



CENTER FOR NATIVE ECOSYSTEMS

1536 Wynkoop Street, Suite 303
Denver, Colorado 80202
303.546.0214
cne@nativeecosystems.org
www.nativeecosystems.org

22 January 2008

Susan Linner
Field Supervisor
Colorado Field Office
Ecological Services
P.O. Box 25486
MS-65412
Denver Federal Center
Denver, CO 80225

Attn: Preble's meadow jumping mouse

Dear Ms. Linner:

Below please find comments on behalf of Center for Native Ecosystems, Biodiversity Conservation Alliance, Forest Guardians, Center for Biological Diversity, and the Natural Resources Defense Council on the Revised Proposed Rule to Amend the Listing for the Preble's Meadow Jumping Mouse (*Zapus hudsonius preblei*) to Specify over What Portion of Its Range the Subspecies Is Threatened (72 Fed. Reg. 62992-63024 (Nov. 7, 2007)). We strongly object to the Service's proposal to remove protections from Preble's mice in Wyoming for several reasons: little is known about status in Wyoming, the Service has not adequately analyzed the threat of overgrazing in Wyoming, the Service has not factored in climate change in this decisionmaking, the Service's application of a new interpretation of "significant portion of the range" to remove protections in Wyoming is flawed, and the choice of the state line to demarcate where protections are appropriate suggests that the agency continues to bow to political pressure. Our organizations have a long history of advocating for the conservation of the Preble's meadow jumping mouse and the Front Range riparian areas upon which it depends. We strongly encourage the Service to retain protections throughout the range of the Preble's meadow jumping mouse, and we stand ready to challenge this decision if it is finalized as proposed.

I. Little is known about status in Wyoming.

The delisting proposal clearly states that little is known about the status of the Preble's meadow jumping mouse in Wyoming. Several of the occupied drainages have only one confirmed museum specimen to document the mouse's presence. The draft recovery plan requires ten years

of monitoring before trends could be assessed, and we are not aware of any Preble's meadow jumping mouse populations in Wyoming for which those data are available.

At the Colorado public hearing, the Service explained that Preble's meadow jumping mice tend to be found at higher elevations than western jumping mice in Wyoming, but in Colorado this trend is reversed, and western jumping mice are found higher. The reason for this difference in niche partitioning is not clear and should be investigated. One explanation could be that western jumping mice are outcompeting Preble's meadow jumping mice in Wyoming and that the Preble's mouse's range has already contracted.

The Service is still just beginning to get a handle on where the Preble's mouse is actually found in Wyoming and has little information on status in that part of its range. Delisting now would likely mean that we will never obtain a reasonably accurate depiction of the mouse's distribution or status in Wyoming. At the Colorado public hearing, the Service explained that since it intends to simply amend the original listing based on data error, it will not require the five years of monitoring that would accompany a delisting based on recovery.

We raised these concerns at a meeting with Service staff in early January and basically were assured that the Service hoped that the Wyoming Game and Fish Department would step up and start monitoring. To date, Game and Fish has neither collected Preble's mouse data nor funded the collection of such - we spoke to staff at both Game and Fish and the Wyoming Natural Diversity Database (WYNDD) to confirm this. WYNDD has received some funding from the Governor's office for its Preble's meadow jumping mouse work, but the Service is well aware that the Governor of Wyoming has been focused on building a case for the removal of protections for Preble's mice in Wyoming. Once this has been accomplished it is highly doubtful that his office would continue to fund Preble's mouse data collection. The Service must not rely on future voluntary conservation actions when making listing decisions. At present there is no monitoring plan in place for Wyoming, and no agency has committed funding toward data collection, to the best of our knowledge. The Service must honestly appraise this situation and acknowledge that delisting in Wyoming will almost certainly mean that the mouse will fall off everyone's to-do list, and populations could crash without anyone taking note.

Futhermore, a bill (see Senate File SF0003) has been introduced in the Wyoming legislature that would provide some general funds for the Wyoming Game and Fish Department to spend on nongame management, but the legislature would have to authorize the use of any of these funds. Again it is unlikely that Wyoming legislators would approve spending funds on Preble's meadow jumping mouse research.

We strongly discourage the Service from removing protections for Preble's meadow jumping mice in Wyoming. However, should the agency elect to do so, it should consider making delisting in Wyoming contingent on the simultaneous issuance of a special rule requiring the collection of 5 years of monitoring data in Wyoming.

II. The Service must fully analyze whether overgrazing may threaten Wyoming populations.

The Service cites Taylor (1999) to support its contention that overgrazing does not threaten Preble's meadow jumping mice in Wyoming. However, it also cites the Wyoming Comprehensive Wildlife Plan's assessment that riparian areas are degraded throughout the state, and it cites several studies showing that overgrazing does negatively impact jumping mice. The Service also recently added the New Mexican meadow jumping mouse to the Candidate list largely due to concerns about overgrazing.

Taylor (1999) reported that 33 *Zapus* spp. were trapped over 6300 trap nights – a 0.005 capture rate. She also discussed problems with overgrazing in at least one occupied site: “On Sybille Creek the vegetation had been grazed heavily by cattle for a number of years; the area was fenced off two years ago and subsequently used by a small number of horses. The habitat was immature and sparse, the mouse captured here was making use of concrete rip-rap and clusters of vegetation including coyote willow, cattail, and rag weed” (p. 4). “There is no shrub component to the vegetation at the water’s edge, all the young willow is set back 6 to 10 feet. The single *Zapus* captured was in a clump of stable vegetation at an ox-bow in the creek. In some places the eroding banks have been stabilized with concrete rip-rap” (p. 21).

Taylor’s survey work was limited to True Ranches property. The conventional wisdom is that ranches with larger holdings (like True Ranches) may be better able to guard against overgrazing by being able to move cattle around the larger landscape more effectively. Therefore, conditions on True Ranches property may not be representative of riparian health within the mouse’s range in Wyoming as a whole, and it is particularly noteworthy that even Taylor’s study, which was commissioned by True Ranches, revealed conflicts between overgrazing and the Preble’s mouse. Taylor’s introduction describes the purpose of the study as follows: “The owners of True Ranches decided to embark upon a trapping effort to demonstrate the compatibility of the mouse with sustained cattle ranching operations” (p. 2); and her conclusion states, “The effort undertaken by True Ranches was to demonstrate that sustained cattle production is NOT detrimental to the survivability of *Zapus*” (p.5).

Clearly the Service is not relying on the best available science here. Renee Taylor is currently making a name for herself challenging well-documented studies on the impacts of oil and gas drilling on sage-grouse. Even if Taylor were a credible source, this document is from 1999, and the 1990s were relatively wet years. Riparian area conditions can change quickly and dramatically when grazing continues under drought stress. We saw this firsthand with Service staff when the agency took us out to Colorado butterfly plant habitat in 2003, and at the first site we visited, all of the riparian vegetation had disappeared, much to the Service's chagrin. Post-2002-drought conditions may be quite different than those Taylor reported, as may Preble's mouse status.

At one point in the delisting proposal, the Service asserts that grazing timing and intensity are appropriate in Wyoming, but it offers no citation. At our meeting with the Service earlier this month we asked whether the agency had reviewed other documents addressing current riparian area health in Preble's mouse habitat in Wyoming, including any Forest Service grazing

allotment monitoring records. The answer was no. Based on GIS data provided by the Service and the Forest Service, it appears that five different Medicine Bow National Forest grazing allotments include confirmed occupied Preble's mouse habitat: Haystack, Eagle Peak, Albany Peak, North Laramie River, and North Pasture. The Service should request the Allotment Management Plans, Annual Operating Instructions, and any photos, notes, reports, or monitoring analyses that the Forest Service possesses for these five allotments. The Service should also do the same for Hutton Lake National Wildlife Refuge. I personally have observed cattle grazing in the riparian areas of the Refuge.

Based on the information cited in the proposal, the best available science indicates that overgrazing may threaten Preble's meadow jumping mice in Wyoming. The mere confirmation of mouse presence does not ensure that populations are secure – this is obvious from several populations in Colorado that have been found in marginal or highly degraded habitat which are not expected to persist.

III. Climate change must factor into the Service's analysis.

The Service must consider both whether climate change threatens Wyoming Preble's meadow jumping mouse populations, and whether the protection of these populations may be essential to recovery given predicted impacts of climate change throughout the species' range.

The Service contends that climate change impacts need not be considered since they occur outside of the "foreseeable future" period it has chosen to analyze for the mouse. However, the agency explains that it considers the foreseeable future to extend to about 2040 because this is as far out as the current human population growth predictions for the region go. Climate change models for the region, on the other hand, extend to at least 2100. For example, see the maps at http://www.geo.arizona.edu/dgesl/research/regional/projected_US_climate_change/projected_US_climate_change.htm which predicts 2100 summer temperatures at least 7°F higher than the 1971-2000 average in southern Wyoming. One can request information on predicted climate change for specific lat/long coordinates from the National Center for Atmospheric Research via their Regional Climate-Change Projections from Multi-Modal Ensembles program. The form is available at: <http://rcpm.ucar.edu/request.html>. Results are available for annual, seasonal, or monthly changes under different emissions scenarios for each decade between 2000 and 2099. The Service should request these data and include them in its analysis of both the security of the Wyoming populations and the importance of the Wyoming populations given potential climate change impacts in Colorado.

NRDC previously provided the following comments on the use of a 100-year time span for assessing extinction threat for the polar bear:

Nor would it be unusual for the Service to use a 100 year time frame to evaluate current threats to the polar bear. In addition to being supported by the best available scientific data, the Service has a long history of using 100 year periods in listing decisions. As the Proposed Rule itself notes, the Service adopted a 100 year definition of "foreseeable future" when analyzing threats to the greater sage grouse. 72 Fed. Reg. at 1070. Similarly, the National Marine Fisheries Service

(“NMFS”) uses 100 year time frames when examining the status of marine mammals under the Endangered Species Act. Thus, when NMFS reclassified the stellar sea lion into two distinct populations, it employed 100 year models to assess the threats to those populations. See “Change in Listing Status of Steller Sea Lions Under the Endangered Species Act,” 72 Fed. Reg. 24345, 24346 (May 5, 1997).

The Service routinely uses 50-year or 100-year timeframes in preparing Biological Opinions and Safe Harbor Agreements (for example, the Aplomado falcon Safe Harbor Agreement lasts 99 years, and the proposed Utah prairie dog Agreement lasts 50 years). In fact, the Service has issued Incidental Take Permits for the Preble’s meadow jumping mouse that last 50 years (for example, the permit accompanying the Leonard HCP). It is arbitrary and capricious for the Service to allow take 50 years into the future and yet not assess threats that far out.

The Intergovernmental Panel on Climate Change has come to consensus on many factors relevant to the potential threat of climate change to the Preble’s mouse, including:

- “Climate change will constrain North America’s over-allocated water resources, increasing competition among agricultural, municipal, industrial and ecological uses (very high confidence).” (Field *et al.* 2007, p. 619)
- “Many North American species have shifted their ranges, typically to the north or to higher elevations (Parmesan and Yohe, 2003).” (Field *et al.* 2007, p.622)
- “Warming, and changes in the form, timing and amount of precipitation, will very likely lead to earlier melting and significant reductions in snowpack in the western mountains by the middle of the 21st century (high confidence) (Loukas et al., 2002; Leung and Qian, 2003; Miller et al., 2003; Mote et al., 2003; Hayhoe et al., 2004). In projections for mountain snowmelt-dominated watersheds, snowmelt runoff advances, winter and early spring flows increase (raising flooding potential), and summer flows decrease substantially (Kim et al., 2002; Loukas et al., 2002; Snyder et al., 2002; Leung and Qian, 2003; Miller et al., 2003; Mote et al., 2003; Christensen et al., 2004; Merritt et al., 2005).” (Field *et al.* 2007, p.627)
- “With global average temperature changes of 2°C above pre-industrial levels, many terrestrial, freshwater and marine species (particularly endemics across the globe) are at a far greater risk of extinction than in the recent geological past (medium confidence)” (Fischlin *et al.* 2007, p. 213)
- “Warming and drying trends are likely to induce substantial species-range shifts, and imply a need for migration rates that will exceed the capacity of many endemic species.” (Fischlin *et al.* 2007, p. 226).
- “In dryland wetlands, changes in precipitation regimes may cause biodiversity loss (Bauder, 2005). Changes in climate and land use will place additional pressures on already-stressed riparian ecosystems along many rivers in the world (Naiman et al., 2005).” (Fischlin *et al.* 2007, p. 234)
- “The likely synergistic impacts of climate change and land-use change on endemic species have been widely confirmed (Hannah et al., 2002a; Hughes, 2003; Leemans and Eickhout, 2004; Thomas et al., 2004a; Lovejoy and Hannah, 2005; Hare, 2006; Malcolm et al., 2006; Warren, 2006), as has over-exploitation of marine systems (Worm et al., 2006; Chapters 5 and 6).” (Fischlin *et al.* 2007, p. 241)

Even without the model data or the IPCC's analysis, common sense should lead one to conclude that global warming threatens the Preble's mouse. As the Service explains in the proposal, the mouse is an Ice Age relict which is only found in cool, moist riparian corridors. Global warming can only make the Preble's mouse's current range more unsuitable as temperatures increase and conditions shift further away from those of the region's Ice Age past.

Preble's mice in Wyoming represent the highest latitude populations, and thus may be essential in conserving the species. Mice in Wyoming extend over 150 miles north of the northern extent of the occupied range in Colorado, according to GIS data provided by the Service. Because the mouse is a habitat specialist relying on linear riparian corridors restricted to a narrow range, it will be challenging for the species to adapt to climate change. Protecting the highest latitude populations in existence now makes good sense to allow for potential shifts further northward or to compensate for range retraction in the southern portion of the current distribution.

In addition, some of the highest elevation populations currently are found in Wyoming. Only 14% of the confirmed Preble's mouse locations included in the GIS data provided by the Service occur in Wyoming, but four of the ten highest elevation Preble's meadow jumping mouse populations are found in Wyoming, including the two highest populations recorded for the subspecies. Therefore, higher elevation populations are overrepresented in the Wyoming data. The mean elevation for Colorado populations is 1881m while the mean for Wyoming populations is 1922m. Conserving the highest elevation populations now makes sense for the same reasons articulated above for higher latitude populations.

Before proceeding with delisting, it is essential that the Service evaluate both whether climate change threatens the mouse in Wyoming, and whether Wyoming's populations may be essential to avoiding extinction throughout the range of the mouse given anticipated climate change impacts.

IV. The Service's application of "significant portion of the range" to remove protections in Wyoming is flawed.

At our meeting with the Service earlier this month, staff reported that they had investigated whether Preble's meadow jumping mice in Colorado could constitute a Distinct Population Segment, and they rejected this option because the Colorado portion of the range did not meet the criteria in the Service's DPS policy.

Relying on a March 16, 2007 Solicitor's Memo on The Meaning of "In Danger of Extinction Throughout All or a Significant Portion of its Range," the FWS has proposed to list the Preble's only in those portions of the species' range in Colorado the agency deems to be significant, but to exclude other portions of its range in Wyoming. This interpretation and application of the term "significant portion of its range" in the ESA's definition of "endangered species" and "threatened species" is contrary to the statute and is otherwise arbitrary and capricious. The ESA only allows the listing of "species" which are defined to include "any subspecies of fish or wildlife or plants, and any distinct population segment of any species or vertebrate fish or wildlife which interbreeds when mature." 16 U.S.C. §1532(15). The only entity below a

“species” or “subspecies” that can qualify for listing is a “distinct population segment.” Accordingly, if a “species” – in this case the subspecies *Zapus hudsonius preblei* – “is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range” and therefore meets the definition of a “threatened species,” *id.* § 1532(19), the ESA commands that the entire subspecies be listed. A finding that a “species” is biologically endangered or threatened in a significant portion of its range was intended by Congress to have the same effect as finding that it is endangered or threatened in all of its range; the entire “species” must be listed. The only recourse for listing something less than the entire species or subspecies is through the ESA’s authority for listing distinct population segments. Indeed, the Solicitor’s opinion regarding “significant portion of its range” renders the authority to list distinct population segments virtually meaningless which is plainly not what Congress intended. The Act does not permit the listing of entities lesser than DPSes, and the Service’s proposal is therefore in violation of the Act.

The proposal provides a candid review of the intense pressures threatening the mouse in Colorado, and the limited extent to which listing has been able to ameliorate threats there. If Wyoming populations are indeed more secure, they will likely be essential to conserving the species. Indeed, the Service has already repeatedly recognized the important role of the Wyoming populations by prioritizing several for protection in the recovery plan, and by designating critical habitat for several.

The Service acknowledges in the proposal that “regulatory measures in Wyoming do not guarantee protection of these [recovery-goal] populations” (72 *Fed. Reg.* 63015 (Nov. 7, 2007)). Wyoming has no conservation plan in place or under development. It seems that the Service’s position is that the mouse will be conserved in Wyoming through benign neglect alone. However, this conclusion is arbitrary and capricious given the lack of regulatory mechanisms to conserve the subspecies in this portion of its range.

The Service relies on the new Solicitor’s Opinion to assert its ability to delist in Wyoming alone. However, the Solicitor’s Opinion’s appendix on the legislative history of the Act confirms that delisting in particular states has only ever been considered where that state had an effective conservation plan in place. Pages A-5-A-6 contain a most pertinent discussion regarding whether protection is necessary in an area where a species is doing okay but no conservation plan is in place, and the conclusion is that protections must be applied:

[Mr. Curtis Bohlen, Deputy Assistant Secretary for Fish Wildlife and Parks]:
Quite commonly an animal’s status does not deteriorate at the same rate throughout its range. This is especially true for those whose range extends into two or more nations, States, or other political subdivisions. This is so since the well-being of most wildlife now is dependent upon the management and other considerations it receives—or, just as importantly, fails to receive—from the people and governments who control the land upon which it lives.

To more directly answer your question, let’s assume a hypothetical situation involving a commercially valuable animal which occurs in three countries. Let’s assume, after the appropriate reviews, consultations, etc., that it is determined that

-in country "A" - a good management program exists; adequate unthreatened habitat is present; the population is healthy and produces a surplus which is harvested under a carefully regulated system,
-in country "B" - the animal largely is ignored and neither receives special management or protective attention nor is overexploited,
-in country "C" - no management program exists and the animal is being heavily overexploited.

Thus, this animal would be considered to be in good shape over part of its range (country "A"), holding its own in a second portion (country "B"), and in trouble in a third.

Under our present authority, no assistance could be given this animal, since it is not "threatened with extinction." However, it is obvious that unless something acts on behalf of the animal, its extirpation in country "C" is imminent. Once that occurs, the same forces likely would shift their attention to the animal in country "B," thus making the species' continued existence dependent on the welfare of the remnant population in country "A."

This is a "textbook example" of our concept of a candidate for the "likely to become threatened with extinction" category.

If that same animal were so classified, regulations could be issued that would:

- a. Permit the importation into the United States of lawfully taken specimens from country "A."
- b. Prohibit or restrict the importation of specimens which originated in countries "B" or "C." As programs to manage and protect the animal are implemented in country "B" or "C" and as the animal responds, such prohibitions or restrictions could be relaxed accordingly.

There is no country A parallel for Preble's. Wyoming instead at best parallels country B, and the Service clearly understood that without proactive management in place, threats from country C (the Colorado parallel) would simply flow into country B unchecked.

Other portions of the Solicitor's Opinion appendix are consistent with this approach that withholding of protections could only be considered if a combination of secure status and proactive management were in place. For example, the appendix cites a Senate Committee Report around the 1982 amendments stating, "There may be nations where a combination of a healthy population and effective management programs permit the sport hunting of such species without adversely affecting its status" (p. A-17, emphasis added).

It also seems relevant that the Act requires the consideration of "those efforts, if any, being made by any State or foreign nation, or any political subdivision of a State or foreign nation, to protect such species, whether by predator control, protection of habitat and food supply, or other

conservation practices, within any area under its jurisdiction, or on the high seas” (16 U.S.C. §1533 (b)(1)(A)). The Act does not recognize benign neglect as an adequate response – the States must be actively engaged in conservation efforts.

The Preble’s meadow jumping mouse remains threatened by inadequate regulatory mechanisms in Wyoming and threats from Colorado can reasonably be assumed to eventually make their way into Wyoming if the protections of the Act are removed. Even just the indirect effects of Colorado’s population growth could cause substantial impacts in terms of need for increased water storage, access to aggregate for construction, etc., which could have real consequences for mice in Wyoming.

If the Service were to persist in its attempt to list Preble’s meadow jumping mice in Colorado as a separate entity, the agency has laid out a compelling case for Endangered listing in this proposal, and such an uplisting would preclude the use of the current 4(d) rule. The Service must also carefully think through the potential repercussions of what delisting in Wyoming could mean in terms of jeopardy findings for the listed entity and for recovery needs. The proposal states, “no large populations and few medium populations, as described in the Preliminary Draft Recovery Plan, are known to exist in Colorado on contiguous stream reaches that are secure from development” (72 *Fed. Reg.* 63015 (Nov. 7, 2007)). This suggests that the mouse’s recovery may not be possible without the support of the Wyoming populations. The Service must explain how it would conduct jeopardy determinations and Section 7 consultations if a portion of the range were no longer listed. If the agency considers only the impact to the listed entity, everyone must prepare for many more jeopardy findings.

V. The Service's choice of the state line to demarcate the protected area suggests that the agency continues to bow to political pressure.

The Service’s proposal also violates the ESA’s bedrock requirement that listing decisions are to be made “solely on the basis of the best scientific and commercial data available.” 16 U.S.C. § 1533(b)(1)(A). Delineating where the Preble’s will be considered a “threatened species” on the basis of a state boundary – i.e., listed in Colorado but not in Wyoming – is political and is not grounded in science or biology. Even the Service’s own policy on the listing of distinct population segments makes clear that the agency cannot rely on political boundaries in making listing determinations. The introduction of political factors into the listing process is something that will invariably lead to arbitrary decisions and less protection for imperiled species.

The Service has for some time now stressed watershed-level management for the Preble’s meadow jumping mouse. The recovery plan states as the first point under its “Guiding Principles”

1. Management by River Drainage

Because Preble’s populations are physically separated in three different drainages, and the threats to the recovery populations differ in type and intensity between these drainages, Preble’s will be most effectively managed by considering each of the following drainages separately:

1. North Platte River (Wyoming)

2. South Platte River (small area in Wyoming, but mainly Colorado)
3. Arkansas River (Colorado) (p. 29)

Despite this longstanding history of management along river drainage, the Service now proposes to manage according to political boundaries. The State of Wyoming has been especially antagonistic toward the Service's attempts at Preble's mouse management and it appears that the agency has finally succumbed to political pressure to let Wyoming off the hook.

The proposal states, "Population density and trends are not well known in Wyoming" (72 *Fed. Reg.* 63003 (Nov. 7, 2007)), and cites the Wyoming Comprehensive Wildlife Strategy. This document from the Wyoming Game and Fish Department also lists as one of the "Problems" faced by the Preble's mouse, "Human encroachment along rivers, streams, and lakes is having an impact on meadow jumping mouse habitat" (p. 180), and the delisting proposal also cites this document's assessment that "the two ecological systems most likely to support the Preble's meadow jumping mouse ranked in the lowest 20 percent in mean habitat quality relative to the State's other ecosystems" (72 *Fed. Reg.* 63006 (Nov. 7, 2007)). Throughout the proposal, the Service extensively cites Pague and Grunau (2000) regarding threats in Colorado. The Wyoming Comprehensive Wildlife Strategy should serve as Wyoming's counterpart, and it concludes that there are problems in Preble's mouse habitat. The delisting proposal also admits that in Wyoming "the subspecies appears uncommon in the South Platte River basin" (72 *Fed. Reg.* 63003 (Nov. 7, 2007)), but the Service persists in proposing the removal of protections for Wyoming mice in the South Platte basin because continued protections there "would be more difficult to administer" (72 *Fed. Reg.* 63018 (Nov. 7, 2007)).

According to the proposal's characterization of known Preble's populations in Wyoming, the recovery plan goals have not been met. The recovery plan designated the following recovery populations in Wyoming which do not seem to have met recovery goals: 3 small in the Middle North Platte drainage, 3 small in the Middle North Platte/Scottsbluff drainage, 3 small in the Crow Creek drainage, 3 small in the Lone Tree drainage, and 3 small in the Upper Lodgepole drainage.

Wyoming populations may also possess unique genetic characteristics making them important to recovery. The USGS study's microsatellite results showed that Wyoming specimens clustered on their own, separate from other Preble's populations.

VI. Conclusion

The proposal also includes a few minor errors including the characterization of *Z.h. campestris* as inhabitat northwestern Wyoming, a questionable account of Ramey's having tested for ecological exchangeability, and what we view as an inaccurate characterization of which reviews supported Ramey's original results. The Service never examines Wyoming populations' significance to Preble's meadow jumping mouse recovery, nor does it consider how the Wyoming populations provide for resilience, representation, and redundancy. We strongly urge the Service to retain protections throughout the range of the Preble's meadow jumping mouse, and to finally get back to work on finalizing and implementing the recovery plan.

Sincerely,



Erin Robertson
Senior Staff Biologist
Center for Native Ecosystems

On behalf of

Duane Short
Wild Species Program Director
Biodiversity Conservation Alliance
P.O. Box 1512
Laramie, WY 82073

Nicole J. Rosmarino, Ph.D.
Conservation Director
Forest Guardians
312 Montezuma Ave.
Santa Fe, NM 87501

Andrew Wetzler
Director, Endangered Species Project
Natural Resources Defense Council
1200 New York Ave NW Suite 400
Washington D.C. 20005

Kieran Suckling
Policy Director
Center for Biological Diversity
P.O. Box 710
Tucson, AZ 85702

Sources Cited

Field, C.B., L.D. Mortsch,, M. Brklacich, D.L. Forbes, P. Kovacs, J.A. Patz, S.W. Running and M.J. Scott. 2007. North America. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 617-652.

Fischlin, A., G.F. Midgley, J.T. Price, R. Leemans, B. Gopal, C. Turley, M.D.A. Rounsevell, O.P. Dube, J. Tarazona, A.A. Velichko. 2007. Ecosystems, their properties, goods, and services. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, 211-272.