

Recovery Plan for *Erigeron rhizomatus* (Zuni Fleabane)

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DRAFT AMENDMENT 1

We have identified best available information that indicates the need to amend recovery criteria for this species since the Zuni Fleabane (*Erigeron rhizomatus*) Recovery Plan (Recovery Plan) was completed. In this proposed modification, we synthesize the adequacy of the existing recovery criteria, show amended recovery criteria, and the rationale supporting the proposed recovery plan modification. The proposed modification is shown as an appendix that supplements the Recovery Plan, superseding only page 14 (U.S. Fish and Wildlife Service [Service] 1988: 14).

**For
U.S. Fish and Wildlife Service
Southwest Region
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 Regional Director, Region 2
 U.S. Fish and Wildlife Service

BACKGROUND INFORMATION

Recovery plans should be consulted frequently, used to initiate recovery activities, and updated as needed. A review of the recovery plan and its implementation may show that the plan is out of date or its usefulness is limited, and therefore warrants modification. Keeping recovery plans current ensures that the species benefits through timely, partner-coordinated implementation based on the best available information. The need for, and extent of, plan modifications will vary considerably among plans. Maintaining a useful and current recovery plan depends on the scope and complexity of the initial plan, the structure of the document, and the involvement of stakeholders.

An amendment involves a substantial rewrite of a portion of a recovery plan that changes any of the statutory elements. The need for an amendment may be triggered when, among other possibilities: 1) the current recovery plan is out of compliance with regard to statutory requirements; 2) new information has been identified, such as population-level threats to the species or previously unknown life history traits, that necessitates new or refined recovery actions or criteria; or 3) the current recovery plan is not achieving its objectives. The amendment replaces only that specific portion of the recovery plan, supplementing the existing

recovery plan, but not completely replacing it. An amendment may be most appropriate if significant plan improvements are needed, but resources are too scarce to accomplish a full recovery plan revision in a short time.

Although it would be inappropriate for an amendment to include changes in the recovery program that contradict the approved recovery plan, it could incorporate study findings that enhance the scientific basis of the plan, or that reduce uncertainties as to the life history, threats, or species' response to management. An amendment could serve a critical function while awaiting a revised recovery plan by: 1) refining or prioritizing recovery actions that need to be emphasized, 2) refining recovery criteria, or 3) adding a species to a multispecies or ecosystem plan. An amendment can, therefore, efficiently balance resources spent on modifying a plan against those spent on managing implementation of ongoing recovery actions.

METHODOLOGY USED TO COMPLETE THE RECOVERY PLAN AMENDMENT

The recovery criteria were collectively developed and reviewed by species experts that included biologists and botanists from the Bureau of Land Management (BLM), New Mexico Energy, Minerals and Natural Resources Department, Navajo Natural Heritage Program, U.S. Forest Service (Forest Service), and the Service. The development process was informed by the best available science regarding species biology and current threats. The recovery criteria were designed to be objective and quantifiable, in order to meet the conditions needed to ensure species viability through sustainment of populations in the wild that demonstrate resiliency, redundancy, and representation (Wolf et al. 2015: entire).

ADEQUACY OF RECOVERY CRITERIA

Section 4(f)(1)(B)(ii) of the Endangered Species Act (Act) requires that each recovery plan shall incorporate, to the maximum extent practicable, "objective, measurable criteria which, when met, would result in a determination...that the species be removed from the list." Legal challenges to recovery plans (see *Fund for Animals v. Babbitt*, 903 F. Supp. 96 (D.D.C. 1995)) and a Government Accountability Audit (GAO 2006: 2) also have affirmed the need to frame recovery criteria in terms of threats assessed under the five delisting factors.

Recovery Criteria

Although there is a final Recovery Plan, we have decided to update criteria with new information and better incorporate objective/measurable criteria. When the Recovery Plan was finalized in 1988, limited data made it difficult to quantify habitat requirements with enough precision to establish detailed and measurable recovery criteria (Service 1988: entire).

Synthesis

The amended recovery criteria described below expand and clarify the biological recovery criteria described in the original recovery criteria, and implicitly require effective monitoring to provide the biological data for delisting. In 2007, we completed a 5-year review (Service 2007: entire). Currently, there are three known populations of Zuni fleabane (Chuska, Datil, and Zuni). The Chuska Population exists on lands owned and managed by the Navajo Nation and contains 15 subpopulations on the Navajo Nation in the Chuska Mountains (Christie 2004: 5–6).

The Datil and Zuni Populations are almost entirely located on lands managed by the Forest Service with one subpopulation on lands managed by BLM in the Datil Population. The Datil Population is the largest (33 subpopulations) with at least one third of potential habitat yet to be surveyed (Roth and Sivinski 2014: 5). When comparing similar subpopulations in the Datil Population from 1991 to 2014 the number of individuals declined from 12,890 to 2,470 (Roth and Sivinski 2014: Appendix). There was also a decline at the BLM subpopulation (Roth and Sivinski 2014: 15). As of 2014, both of the known subpopulations within the Zuni Population were occupied (306 individuals), though the population had declined since 2004 (1,300 individuals) (Roth and Sivinski 2015: 12).

Current Threat Status

Surface mining (uranium) is the major threat to occupied Zuni Fleabane habitat on lands. Surface mining could result in permanent habitat loss and the extirpation of subpopulations.

Forest Service Lands

All subpopulations on Forest Service lands are subject to potential surface mining (uranium). Efforts are underway by the Forest Service to remove the risk of surface mining to the subpopulations in the Datil/Zuni Populations via a mineral withdrawal.

BLM Land

The Datil subpopulation in the BLM Sawtooth Area of Critical Environmental Concern currently has mineral rights withdrawn (BLM 2010: 54).

Navajo Nation

The Chuska Population occurs on Navajo Nation lands. Zuni Fleabane is currently listed as G2 (Endangered) on the Navajo Endangered Species list (Navajo Nation Division of Natural Resources 2008: 2). Biological Resource Land Use Clearance Policies and Procedures allow the Navajo Natural Heritage Program to restrict development activities in biologically important areas, in addition there is a clearance process required for any development activities on Navajo Nation Lands where sensitive species would be impacted (Navajo Nation Council 2008: entire). Lastly, the Dine Natural Resources Protection Act of 2005 has eliminated uranium mining activities on Navajo Nation Land (Navajo Nation Council 2005: entire).

AMENDED RECOVERY CRITERIA

Recovery criteria serve as objective, measurable guidelines to assist in determining when an endangered species has recovered to the point that it may be downlisted to threatened, or that Zuni Fleabane no longer meets the definition of either an endangered or threatened species and may be delisted. Delisting is the removal of a species from the Federal Lists of Endangered and Threatened Wildlife and Plants. Downlisting is the reclassification of a species from endangered to threatened. The term “endangered species” means any species (species, subspecies, or Distinct Population Segment), which is in danger of extinction throughout all or a significant portion of its range. The term “threatened species” means any species, which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

We provide delisting criteria for Zuni Fleabane, which will supersede those included in the Recovery Plan (Service 1988: 14) as follows:

Delisting Recovery Criteria

Current recovery criteria

Recovery criteria in the 1988 Recovery Plan (Service 1988: 14) are:

1. Complete a survey of all potential habitat of Zuni fleabane.
2. Develop and implement a habitat management plan and install permanent monitoring plots within several populations of the Zuni fleabane.
3. A demonstrated long-term stability (or increase) in population levels and habitat from the monitoring plots, and a continued assurance that the habitat of Zuni fleabane will not be threatened by mineral exploration, leasing, or development.

Amended recovery criteria

The Zuni Fleabane will be considered for delisting when:

1. Over a 20-year survey period, monitoring demonstrates a stable or increasing trend in abundance across the Datil Population. During a minimum of 80 percent of the survey period (i.e., 16 years), an estimated minimum population of 5,000 individual plants will remain extant in the Datil Population. Monitoring will demonstrate a minimum patch occupancy rate (number of subpopulations with occupied habitat divided by total number of subpopulations) of 60 percent per annum.

Justification: A stable or increasing population size indicates that threats overall are not adversely affecting the population. In order to provide enough data for a rigorous statistical analysis, a minimum period of 20 years will be required to determine the demographic trends necessary to support a future delisting decision. A recovery minimum of 5,000 individuals within this population, in addition to a stable or increasing population trend, should provide adequate conservation of the species into the foreseeable future. Reaching the minimum recovery goal (5,000 individuals)

every year of the survey period is highly unlikely due to localized stochastic variability at the subpopulation level. Reaching the minimum numeric goal 80 percent of the survey period (16 years) allows for this variability while still providing for a viable population. Maintaining an annual patch occupancy rate of 60 percent, allows for localized stochastic variability at the subpopulation level, while ensuring redundancy at the population level so catastrophic events do not cause population level extinction.

2. Over a 20-year survey period, monitoring demonstrates a stable or increasing trend in abundance across the Chuska Population. During a minimum of 80 percent of the survey period (i.e., 16 years), an estimated minimum population of 5,000 individual plants, will remain extant in the Chuska Population. Monitoring will demonstrate a minimum patch occupancy rate (number of subpopulations with occupied habitat divided by total number of subpopulations) of 60 percent per annum.

Justification: A stable or increasing population size indicates that threats overall are not adversely affecting the population. In order to provide enough data for a rigorous statistical analysis, a minimum period of 20 years will be required to determine the demographic trends necessary to support a future delisting decision. A recovery minimum of 5,000 individuals within this population, in addition to a stable or increasing population trend, should provide adequate conservation of the species into the foreseeable future. Reaching the minimum recovery goal (5,000 individuals) every year of the survey period is highly unlikely due to localized stochastic variability at the subpopulation level. Reaching the minimum numeric goal 80 percent of the survey period (16 years) allows for this variability while still providing for a viable population. Maintaining an annual patch occupancy rate of 60 percent, allows for localized stochastic variability at the subpopulation level, while ensuring redundancy at the population level so catastrophic events do not cause population level extinction.

3. Over a 20-year survey period, monitoring demonstrates a stable or increasing trend in abundance across the Zuni population. During a minimum of 80 percent of the survey period (i.e., 16 years), an estimated population of 700 individual plants, will remain extant in the Zuni population. Monitoring will demonstrate that both subpopulations remain occupied a minimum of 75 percent of the survey period (i.e., 15 years). If future surveys discover additional subpopulations, then the 60 percent patch occupancy rate described in criteria 1 and 2.

Justification: A stable or increasing population size indicates that threats overall are not adversely affecting the population. In order to provide enough data for a rigorous statistical analysis, a minimum period of 20 years will be required to determine the demographic trends necessary to support a future delisting decision. Because of its smaller size a recovery minimum of 700 individuals within this population, in addition to a stable or increasing population trend, should provide adequate conservation of the species into the foreseeable future. Reaching the minimum recovery goal (700 individuals) every year of the survey period is highly unlikely due

to localized stochastic variability at the subpopulation level. Reaching the minimum numeric goal 80 percent of the survey period (16 years) allows for this variability while still providing for a viable population. With only two subpopulations, both subpopulations must remain occupied concurrently over a reasonable period of time (75 percent of the 20-year survey period) to demonstrate redundancy.

4. The permanent withdrawal from mineral entry for Zuni Fleabane occupied habitat on Forest Service lands or the development and implementation of a habitat management plan (HMP) will be completed. The HMP should include a minimum of a 100 meter (300 foot) surface disturbance buffer around occupied Zuni Fleabane habitat, and would prioritize avoidance of occupied habitat and ensure connectivity for pollination between subpopulations.

Justification: Adequate regulatory mechanisms need to be put into place to provide assurances that land use threats (surface mining and development) do not threaten the continued existence of Zuni fleabane or its habitat. The HMP addresses all five factors on the land it would cover. The HMP should be incorporated into regulatory agency management plans. By incorporation into agency management plans adequate protection is ensured that Zuni Fleabane will persist post-delisting.

5. A Service approved post-delisting monitoring plan will be implemented.

Justification: A post-delisting monitoring plan is necessary to ensure the ongoing conservation of the species and the continuing effectiveness of management actions.

Rationale for Recovery Criteria

All classification decisions consider the following five factors: 1) is there a present or threatened destruction, modification, or curtailment of the species' habitat or range; 2) is the species subject to overutilization for commercial, recreational scientific or educational purposes; 3) is disease or predation a factor; 4) are there inadequate existing regulatory mechanisms in place outside the Act (taking into account the efforts by states and other organizations to protect the species or habitat); and 5) are other natural or manmade factors affecting its continued existence. When delisting a species, we first propose the action in the Federal Register and seek public comment and peer review. Our final decision is announced in the Federal Register.

In addition to minimizing and ameliorating the threats identified above, the recovery criteria for Zuni Fleabane address the conservation principles of the 3-Rs: representation, resiliency, and redundancy (Wolf et al. 2015: 204). Based on the best available information that includes the input and data from species experts during our recovery criteria review, these amended recovery criteria provide quantifiable measures for identifying and implementing recovery actions, a means to measure progress towards recovery, and the ability to recognize when recovery will be achieved.

Resiliency

Resiliency ensures that populations are sufficiently large to withstand stochastic events, and the identified threats have been ameliorated. A stable or increasing trend in abundance indicates that

annual mortality is compensated by recruitment events, and at the scale of the population this indicates the resiliency of subpopulations. A minimum of 5,000 individuals has emerged as a conservation metric across taxa (Traill et al. 2007: 164), this number allows for the maintenance of genetic diversity (representation), within each population and across the species. Chuska and Datil Populations fluctuate around this population level so should be able to be maintained at this level. Because of its smaller are of suitable habitat 700 individuals should be sufficient to maintain the Zuni Population. We used these numbers as the minimum number of individuals needed to maintain a viable population. A robust monitoring plan will need designed and implemented to provide the data necessary to identify statistically significant trends at the population and species level.

Redundancy

Redundancy provides for security against extinction from catastrophic events that could impact a single population. An annual patch occupancy rate of 60 percent allows for annual variability in localized patch occupancy due to stochastic events, while ensuring both population persistence (redundancy) and the localized resiliency of subpopulations. As there are only two known subpopulations in the Zuni Population, both subpopulations must remain occupied concurrently over a reasonable period of time (75 percent of the 20-year survey period) to demonstrate redundancy. Maintaining each population (Datil, Chuska, and Zuni) builds redundancy into the conservation framework at the species level.

Representation

Maintaining populations across a range of environmental conditions builds representation into the conservation framework at the species level by requiring functioning populations in three distinct geographic areas spread across the species range. Two large populations (5,000 individuals minimum) help maintain genetic diversity across the species range.

ADDITIONAL SITE SPECIFIC RECOVERY ACTIONS

Not Applicable

COSTS, TIMING, PRIORITY OF ADDITIONAL RECOVERY ACTIONS

Not Applicable

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