such a way as to minimize both on and off-site impacts.

Since the mouse was listed in 1998, the county has required applicants for permits on lands intersecting or enclosed within any one of the six zones to provide the county with

information about their proposal. The county indicated that the information must include photos showing the relationship of the proposed disturbance area to the mouse conservation zone, along with a description of the proposed activity (such as a driveway, patio, pool, or new home or garage). The county has forwarded this material to the USFWS for a Section 10 determination, and to include whatever avoidance, minimization, or mitigation measures may be required as conditions to the issuance of the county permit. Field inspections are carried out to insure the conditions are being met.

In addition, the county has an information handout about the Preble's: why it is listed, why it is important, and what needs to be done in order to determine that a "taking" will be avoided, minimized, or mitigated. The county provides this handout to any party whose proposal might trigger a Section 10 review.

Finally, Article 7-1700 A 5. - Wildlife Impacts, Boulder County Land Use Code, requires that a wildlife impact report prepared by an approved wildlife expert retained the County Parks and Open Space Department be submitted for any application requiring a development report that "... is located within any critical habitat for state or federally-designated threatened or endangered species ..."

All of this is in place in Boulder County, as well as pre-permitting submittal and review requirements to address Preble's issues for those properties, both vacant and developed, where activities are being proposed that could have a negative impact on the currently-designated Preble's or its habitat before any development permit will be issued. These requirements, which predate the listing of the Preble's, are an integral part of the county's land use management philosophy as codified in the Land Use Code and the Boulder County Comprehensive Plan. They apply to county activities (bridge construction, trail construction, and county facilities construction), as well as to private proposals. There is no basis to expect any loosening of those codes and plans in the future.

Insofar as the draft HCP is concerned, the county and primary group of stakeholders have worked for a number of years to develop a plan that can be integrated into county codes, policies, intergovernmental agreements with municipalities, open space programs, and other tools already in use to manage the landscape carefully and holistically. The draft HCP is at least 90 percent complete. However, if the mouse is subsequently delisted, county leaders are unclear about what continued obligations to which they would then have to conform, and what standards and procedures that may have been a federal condition of HCP approval but which could be met or addressed in other ways.

The county has raised the question with the state about the status of HCP obligations in the event of subsequent delisting. The county, although it would be released from HCP conditions and free to revise and adapt the HCP to better fit local needs, could adjust to this change in circumstances. The county supports the intent and objectives of the Endangered Species Act, which has a track record that speaks for itself. The whole intent of the HCP program is to move sound management down to the local level where those plans can be more readily and appropriately melded into the political, economic, regulatory, and environmental landscape.

Boulder County is committed to ecosystem management and protection of the habitat for the currently designated Preble's meadow jumping mouse, using principles of conservation biology by applying a holistic approach. Whether that is through a federally approved HCP or by some other mechanisms is of secondary importance to the county.

City of Boulder Study: Hibernacula for Preble's Meadow Jumping Mice

The Colorado Department of Natural Resources funded a study conducted by Bear Canyon Consulting in 2003 on behalf of the City of Boulder Open Space to identify and describe hibernacula along South Boulder Creek. The intention of the study was to assist the open space office to manage habitat used by Preble's during hibernation as well as during the active season. The study also aimed at predicting occurrence, preventing habitat degradation, and in aiding habitat restoration.

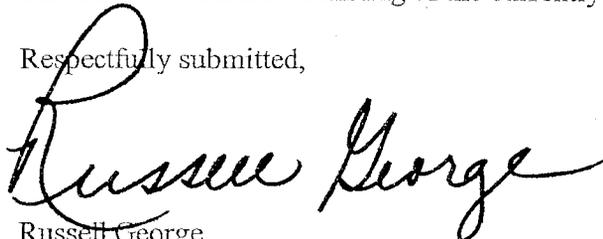
Colorado Department of Transportation

The Colorado Department of Transportation (CDOT) has spent approximately \$2.5 million in mitigation and reconfiguration to adapt to the currently-designated Preble's mouse since 1996. One million dollars has been spent on East Plum Creek and Jackson Creek in Douglas and El Paso Counties, and another \$500,000 on projects throughout El Paso County. CDOT has committed another \$1-2 million to mitigation projects through a Colorado Springs programmatic agreement.

Conclusion

As has been thoroughly demonstrated above, Colorado believes the conservation practices, permanent infrastructure changes, ongoing scientific study, four-fold increase in known distribution, and permanent habitat protections are items that must be considered in the delisting deliberations of the Service. These factors considered together produce an excellent case for the immediate delisting of the currently-designated Preble's meadow jumping mouse.

Respectfully submitted,



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Colorado Department of Natural Resources