For further information on how to submit comments, please see today's immediate final rule published in the "Rules and Regulations" section of this **Federal Register**.

**FOR FURTHER INFORMATION CONTACT:** Robin Biscaia, RCRA Waste Management Section, Office of Site Remediation and Restoration (OSRR 07–1), EPA New England—Region 1, 5 Post Office Square, Suite 100, Boston, MA 02109–3912, telephone number: (617) 918–1642; fax number: (617) 918–0642, e-mail address: *biscaia.robin@epa.gov.*

**SUPPLEMENTARY INFORMATION:** In the "Rules and Regulations" section of this **Federal Register**, EPA is authorizing these changes by an immediate final rule. EPA did not make a proposal prior to the immediate final rule because we believe this action is not controversial and do not expect adverse comments that oppose it. We have explained the reasons for this authorization in the preamble to the immediate final rule. Unless we get written adverse comments which oppose this authorization during the comment period, the immediate final rule will become effective on the date it establishes, and we will not take further action on this proposal. If we get comments that oppose this action, we will withdraw the immediate final rule and it will not take immediate effect. We will then respond to public comments in a later final rule based on this proposal. You may not have another opportunity for comment. If you want to comment on this action, you should do so at this time.

Dated: June 8, 2010.

**Ira W. Leighton,**

*Acting Regional Administrator, EPA New England.*

[FR Doc. 2010–15256 Filed 6–22–10; 8:45 am]

**BILLING CODE 6560–50–P**

## DEPARTMENT OF THE INTERIOR

## Fish and Wildlife Service

## 50 CFR Part 17

**[Docket No. FWS-R6-ES-2010-0015]**
**[MO 92210-0-0008-B2]**

**RIN 1018-AV83**

# Endangered and Threatened Wildlife and Plants; Listing *Ipomopsis polyantha* (Pagosa Skyrocket) as Endangered Throughout Its Range, and Listing *Penstemon debilis* (Parachute Beardtongue) and *Phacelia submutica* (DeBeque Phacelia) as Threatened Throughout Their Range

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Proposed rule.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), propose to list *Ipomopsis polyantha* (Pagosa skyrocket), a plant species from southwestern Colorado, as endangered throughout its range, and *Penstemon debilis* (Parachute beardtongue) and *Phacelia submutica* (DeBeque phacelia), two plant species from western Colorado, as threatened throughout their ranges under the Endangered Species Act of 1973, as amended (Act). This proposal, if made final, would extend the Act's protections to these species throughout their ranges. The Service seeks data and comments from the public on this proposal.

**DATES:** We will consider comments received or postmarked on or before August 23, 2010. We must receive requests for public hearings, in writing, at the address shown in the **FOR FURTHER INFORMATION CONTACT** section by August 9, 2010.

**ADDRESSES:** You may submit comments by one of the following methods:

- Federal eRulemaking Portal: *http://www.regulations.gov*. Follow the instructions for submitting comments on Docket No. FWS-R6-ES-2010-0015.
- U.S. mail or hand-delivery: Public Comments Processing, Attn: [FWS-R6-ES-2010-0015]; Division of Policy and Directives Management; U.S. Fish and Wildlife Service; 4401 N. Fairfax Drive, Suite 222, Arlington, VA 22203.

We will post all comments on *http://www.regulations.gov*. This generally means that we will post any personal information you provide us (see the **Public Comments** section below for more information).

**FOR FURTHER INFORMATION CONTACT:** Patty Gelatt, Acting Western Colorado Supervisor, U.S. Fish and Wildlife Service, Ecological Services Field Office, 764 Horizon Drive, Building B, Grand Junction, CO 81506-3946; telephone 970-243-2778, extension 26; fax 970-245-6933. If you use a telecommunications device for the deaf (TDD), call the Federal Information Relay Service (FIRS) at 800-877-8339.

**SUPPLEMENTARY INFORMATION:**

### Public Comments

We intend that any final action resulting from this proposed rule will be based on the best scientific and commercial data available and be as accurate and as effective as possible. Therefore, we request comments or information from the public, other government agencies, the scientific community, industry, or any other interested party concerning this proposed rule. We particularly seek comments concerning:

(1) Biological, commercial trade, or other relevant data concerning any threats (or lack thereof) to these species and regulations that may be addressing those threats;

(2) Additional information concerning the range, distribution, and population sizes of these species, including the locations of any additional occurrences of these species;

(3) Any information on the biological or ecological requirements of these species;

(4) Current or planned activities in the areas occupied by these species and possible impacts of these activities on these species;

(5) Which areas would be appropriate as critical habitat for these species and why they should be proposed for designation as critical habitat; and

(6) The reasons why areas should or should not be designated as critical habitat as provided by section 4 of the Act (16 U.S.C. 1531 *et seq.*), including whether the benefits of designation would outweigh threats to these species that designation could cause, such that the designation of critical habitat is prudent.

You may submit your comments and materials concerning this proposed rule by one of the methods listed in the **ADDRESSES** section. We will not consider comments sent by e-mail or fax or to an address not listed in the **ADDRESSES** section.

We will post your entire comment—including your personal identifying information—on *http://www.regulations.gov*. If you provide personal identifying information in your hardcopy comments, you may request at the top of your document that we withhold this information from public review. However, we cannot guarantee that we will be able to do so. We will

post all hardcopy comments on *http://www.regulations.gov*.

Comments and materials we receive, as well as supporting documentation we used in preparing this proposed rule, will be available for public inspection on *http://www.regulations.gov*, or by appointment, during normal business hours, at the U.S. Fish and Wildlife Service, Western Colorado Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT** section).

Final promulgation of the regulations concerning the listing of these species will take into consideration all comments and additional information that we receive, and may lead to a final regulation that differs from this proposal.

## Species Information and Factors Affecting the Species

Section 4 of the Act (16 U.S.C. 1533) and implementing regulations (50 CFR 424) set forth the procedures for adding species to the Federal Lists of Endangered and Threatened Wildlife and Plants. Under section 4(a)(1) of the Act, a species may be determined to be endangered or threatened based on any of the following five factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence.

Below is a species-by-species analysis of these five factors. The species are considered in the following order: *Ipomopsis polyantha, Penstemon debilis*, and *Phacelia submutica*.

## Background—*Ipomopsis polyantha*

### *Previous Federal Actions*

We first identified *Ipomopsis polyantha* as a taxon under review in the 1983 Supplement to Review of Plant Taxa for Listing as Endangered or Threatened Species (48 FR 53640, November 28, 1983). In that document, we included the species as a Category 2 candidate, based on our evaluation at that time. Category 2 candidate species were formerly defined as "taxa for which information now in the possession of the Service indicates that proposing to list the taxa as Endangered or Threatened species is possibly appropriate, but for which sufficient data on biological vulnerability and threat(s) are not currently known or on file to support proposed rules" (48 FR 53641, November 28, 1983). We published our decision to discontinue candidate categories and to restrict candidate status to those taxa for which we have sufficient information to support issuance of a proposed rule on December 5, 1996 (61 FR 64481), This resulted in the deletion of *Ipomopsis polyantha* from the list of candidate taxa for listing. Since 1996, threats to the species have become more numerous and more widespread. We added the species to the list of candidates again in the 2005Candidate Notice of Review (CNOR) (70 FR 24873, May 11, 2005) with a listing priority number (LPN) of 2. Candidates are taxa for which we have sufficient information on biological vulnerability and threats to support preparation of a listing proposal, but for which development of a listing regulation is precluded by other higher priority listing activities. Candidate species are assigned an LPN (1-12, with 1 being the highest priority) based on magnitude and immediacy of threats and taxonomic status. A listing priority of 2 reflects threats that are imminent and high in magnitude, as well as the taxonomic classification of *I. polyantha* as a full species. We published a complete description of our listing priority system in the **Federal Register** (48 FR 43098, September 21, 1983).

### *Species Information*

*Ipomopsis polyantha* is a rare plant endemic to shale outcrops in and around Pagosa Springs in Archuleta County, Colorado. Suitable habitat for the species is identified on about 191 acres (ac) (77 hectares (ha)) on the east edge of town, and on about 23 ac (9 ha) approximately 10 miles (mi) (16 kilometers (km)) west of town. Approximately 9 percent of the suitable habitat is on land managed by the Bureau of Land Management (BLM) land, 12 percent on State and County highway rights-of-way (ROWs), 78 percent on private lands, and less than 1 percent on Pagosa Springs park land and county land (Colorado Natural Areas Program (CNAP) 2007, pp. 1-5; Lyon 2005, pp. 1-5; Lyon 2006a, pp. 1-2; Lyon 2006b, p. 1).

The Colorado Natural Heritage Program (CNHP) ranks *Ipomopsis polyantha* as critically imperiled globally (G1) and in the State of Colorado (S1) (CNHP 2006a, p. 1). The Nature Conservancy (TNC) and CNHP also developed a scorecard that ranks *I. polyantha* among the most threatened species in the State based on number of plants, quality of the plants and habitat, threats, and adequacy of protection (CNHP and TNC 2008, p. 102).

*Ipomopsis polyantha* is in the Polemoniaceae (phlox) family and was originally described by Rydberg (1904, p. 634) as *Gilia polyantha.* Grant (1956, p. 353) moved the species into the genus *Ipomopsis.* Two varieties,*G. polyantha* var. *brachysiphon* and *G. polyantha* var. *whitingii,* were recognized by Kearney and Peebles (1943, p. 59). Currently available information indicates that *I. polyantha* is a distinct species (Porter and Johnson 2000; Porter *et al.* 2003 in Anderson 2004, p. 11). It is treated as such in the PLANTS database (United States Department of Agriculture (USDA)/Natural Resource Conservation Service (NRCS) 2003), and in the Integrated Taxonomic Information System (2001).

*Ipomopsis polyantha* is an herbaceous biennial 12 to 24 inches (in.) (30 to 60 centimeters (cm)) tall, branched from near the base above the basal rosette of leaves. Deeply divided leaves with linear segments are scattered up the stem. Stems and flower clusters are covered with glandular hairs. Flower clusters are along the stem in the axils of the leaves as well as at the top of the stem. The white flowers are 0.4 in. (1 cm) long, with short corolla tubes 0.18 to 0.26 in. (0.45 to 0.65 cm) long, and flaring corolla lobes flecked with purple dots (Anderson 1988, p. 3). These dots are often so dense that they give the flower a pinkish or purplish hue. The stamens extend noticeably beyond the flower tube, and the pollen is blue (Grant 1956, p. 353), changing to yellow as it matures (Collins 1995, p. 34). First-year plants form basal rosettes of leaves. These rosettes produce flowering stalks during the next growing season, or they may persist for more than 1 year without flowering, until they get enough moisture to flower Plants produce abundant fruits and seeds, but have no known mechanism for long distance dispersal (Collins 1995, pp. 111–112). After seeds are mature, the plants dry up and die.

Pollination by bees is the most common means of reproduction for *Ipomopsis polyantha*, and the primary pollinators are a honey bee (*Apis mellifera*), metallic green bee (*Augochlorella spp.*), bumble bee (*Bombus spp.*), and digger bee (*Anthophora spp.*) (Collins 1995, pp. 71-72).

*Ipomopsis polyantha* is limited to Pagosa-Winifred soils derived from Mancos Shale. The soil pH is nearly neutral to slightly alkaline (6.6 to 8.4). The elevation range is 6,800 to 7,300 feet (ft) (2,072 to 2,225 meters (m)). Plants occur in discontinuous colonies as a pioneer species on open shale or as a climax species along the edge of ponderosa pine/juniper/oak forested areas. In 1988, Anderson (p. 7) reported

finding the highest densities under ponderosa pine forests with montane grassland understory. Now the species is found mostly on sites that are infrequently disturbed by grazing, such as road rights-of-way (ROWs) that are fenced from grazing (as opposed to open range), lightly grazed pastures, and undeveloped lots (Anderson 2004, p. 20).

Habitat for the species is characterized as suitable, potential, or unsuitable. Suitable habitat has the attributes of soil and elevation described above, and we further separate it into occupied habitat where the plants have been observed and unoccupied habitat where soil and elevation are suitable but no plants have been observed or no surveys have been conducted. Potential habitat is identified remotely, using aerial photographs, soil maps, and other available information, to build a model of habitat that may support *I. polyantha.* The model has not been ground-truthed in the field. Unsuitable habitat is found at elevations and on soils that do not fit the profile for the species, or habitat that has been altered by development, paving, or other human activities so that the plants are prevented from growing there.

There are two known occurrences of *Ipomopsis polyantha*. Between its description by C.F. Baker in 1899, and inventories in 1985, *I. polyantha* was only known from along U.S. Route 84 (US 84) in the vicinity of Pagosa Springs, Colorado (Anderson 1988, pp. 1–2, 15–16). The Pagosa Springs occurrence is still the largest occurrence of the species. In 1985, an additional occurrence was found about 10 mi (16 km) west of town along U.S. Route 160 (US 160) in a rural area called Dyke (Anderson 1988, pp. 1–2). In 2002, another occurrence was documented in a rural area called Mill Creek, about 1.2 mi (1.9 km) east of Pagosa Springs (Anderson 2004, p. 13; CNHP 2008a, ID 228). The Mill Creek area is now included in the Pagosa Springs occurrence, in accordance with NatureServe criteria: occurrences are separated by at least 0.62 mi (1 km) of unsuitable habitat or 1.24 mi (2 km) of suitable habitat (NatureServe 2004, p. 1). The two known occurrences are within about 13 mi (21 km) of each other, and collectively occupy approximately about 50 ac (20 ha) of habitat within a range that includes about 4 square mi (10.4 square km). Table 1 summarizes known occupied habitat (50 ac (20 ha)) combined with suitable habitat not verified as occupied within the two *I. polyantha* occurrences (total 234 ac (94 ha)).

TABLE 1. OCCUPIED AND UNSURVEYED SUITABLE HABITAT FOR *Ipomopsis polyantha* (CNAP 2007, PP. 1–5; LYON 2005, P. 1; LYON 2006A, P. 1–2; MAYO 2008A, P. 1; CNHP 2008A, ID 228)

| Occurrence | Land Ownership | ac (ha) | Flowering Plants | Rosettes |
|---|---|---|---|---|
| Pagosa Springs including Mill Creek | State ROW | 19 (7.7) | 3,029 | 3,083 |
| | County ROW | 3 (1.2) | 126 | NA |
| | Archuleta County | 1 (0.4) | 280 | NA |
| | Town of Pagosa Springs | 1 (0.4) | 3 | 15 |
| | Private (suitable) | 184 (74) | Unsurveyed | NA |
| | Private Corporation | 3 (1.2) | 156,126 | 173,189 |
| Subtotals | | 211 (85) | 159,564 | 176,287 |
| Dyke | State ROW | 3 (1.2) | 141 | 176 |
| | BLM | 20 (8) | 88 | 164 |
| Subtotals | | 23 (9) | 229 | 340 |
| Totals | All | 234 (94) | 159,793 | 176,627 |

The total occupied and surveyed habitat for *Ipomopsis polyantha* covers about 50 ac (20 ha). Suitable habitat for the species has been identified on about 211 acres (ac) (85 hectares (ha)) on the east side of town, and on about 23 ac (9 ha) approximately 10 miles (mi) (16 kilometers (km)) west of town. Approximately 9 percent of the suitable habitat is on federally owned Bureau of Land Management (BLM) land, 12 percent on State and County highway ROWs, 78 percent on private lands, and less than 1 percent on Pagosa Springs Town park land and county land (Colorado Natural Areas Program (CNAP) 2007). An estimated 184 ac (74 ha), or 79 percent, of the suitable habitat exists on private residential and agricultural land where plants have been observed from a distance, but surveys have not been conducted. Without access to these private lands, the extent of occupancy cannot be assessed.

The historical range of *Ipomopsis polyantha* is unknown, but likely included a much broader area than the currently occupied habitat. Many surveys of potential habitat in the Pagosa Springs area have been conducted over the years with negative results. Potential habitat on about 2,018 ac (817 ha) within the known range has not been surveyed due to lack of access to private lands. All of this potential habitat is close to or surrounded by suitable habitat, and is currently proposed for development, including: Blue Sky Village 96 ac (39 ha); Blue Sky Ranch 1,362 ac (551 ha); and Fairway 560 ac (227 ha) (see Threat Factor A below).

None of the potential habitat identified to date extends beyond the approximately 4-square-mi (10.4-square-km) occupied range of the species. Reports of this species occurring in Arizona and New Mexico by the PLANTS National Database and State floras actually pertain to the two species that were formerly treated as varieties of *Ipomopsis polyantha* (Anderson 2004, pp. 11, 15).

The Pagosa Springs occurrence of *Ipomopsis polyantha* is southeast of the town along both sides of US 84. Occupied habitat extends southward on the highway ROW for 3 mi (4.8 km) from the intersection with US 160, and on private lands on both sides of the highway within 0.25 to 1.2 mi (0.4 to 1.9 km). In 1985, the estimated number of flowering plants in this occurrence was 2,000 (Anderson 1988, p. 8). During 2005-2006, 3,029 flowering plants and 3,083 rosettes were counted on about 19 ac (7.7 ha) of highway ROW and immediately adjacent private lands (CNAP 2007, pp. 1–5; Lyon 2005, p. 1; Lyon 2006a, pp. 1–2). In 2005, an additional 156,126 plants and 173,189 rosettes were found on a 3-ac (1.2-ha) private land site, which was a high density of plants on a site where no plants had been observed in previous years (Lyon 2005, pp. 3–4; Lyon 2007b, p. 1). The plants were found on a hillside of Mancos Shale about 7 years after it was bladed, and are still growing there because the ground has not been disturbed during the growing season (Lyon 2007b, p. 2). *I. polyantha* quickly colonizes unvegetated Mancos Shale near a seed source. The number of flowering plants that appear in subsequent years depends on seed production and the survival of rosettes that are not outcompeted by other species or destroyed during ground disturbance.

In addition to the surveyed plants and rosettes, many flowering *Ipomopsis polyantha* plants have been seen, but not counted, on private residential/agricultural parcels along US 84 (Lyon 2006a, p. 1). An estimated 184 ac (74 ha) of unsurveyed suitable habitat on private lands exist within the Pagosa Springs occurrence.

The Dyke occurrence includes 0.5 mi (0.8 km) of highway ROW on both sides of US 160, adjacent private land, and about half of a 40-ac (16-ha) BLM parcel on the north side. On both of the ROWs and adjacent pastures, more than 500 flowering plants were estimated in 1985 (Anderson 1988, p. 10). In 1991, about 250 plants were counted in unused pasture on the south side, but no plants were found in subsequent years after cattle were returned to the pasture (Collins 1995, pp. 111–112). The number of flowering plants and rosettes on the US 160 ROW have fluctuated each year between 2005 and 2008. On the north side ROW, the number of flowering plants and rosettes declined by 80 percent over the 4 years, to 9 and 8 respectively. On the south side ROW, flowering plants increased 176 percent (to 141 plants), and rosettes declined 9 percent (to 179 rosettes) (Mayo 2008a, p. 1). The approximately 20-ac (8-ha) BLM parcel is the only federally managed habitat for the species. There, in 2006, 88 flowering plants and 164 rosettes were found in clearings among ponderosa pine and shrubs (CNAP 2007, p. 2).

In addition to these extant occurrences, about 13 plants and 18 rosettes were found on a roadside in a residential area north of Pagosa Springs in 2005. We do not consider this occurrence as extant, because no plants have been found there since 2005. Surveys of roadsides and private lands in this vicinity, and on additional potential habitat north of town, have not detected any individuals of the species (Lyon 2005, p. 3).

In 2004, the total estimate of flowering plants throughout the entire range of the species was 2,246 to 10,526 (Anderson 2004, p. 40). Plant surveys from 2005 to 2007 document dramatic increases in the number of flowering individuals and rosettes within the Pagosa Springs occurrence at two sites on private land and on the US 84 ROW (CNAP 2007, pp. 1–2). Currently, the total estimate of flowering plants is 159,793 (see Table 1 above). This increase is primarily attributed to the plants surveyed in 2005 and 2006 on the 3-ac (1.2-ha) private land site in the Pagosa Springs occurrence. The rapid appearance of such a dense patch of plants illustrates the specie's ability to colonize barren Mancos Shale soil, and demonstrates the reproductive success of the species; however, the sites where they grow are vulnerable to habitat destruction. The trend in the species' status since 1988 is one of fluctuating population size that is typical of biennial species, combined with the loss of some plants due to development.

## Summary of Factors Affecting *Ipomopsis polyantha*

### *A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range*

*Ipomopsis polyantha* is threatened with destruction of plants and habitat due to commercial, residential, and agricultural property development, and associated new utility installations and access roads. We have documented recent losses of habitat and individuals at six sites within the Pagosa Springs occurrence of the species, as described in more detail below.

Within the Pagosa Springs occurrence, a residential and agricultural development of about a dozen 35-ac (14-ha) parcels was built prior to 2005 on occupied habitat east of US 84 (Archuleta County Assessor 2008, p. 1). In 2005, when most residences were new, about 782 flowering plants were counted in meadows and along the fences and access roads (Lyon 2005, pp. 1–2). By 2008, an increased number of horses were pastured in the meadows, roadsides and driveways were graded or widened, and few plants could be found as a result (Mayo 2008b, p. 1). This information indicates that *Ipomopsis polyantha* plants are vulnerable to grazing and road improvements, and habitat can be modified to exclude plants in as few as 3 years. In 2006, at another location along US 84, a private landowner mowed several hundred feet of occupied habitat on the highway ROW (Lyon 2006a, p. 1). No plants were found at this site from 2006 to 2008, indicating that mowing destroys plants and halts reproduction. In 2005, dense patches of flowering plants were noted, from across the fence, in a privately owned meadow along US 84. In 2007, a new home was built, and the meadow was mowed; no plants could be seen at the same site in 2008 (Mayo 2008b, p. 2), again indicating that mowing destroys plants and inhibits reproduction. During 2005 and 2006, a sewer line installation on the US 84 ROW resulted in the loss of about 498 plants and 541 rosettes, and modification of about 1,473 ft (449 m) of roadside habitat (Mayo 2008c, p. 8). The Colorado Department of Transportation (CDOT) and Archuleta County consulted with us, and agreed on avoidance measures for this project, but contractors failed to follow the protocol (Mayo 2008c, pp. 1–4). In 2008, only a few flowering plants and rosettes were found at this site; all of the plants were in one spot near plants on an adjacent property not disturbed by the sewer line project (Mayo 2008c, p. 8). This incident demonstrates that *I. polyantha* cannot quickly recover from soil disturbance.

Utility installations and construction activities can eliminate habitat and destroy *Ipomopsis polyantha*. As a result of careful planning, in 2007, power line maintenance was completed within occupied habitat in the Pagosa Springs occurrence with negligible damage to adult plants. Rosettes in the path of maintenance actions were transplanted to suitable habitat in the town park. The 278 transplants survived the winter and produced about 27 flowering plants. However, no surviving rosettes could be relocated in the fall (Coe 2007, pp. 2–3). A second attempt at transplanting rosettes to save them from destruction during utility installations also has not been effective

in producing new rosettes in the third year (Brinton 2007, pers. comm.). Unless effective methods are developed, most plants that cannot be avoided during utility installations and construction activities are unlikely to survive and reproduce. Whether the species can survive translocation under other circumstances remains uncertain.

Primary land use within the range of *Ipomopsis polyantha* has historically been agricultural, with homes and horses or cattle on parcels of 35 ac (14 ha) or more. Several small businesses now occur along US 84 within the Pagosa Springs occurrence. The intersection of US 160 and US 84 is zoned by the Town of Pagosa Springs for businesses, and commercially zoned land is currently available for development. The County is also considering sites in this area for new municipal buildings; one of the sites under consideration contains the highest density of *I. polyantha* occurrence. These current and potential conversions of agricultural lands to residential and commercial development are incompatible with conservation of *I. polyantha* in the long term because they cause direct mortality and permanent loss of habitat, whereas habitat modified by grazing may be recovered by changes in management.

The privately owned property across the entire range of *Ipomopsis polyantha* was scheduled for development in the Archuleta County and Town of Pagosa Springs Community Plan (2000). In this plan, all areas occupied by *I. polyantha* on private land outside of the Town limits are planned for low (35 ac (14 ha)), medium (3 to 35 ac (1.2 to 14 ha)), or high (2 to 5 ac (0.81 to 2 ha)) density housing. Residential development is increasing rapidly in the County. The population of Archuleta County was 5,000 in 1990; the projection is 15,000 people by 2010 and 20,000 by 2020 (Archuleta County and Town of Pagosa Springs 2000, pp. 5–7). Based on the rate of current and proposed development over the entire range of the species, 85 percent of occupied and suitable habitat and all potential habitat could be modified or destroyed within 5 to 10 years, putting the species at risk of extinction.

The County plan for agricultural and large-lot residential development along US 84 became obsolete in 2008, with the Pagosa Town Council's preliminary approval of a 96-ac (39-ha) Blue Sky Village annexation (Aragon 2008a, pp. 1–2). The proposed development plan is for a mixed commercial and high-to-low density residential village (Hudson 2008, p. 1). The 96-ac (39-ha) parcel is adjacent to the highest density of *Ipomopsis polyantha* plants, and includes about 2,562 ft (781 m) of potential habitat on US 84 frontage at the center of the species' distribution (Archuleta County Assessor 2008, p. 1). Occupied habitat also borders the southern edge of the property. Reducing habitat available to the Pagosa Springs occurrence of *I. polyantha* will limit its ability to disperse and repopulate after impacts.

In addition to the loss of potential habitat on private land for the plants, the proposed annexation will require access roads, utility installations, and acceleration and deceleration lanes along the highway ROW. Plants and habitat will likely be destroyed by this infrastructure construction. The Blue Sky Village development will significantly reduce the amount of potential habitat within the species' range. Location of the development between the highest density of plants and the rest of the Pagosa Springs occurrence on the east side of US 84 will further fragment the habitat that has already been impacted by commercial, residential, and agricultural land uses.

The Blue Sky Ranch development of 1,362 ac (551 ha), plus 2,819 ft (859 m) of US 84 frontage, is another annexation being considered within potential *Ipomopsis polyantha* habitat. This project would include single and multi-family residential housing, a hotel and conference center, a golf course with clubhouse, and an equestrian center with riding trails and a multi-use arena (Aragon 2008b, p. 2).

A development of 560 ac (227 ha), including about 1 mi (1.6 km) of frontage along the west side of US 84, also is being considered for annexation within potential habitat that has not been surveyed for plants (Aragon 2008a, p. 2; Archuleta County Assessor 2008, p. 1).

The above three development proposals within the Pagosa Springs occurrence cover a total of 2,018 ac (817 ha) of potential habitat for the plants that have not been surveyed due to restricted access. The proposed developments include frontage along the US highway 84 ROW that currently provides 34 percent of the total habitat occupied by the plants (Archuleta County 2008, p. 1). Plants and habitat on this ROW are likely to be disturbed or removed by construction of new access roads, acceleration lanes, and utilities to accommodate the development.

The Archuleta County and Town of Pagosa Springs revised 2004 Trails Plan (2004, p. 18) calls for an 8-ft (2.4 m) wide, 2.5-mi (4 km) long, paved bike path on the highway ROW from US 160 south along US 84 in occupied *Ipomopsis polyantha* habitat. This route, prioritized for completion as soon as funding is available, would eliminate about 50 percent of the occupied habitat on the highway ROW and 80 percent of the total occupied area in the Pagosa Springs occurrence (see Table 1 above). Another planned paved bike trail, parallel to US 160 and through the Dyke occurrence of *I. polyantha,* is on the low priority list in the Trails Plan (Archuleta County and Town of Pagosa Springs 2004, p. 28). Development of this bike trail would eliminate the portion of the Dyke occurrence located on the south side of the highway where the trail would be located.

Distribution of *Ipomopsis polyantha* on highway ROWs makes this species susceptible to threats associated with highway activities and maintenance. Exotic grasses planted by CDOT along roadsides dominate the ROW between pavement and ditch, limiting most *I. polyantha* plants to the ROW bank between ditch and fence. This limitation to the species' habitat along roadsides is significant because so little habitat exists elsewhere for the species. *I. polyantha* plants growing among thistles were killed by herbicide within the highway ROW along US 84 in 2004, when the thistles were treated with herbicide (Anderson 2004, p. 36). Since that time, Archuleta County has discontinued broadcast herbicide use and mowing on ROWs within the species' range. However, the planted exotic grasses continue to limit the species' habitat.

Highway ROWs provide about 50 percent of the occupied habitat for *Ipomopsis polyantha*. All highway ROW habitat is at risk of disturbance by construction of new access roads or acceleration lanes, bike paths, and utilities installation or maintenance. Such construction results in direct loss of *I. polyantha* individuals or reduced suitability of its habitat by altering the soil characteristics or displacing the seed bank (Anderson 2004, p. 36).

We determined that the present and threatened destruction, modification, and fragmentation of *Ipomopsis polyantha* habitat from ongoing commercial and residential development, associated new utility installations, construction of new access roads and bike paths, competition from introduced roadside grasses and other impacts associated with proximity to highways are significant and imminent threats to the species throughout its range. At this time, the species primarily persists on highway ROWs and private lands scheduled for development. Development planned for

the next 5 to 10 years will likely: (1) Impact over 2,000 ac (809 ha) of potential habitat; (2) potentially eliminate 167 of the 214 ac (68 of 87 ha) of existing occupied and suitable habitat on private lands; and (3) potentially eliminate about 34 percent of the highway ROW (occupied) habitat. Combined, these impacts would relegate the species primarily to small, fragmented portions of highway ROWs and a few, small, lightly-used private pastures putting the species in danger of extinction.

*B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes*

Activities resulting in overutilization of *Ipomopsis polyantha* plants for commercial, recreational, scientific, or educational purposes are not known to exist. Therefore, this factor is not addressed in this proposal.

*C. Disease or Predation*

Disease

Disease is not known to affect *Ipomopsis polyantha*. Therefore, disease is not addressed in this proposal.

Predation

This species is threatened by destruction of flowering plants, rosettes, and seeds due to concentrated livestock disturbance and some herbivory. Observations of the "fence line effect"—healthy plants outside the fence and impacted plants inside the fence—at several locations on private land used for cattle and horse grazing indicate that *Ipomopsis polyantha* does not tolerate intensive livestock grazing (Anderson 2004, p. 30). For example, grazing by horses at a residential/agricultural development within the Pagosa Springs occurrence in 2005 resulted in few *I. polyantha* plants 3 years later (Mayo 2008b, p. 1). Over-the-fence observations from seven locations (pastures) in 2009 found few or no plants in the three heavily grazed pastures and numerous plants in the adjacent pastures with light or no grazing (Glenne 2010, pp. 1-3). We have no data to indicate whether the plant destruction results from herbivory or from trampling. *I. polyantha* is not found in heavily grazed pastures, but occurrences have been observed in lightly grazed horse pastures and abandoned pastures (CNAP 2007, p. 6). Plants could possibly recolonize a pasture if livestock numbers were reduced sufficiently and the seed bank was still viable, or if there was a seed source nearby, such as on the ungrazed side of a fence. Indications are that the species may be compatible with light grazing, but the level of impact and the threshold of species' tolerance have not been studied. Evidence indicates that few plants persist in areas of continual grazing (Collins 1995, pp. 107, 111, 112). We determined that destruction of flowering plants, rosettes, and seeds due to heavy livestock use is a significant and imminent threat to *I. polyantha.*

D. *The Inadequacy of Existing Regulatory Mechanisms*

Local Laws and Regulations

City and county ordinances have the potential to affect *Ipomopsis polyantha* and its habitats. Zoning that protects open space can retain suitable habitat, and zoning that allows commercial development can destroy or fragment habitat. We know of no city or county ordinances that provide for protection or conservation of *I. polyantha* or its habitat. Archuleta County road maintenance crews refrain from mowing or broadcast spraying ROWs within the range of *Ipomopsis polyantha* voluntarily, that is, without the mandate or support of regulations. However, there is no law, regulation, or policy requiring them to do so.

New annexation of 2,018 ac (817 ha) into the Town of Pagosa Springs will change land use from 35-ac (14-ha) agricultural parcels to commercial and small lot residential, with anticipated adverse impacts to the Pagosa Springs occurrence of *I. polyantha*. This land use conversion, as described in Factor A above, is the most significant threat to the species, because development planned for the next 5 to 10 years will likely impact all known potential habitat and 17 of 25 ROW acres (6.9 of 10 ha), and relegate the species to private residential areas and small, fragmented portions of highway ROWs.

State Laws and Regulations

No State regulations protect rare plant species in Colorado. *Ipomopsis polyantha* is classified by CNHP as a G1 and S1 species, which means it is critically imperiled across its entire range and within the State of Colorado (CNHP 2006a, p. 1). The CDOT has drafted best management practices for ROWs within *I. polyantha* habitat in collaboration with the Service (Peterson 2008, p. 1). In 2006, voluntary measures to minimize impacts to plants from a sewer line installation along US 84 were recommended by CDOT, but not implemented by the contractors (Mayo 2008c, pp. 1–4).

Federal Laws and Regulations

*Ipomopsis polyantha* is on the sensitive species lists for the U.S. Forest Service (USFS) and the BLM (USFS 2009, p. 6; BLM 2008b, p. 47). Occupied habitat has not been found on USFS land. In 2006, we learned that the Dyke occurrence extends onto 20 ac (8 ha) of BLM land (Lyon 2007b, pp. 3, 12, 13); 88 plants and 164 rosettes were found there in 2007 (CNAP 2007, p. 2). This BLM parcel was withdrawn from a proposed land exchange so that the plant habitat would remain under Federal management (Brinton 2009, pers. comm.; Lyon 2007b, p. 3). The species has no Federal regulatory protection for approximately 91 percent of the total known occupied and suitable habitat. It occurs mostly on State and private land (see Table 1 above), and development of these areas will likely require no Federal permit or other authorization. Therefore, projects that affect it are usually not analyzed under the National Environmental Policy Act (NEPA)(42 U.S.C. 4321 *et seq.*).

We determined that the inadequacy of existing regulatory mechanisms is a significant and imminent threat to *Ipomopsis polyantha,* because 91 percent of the known range of the species is on State and private lands that carry no protective regulations to ameliorate activities that will impact the species.

*E. Other Natural or Manmade Factors Affecting Its Continued Existence*

The adaptation of *Ipomopsis polyantha* to Pagosa-Winifred soils derived from Mancos Shale limits it to about 4 square mi (10.4 square km) within a 13-mi (21-km) range of fragmented habitat on outcrops of Mancos Shale. The species has specific physiological requirements for germination and growth that may prevent its spread to other locations (Anderson 2004, pp. 23–24). In greenhouse trials, seeds will germinate and grow on other soils, but they grow much faster on Mancos Shale soils (Collins 1995, p. 114). Faster growth may give *I. polyantha* a competitive advantage on relatively barren Mancos shale that it lacks on other soils where its smaller seedlings have more competition from other plants for nutrients and water. The species produces more seed when it is cross-pollinated (Anderson 2004, p. 23); therefore, existing and foreseeable fragmentation of habitat may cause gene flow to be obstructed. Pollinator-mediated pollen dispersal is typically limited to the foraging distances of pollinators, and no bee species is expected to travel more than 1 mi (1.6 km) to forage (Tepedino 2009, p. 11). Thus, it is likely that the occurrence of

about 191 plants west of Pagosa Springs is genetically isolated from the other occurrence several miles (kilometers) away. Spatially isolated plant populations are at higher risk of extinction due to inbreeding depression, loss of genetic heterogeneity, and reduced dispersal rates (Silvertown and Charlesworth 2001, p. 185).

*Ipomopsis polyantha* shows great differences in plant numbers from year to year, probably because the plants are biennial and grow from seed. This trait makes them more vulnerable than perennials to changes in environment, including timing and amount of moisture, and length of time since disturbance. With increased time after disturbance, competition from other plants, both native and nonnative, increases (CNAP 2008a, p. 4). As a biennial species, *I. polyantha* also may be vulnerable to prolonged drought. During drought years, seeds may not germinate and plants may remain as rosettes without flowering or producing a new crop of seeds.

Climate change could potentially impact *Ipomopsis polyantha.* Localized projections indicate the southwest may experience the greatest temperature increase of any area in the lower 48 States (IPCC 2007, p. 30). A 10- to 30-percent decrease in precipitation in mid-latitude western North America is projected by the year 2050, based on an ensemble of 12 climate models (Milly *et al.* 2005, p. 1). Climate modeling at this time has not been refined to the level that we can predict the amount of temperature and precipitation change within the limited range of *I. polyantha*. Therefore, this analysis is speculative based on what the data indicate at this time. When plant populations are impacted by reduced reproduction during drought years, they may require several years to recover. Climate change may exacerbate the frequency and intensity of droughts in this area and result in reduced species' viability as the dry years become more common. As described above, *I. polyantha* is sensitive to the timing and amount of moisture due to its biennial life history. Thus, if climate change results in local drying, the species could experience a reduction in its reproductive output.

Recent analyses of long-term data sets show accelerating rates of climate change over the past two or three decades, indicating that the extension of species' geographic range boundaries towards the poles or to higher elevations by progressive establishment of new local occurences will become increasingly apparent in the short term (Hughes 2000, p. 60). The limited geographic range of the Mancos Shale substrate that underlies the entire *Ipomopsis polyantha* habitat likely limits the ability of the species to adapt by shifting occurrences in response to climatic conditions.

We determined that the natural and human-caused factors of specific soil and germination requirements, fragmented habitat, effects of drought and climate change, and lack of proven methods for propagation present an imminent and moderate degree of threat to *Ipomopsis polyantha* across the entire range of the species.

## Background—*Penstemon debilis*

### *Previous Federal Actions*

We first included *Penstemon debilis* as a category 2 candidate species in the February 21, 1990, Review of Plant Taxa for Listing as Endangered or Threatened Species (55 FR 6184). Category 2 candidate species were defined as "[t]axa for which there is some evidence of vulnerability, but for which there are not enough data to support listing proposals at this time" (55 FR 6185, February 21, 1990). In 1996, we abandoned the use of numerical category designations and changed the status of *P. debilis* to a candidate under the current definition. We published four CNOR lists between 1996 and 2004, and *P. debilis* remained a candidate species with a LPN of 5 on each (62 FR 49398, September 19, 1997; 64 FR 57534, October 25, 1999; 66 FR 54808, October 30, 2001; 67 FR 40657, June 13, 2002). A LPN of 5 is assigned to species with non-imminent threats of a high magnitude.

On March 15, 2004, the Center for Native Ecosystems (CNE) and the Colorado Native Plant Society petitioned us to list *Penstemon debilis* (CNE 2004a, p. 1). We considered the information provided in their petition when we prepared the 2004 CNOR. In the 2004 CNOR, *P. debilis* remained a candidate species with a listing priority of 5 (69 FR 24876, May 4, 2004).

On May 11, 2004, we received a petition from the Center for Biological Diversity (CBD) to list 225 species we previously had identified as candidates for listing, including *Penstemon debilis* (CBD 2004, p. 6). Under requirements in section 4(b)(3)(B) of the Act, the CNOR and Notice of Findings on Resubmitted Petitions published on May 11, 2005 (70 FR 24870), raised the LPN of *P. debilis* from 5 to 2 but also included a finding that the immediate issuance of a proposed listing rule and the timely promulgation of a final rule for each of 225 petitioned species, including *P. debilis*, was warranted but precluded by higher priority listing actions, and that expeditious progress was being made to add qualified species to the Lists (70 FR 24870, May 11, 2005).

On November 15, 2004, the CNE issued a 60–day notice of intent to sue for violation of section (4)(b)(3)(A) of the Act with respect to the petition to list *Penstemon debilis* (CNE 2004b, pp. 1–2). On January 25, 2005, Biodiversity Conservation Alliance and seven other entities filed an amended complaint regarding our failure to list *P. debilis* and five other species. As part of a settlement agreement, plaintiffs withdrew their lawsuit regarding *P. debilis.*

In the 2005 CNOR (70 FR 24870), as stated above, the listing priority number for *Penstemon debilis* was changed from 5 to 2 based on an increase in the intensity of energy exploration along the Roan Plateau escarpment, making the threats to the species imminent (70 FR 24870, May 11, 2005). A listing priority of 2 represents threats that are both imminent and high in magnitude. CNOR lists published in 2006 and 2007 maintained *P. debilis* as a candidate species with a listing priority of 2 (71 FR 53756, September 12, 2006; 72 FR 69034, December 6, 2007).

In each assessment since its recognition as a candidate species in 1996, we determined that publication of a proposed rule to list the species was precluded by our work on higher priority listing actions. However, in 2008, we received funding to initiate the proposal to list *Penstemon debilis*.

### *Species Information*

*Penstemon debilis* is a rare plant, endemic to oil shale outcrops on the Roan Plateau escarpment in Garfield County, Colorado. This species is known by the common names Parachute beardtongue and Parachute penstemon. *P. debilis* is classified by the CNHP as a G1 and S1 species, which means it is critically imperiled across its entire range and within the State of Colorado (CNHP 2008b, p. 14). The total estimated number of known plants is approximately 4,000 individuals (CNHP 2006b, p. 1; CNHP 2009a, p. 1; CNHP 2009b, p. 1; CNHP 2009c, p. 1; CNHP 2009d, p. 2). Approximately 82 percent of the known plants are on private land owned by a natural gas and oil shale production company. Most of the remaining 18 percent occur in one occurrence on BLM land that was recently leased under a new Resource Management Plan (RMP) amendment (BLM 2008a, Record of Decision (ROD) p. 2). In recent years, energy development has increased in this area on both private and Federal lands.

Traditionally *Penstemon* has been included in the Scrophulariaceae (figwort family). Phylogenetic studies based on DNA sequences of taxa in this and related plant families over the last 10 years have necessitated realignment of several genera in these groups. Apart from a nomenclatural discrepancy, *Penstemon* has been shown to be a part of the Plantaginaceae (plantain) family, since 2001. The chronology and summary of the placement of *Penstemon* in the Plantaginaceae is presented by Oxelman *et al.* (2005, p. 415). We recognize this placement and will make the appropriate attribution in the proposed amendments to 50 CFR 17.12(h) at the end of this document. The text will include the family name as Plantaginaceae.

*Penstemon debilis* was discovered in 1986, and was first described by O'Kane and Anderson in 1987 (pp. 412–416. No challenges have been made to the taxonomy as first put forward by the authors. *Penstemon debilis* is a mat-forming perennial herb with thick, succulent, bluish leaves, each about 0.8 in. (2 cm) long and 0.4 in. (1 cm) wide. Plants produce shoots that run along underground, forming what appear as new plants at short distances away. Individual *P. debilis* plants are able to survive on the steep, unstable, shale slopes by responding with stem elongation as leaves are buried by the shifting talus. Buried stems progressively elongate down slope from the initial point of rooting to a surface sufficiently stable to allow the development of a tuft of leaves and flowers (O'Kane and Anderson 1987, pp. 414–415). Flowers are funnel-shaped, are white to pale lavender, and flower during June and July. *P. debilis* plants produce a low number of seeds, are primarily outcrossers, and have many different pollinators that vary between occurrences (McMullen 1998, p. 26). None of the pollinators are specialists to *P. debilis*, nor are any of them rare (McMullen 1998, p. 31). We know little about the lifecycle of *Penstemon debilis* with regard to generational timetables.

*Penstemon debilis* seems to be at least somewhat adapted to disturbance. Each of the known occurrences of the species contains high levels of physical disturbance (McMullen 1998, p. 81). Many of the characteristics that are most similar among sites promote continual disturbance: steep slopes, unstable shale channer surface layers, and no surface soil (McMullen 1998, p. 82). In fact, two of the largest *P. debilis* occurrences, are on recent mine talus slopes where anthropogenic disturbance was very high as recently as 1994 (McMullen 1998, p. 82). One occurrence was recorded to have several hundred individuals in 1994, but no individuals can be found at this site today (McMullen 1998, p. 82). This may be a result of a reduction in the disturbance levels through successional processes such as soil development and increased vegetative cover (McMullen 1998, p. 82). *Penstemon debilis* may be considered a pioneer species that disperses to recent disturbances, flourishes, and goes locally extinct if soil conditions become stable (McMullen 1998, p. 82).

*Penstemon debilis* grows on steep, oil shale outcrop slopes of white shale talus at 8,000 to 9,000 ft (2,400 to 2,700 m) in elevation on the southern escarpment of the Roan Plateau above the Colorado River west of the town of Parachute, Colorado. The Roan Plateau falls into the geologic structural basin known as the Piceance Basin. Average annual precipitation at Parachute, Colorado, is 12.75 in. (32.4 cm) (IDcide 2009, p. 1). *P. debilis* is found only on the Parachute Creek Member of the Green River Formation. *P. debilis* is often found growing with other species endemic to the Green River formation, including *Astragalus lutosus* (dragon milkvetch), *Festuca dasyclada* (Utah fescue), *Mentzelia argillosa* (Arapien stickleaf), and *Thalictrum heliophilum* (sun-loving meadowrue), as well as several non-endemics (O'Kane & Anderson 1987, p. 415).

The historical range and distribution for this species is unknown. All of the currently known occurrences occur on about 56 ac (23 ha) in Garfield County. The Green River geologic formation to which the plant is restricted is the major source of oil shale in the United States. Although this formation is underground throughout most of the Piceance Basin, it is exposed on much of the southern face of the Roan Plateau. The total area of the plant's geographic range is about 2 mi (3 km) wide and 8 mi (13 km) long. Prior to 1997, two occurrences of *P. debilis* were known. In 1997, the CNHP used existing habitat and distribution information, along with soils, geology, and aerial photographs, to select target survey areas. The ensuing survey resulted in the discovery of two new occurrences (Spackman *et al.* 1997, p. 6). Two other occurrences were first recorded by BLM in 1997 and 2005 at oil shale mine sites (CNHP 2009a, p. 1; CNHP 2009d, p. 1). Another occurrence of approximately 12 plants was reported in June 2009 (Graham 2009a, pp. 1–2). It is likely that unknown occurrences exist, because many areas are simply inaccessible to surveyors due to steep terrain or private land ownership or both.

*Penstemon debilis* occurs at seven known occurrences, four of which are rated by CNHP as having "good to excellent" estimated viability based on population size, individual plant sizes, and site ecology (CNHP 2006b, p. 1; CNHP 2009a, p. 1; CNHP 2009b, p. 1; CNHP 2009c, p. 1; CNHP 2009d, p. 2) (see Table 2 below). The largest occurrence (Mount Callahan Natural Area) of 2,100 to 2,240 plants grows on lands owned by an energy development company (CNAP 2006, p. 1). The Mount Callahan Ridge occurrence, with an estimated 650 plants, grows on lands owned by the same energy development company (CNAP 2006, pp. 1–2). The Anvil Points Road occurrence grows on lands administered by the BLM and has an estimated 700 plants (CNHP 2009d, p. 2). The Mount Logan Mine occurrence grows on lands owned by both the energy development company (approximately 90 percent) and BLM (10 percent), and has 533 plants (CNHP 2009a, p. 1).

Two additional *Penstemon debilis* occurrences on BLM land are considered to have "poor" estimated viability (CNHP 2009e, p. 1; CNHP 2009f, p. 1). The Anvil Points occurrence had 200 to 300 plants reported in 1994, but only three plants could be found in 1998 (CNHP 2009e, p. 1). The latest survey in 2006 found no plants at this occurrence (CNHP 2009e, p. 1). It appears that the decline of this occurrence was a result of natural processes including competition by surrounding vegetation (DeYoung 2008a, p. 1). The area including this habitat also was leased under the BLM August 2008 lease sale (BLM 2008b, p. 3; Ewing 2008a, p. 7).

The Mount Logan Road occurrence, discovered in 1996 on a road cut, had 10 plants, of which only 3 were found in 2005 (CNHP 2009f, p. 1). Because these two occurrences have so few individuals, they are considered to have poor viability by CNHP, and we consider them not viable into the future.

The Smith Gulch occurrence of approximately 12 plants was reported in June 2009 (Graham 2009a, pp. 1–2). This occurrence has not been rated by CNHP; however, it is small (12 plants) and, because of its positioning in a drainage, has a high potential for being destroyed by a rain event (Graham 2009a, pp. 1–2).

TABLE 2. CURRENT AND HISTORICALLY KNOWN *Penstemon debilis* OCCURRENCES

| Occurrence | Viability | # of Plants | ac (ha) | Land Ownership |
|---|---|---|---|---|
| Mt. Callahan Natural Area | Excellent | 2,100-2,240 | 32 (12.9) | Private |
| Anvil Points Road | Good | 700 | 5 (2) | BLM |
| Mount Logan Mine | Good | 533(50 on BLM) | 2 (0.8) | Private and BLM |
| Mount Callahan Ridge | Good | 650 | 4 (1.6) | Private |
| Mount Logan Road | Poor | 3 | 7 (2.8) | BLM |
| Anvil Points | Poor | 0 | 6 (2.4) | BLM |
| Smith Gulch | Unrated | 12 | not reported | BLM |
| | Total | 3,998 – 4,138 | 56 (22.7) | |

The total estimated number of *Penstemon debilis* in the wild is currently 3,998 to 4,138 individuals. The occurrences on BLM land represent about 18 percent of the total plants counted and estimated. An energy development company owns land that contains approximately 82 percent of the total plants. We have no information to indicate an overall species trend.

Summary of Factors Affecting *Penstemon debilis*

*A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range*

*Penstemon debilis* habitat is threatened by energy development and associated impacts. Of the four known viable occurrences (Mount Callahan Natural Area, Anvil Points Road, Mount Logan Mine, Mount Callahan Ridge), all but the Anvil Points Road occurrence are on lands wholly or partially owned by an energy development company. All four viable occurrences, which exist on the Roan Plateau, face ongoing or potential threats, including: oil and gas development, oil shale extraction and mine reclamation, and road maintenance and vehicle access through occurrences.

The Piceance Basin, including federal and private lands surrounding the Roan Plateau, has experienced a boom in natural gas production in recent years. The BLM projects that around 3,916 billion cubic feet of natural gas will be developed over the next 20 years from the portion of the Roan Plateau that was addressed in the new RMP amendment (CNE 2004a, p. 44). Oil and gas exploration and development continues to increase each year on and around the Roan Plateau. In 2003, 566 new wells were permitted in Garfield County: 796 in 2004; 1,508 in 2005 (Colorado Oil and Gas Conservation Commission (COGCC 2006, p. 1); 1,844 in 2006; 2,550 in 2007 (COGCC 2008, p. 1); and 2,888 in 2008 (COGCC 2009a, p. 1). Because of a decrease in natural gas prices, new well permits decreased in 2009 to 743 (Webb 2009, p. 1), as of June 3, 2009 (COGCC 2009a, p. 1). This number is down from the 1,029 wells permitted by the same time in 2008, but is still higher than the 566 wells permitted in Garfield county in all of 2003 (COGCC 2008, p. 1).

Energy exploration and development includes construction of new unpaved roads, well pads, disposal pits, evaporation ponds, and pipeline corridors, as well as cross country travel by employees. Each of these actions has the potential to cause direct impacts such as plant removal and trampling, and indirect impacts to *Penstemon debilis* such as dust deposition and loss of habitat for pollinators. The ramifications of direct impacts are easily assessed if witnessed. Plant removal, contact with herbicide or ice-melting chemicals, and trampling can cause death of plants. Because *P. debilis* was unknown as a species until 1987, and most of the occurrences are on private land or in remote locations on public land, the impacts may go unnoticed. For example, impacts to the Mount Logan Mine occurrence were unknown until the occurrence was discovered in 2005; even after discovery, further mine-related impacts occurred because the remote location of the mine made it difficult for BLM to manage the occurrence (CNHP 2009b, p. 1; Ewing 2009a, p. 4).

Indirect effects to *Penstemon debilis* from energy exploration are less easily assessed. Road traffic on unpaved roads increases dust emissions in previously stable surfaces (Reynolds *et al.* 2001, p. 7126). For every vehicle traveling one mile (1.6 km) of unpaved roadway once a day, every day for a year, approximately 2.5 tons of dust are deposited along a 1,000-foot (305-m) corridor centered on the road (Sanders 2008, p. 20). Vascular plants can be greatly affected within the zone of maximum dust fall (i.e., the first 1000 ft (305 m) from the road) (Everett 1980, p. 128). Excessive dust may affect photosynthesis, affect gas and water exchange, clog plant pores, and increase leaf temperature leading to decreased plant vigor and growth (Ferguson *et al.* 1999, p. 2; Sharifi *et al.* 1997, p. 842). All of the viable occurrences of *P. debilis* are within 300 ft (91 m) of roads. Further energy development would likely increase road density and traffic volume.

Other indirect impacts can occur due to a loss of pollinator habitat. *Penstemon debilis* requires an insect pollinator to reproduce (McMullen 1998, p. iii). McMullen (1998) concluded that pollinators for *P. debilis* were generalists and were not limiting at that time (prior to the energy boom). However, Tepedino (2009) described how the pollination biology of another Piceance Basin rare plant (*Physaria obcordata*) is being impacted by energy development. He described that any energy development that reduces the general level of available floral vegetation has a detrimental effect on pollinators' ability to reproduce, subsequently resulting in fewer pollinators and reduced ability of the dependent plant to reproduce (Tepedino 2009, pp. 16–17).

A large parcel of land including habitat occupied by the Anvil Points Road occurrence was offered and sold for oil and gas leasing under the BLM August 2008 lease sale (DeYoung 2008b, p. 1; BLM 2008b, p. 1; Ewing 2008a, p. 7). This lease is currently being contested in court. Increased energy exploration in the Anvil Points Road area may increase maintenance and vehicle access on the unstable road that

transects the *Penstemon debilis* occurrence and increase the likelihood of effects to *P. debilis* due to construction of additional roads and other facilities associated with oil and gas exploration.

Oil shale mining has impacted *Penstemon debilis* occurrences. Oil shale extraction activities occurred on the Roan Plateau in the early 1980s and into the 1990s (COBiz 2008, pp. 3–4). This extraction impacted the Mount Logan Mine and Anvil Points Road occurrences. Because *P. debilis* was not identified as a species until 1987, we have no record of the pre-mining occurrence status. However, we believe the plants were present at these sites prior to mining because they are present now. The plants were likely heavily impacted by mine operations within their habitat, and the occurrences have recovered to a far smaller population size on a reduced area of habitat (see Factor E for discussion of inherent risk of small population size).

Commercial oil shale extraction has not yet proven to be economically viable, and current research and development efforts no longer focus on surface mining of oil shale rock on the Roan Cliffs (COBiz 1987, pp. 3–4). The BLM recently released the RMP amendments to allow oil shale leasing in the Piceance Basin (BLM 2007a, p. 1). The known *Penstemon debilis* occurrences are not within the area that BLM has currently identified as available for leasing (BLM 2008c, p. 14). It is unknown when oil shale extraction will become economically viable. Despite the recent retreat from surface mining of oil shale, if commercial oil shale production does become economically viable, we expect a renewed interest in extracting shale from the cliffs of the Roan Plateau because of the convenient access to shale resources on the surface. Recent and ongoing impacts to the Anvil Points Road occurrence are occurring due to research conducted by an oil shale research and development company and at the Anvil Points Road and Mount Logan Mine occurrences due to mine reclamation and closure efforts (DeYoung 2009a, pers. comm.; Mayo 2006, pp. 1–4).

The BLM has begun mine reclamation action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. 9601 *et seq.*), commonly known as Superfund, to remove health and safety hazards from Anvil Points Road. Actions will include closing access to the passages leading into the mine and removing lead mine tailings soil on the mine bench (Goodenow 2008, pers. comm.). It is unknown whether the lead in the soil is a threat to *Penstemon debilis*. The CNHP estimates 700 individual plants at this occurrence (CNHP 2009d, p. 2). To date, 88 plants are known to have been directly impacted by Anvil Points Road mine reclamation actionspermitted by BLM, occuring in the winter of 2008-2009 (DeYoung 2009b, pers. comm.). Of the 88, 21 were transplanted, and 67 were covered by matting intended to reduce soil disturbance (DeYoung 2009b, pers. comm.; DeYoung 2009c, p. 1). Long-term success of transplants is unknown, but 2 of the 21 transplants died as of June 2009 (DeYoung 2009c, p. 1). Eleven of the 67 plants covered by matting are dead or unaccounted for (DeYoung 2009c, p. 1). With restoration work still underway, it is unclear how many more plants will be impacted.

The Anvil Points Road occurrence is impacted by Garfield County road stabilization work, which is required to maintain access to a transmitter tower located within occupied habitat for *Penstemon debilis*. In addition, BLM recently allowed an oil shale research and development company to conduct research in the Anvil Points mine, a project area containing the Anvil Points Road occurrence (Ewing 2008a, p. 4). This research consists of taking high resolution photographs of the geologic formation visible from the sides of the mine, and possibly removing core samples. This research project is expected to include vehicle trips up the road every day for 1 month and to directly impact *P. debilis* individuals growing in the road immediately outside the mine (Ewing 2008a, p. 6). The roads transecting the occurrence are on shifting shale talus slopes and are very conducive to rock and mudslides, which can destroy *P. debilis* habitat and which require the road to be maintained frequently. Three plants are known to have been destroyed by the road maintenance conducted under this permit (DeYoung 2009a, pers. comm.). The BLM believes that some additional plants may have been trampled by unauthorized access to an area that was fenced off during the research period; however, it is unclear how many plants were disturbed (DeYoung 2008c, pers. comm.). In addition to the direct impacts, the road maintenance required to allow this level of traffic makes occupied *P. debilis* habitat more accessible to the public, which could result in further trampling by humans and vehicles (Ewing 2008a, pp. 5–6).

The Mount Logan Mine occurrence of *Penstemon debilis* is primarily located on land owned by a natural gas and oil shale production corporation, with a portion of the occurrence occupying BLM land. This occurrence is perched on a steep, unstable slope above a road that is currently used for access to an ongoing reclamation project at an old oil shale mine site. Several plants on this steep road bank were dangling by their roots in 2005 due to road maintenance (Mayo 2006, pp. 1–4). The road was widened, and these plants were gone by 2006 (Mayo 2006, p. 1). Mine reclamation actions destroyed a portion of this occurrence by burying it in topsoil (Ewing 2009a, p. 4). This site also contains noxious weeds associated with the disturbance; it is unknown whether the weeds will pose a threat to *P. debilis* (Ewing 2009a, p. 4). The BLM portion of this occurrence was included in an oil and gas lease parcel nominated for sale; however, BLM deferred the sale of the lease parcel until their RMP revision is complete, and until we make a decision concerning the status of the species (CNE 2005, p. 1; Lincoln 2009, pers. comm.). The energy company that owns the land containing most of the Mount Logan Mine occurrence has been actively developing their holdings in this area. Further development of the lands immediately surrounding this occurrence would likely result in impacts due to road construction and maintenance on the unstable shifting shale talus.

The Mount Logan Road occurrence, located on a road cut near the Logan Mine occurrence, had 10 plants in 1996, of which only 3 plants were found in 2005 (CNHP 2009f, p. 1). This occurrence has no barriers to shield the plants from road impacts, such as removal by maintenance machinery, accidental trampling, and spraying of ice melting or herbicide chemicals; the road also generates heavy dust (CNHP 2009f, pp. 1–3; DeYoung 2009d, pp. 1–3; Ewing 2009a, p. 2). As a result of these threats, we consider this occurrence to be nonviable.

The Mount Callahan Natural Area and Mount Callahan Ridge occurrences, which include approximately 82 percent of total known *Penstemon debilis* plants, occur on land owned by an energy development company. These occurrences are behind locked gates, making them inaccessible to the public and the Service. The landowner intends to develop up to three natural gas well drilling pads within a 680-ac (275-ha) area that includes both Mount Callahan occurrences (Webb 2008, p. 1). Construction has begun on one pad, located 360 ft (110 m) from the nearest known *P. debilis* individual and 105 ft (32 m) uphill from its habitat (Ewing 2008a, p. 2). These pads will likely indirectly impact *P. debilis* through dust

generation, loss of pollinator habitat, and inadvertent trampling by employees and contractors. Monitoring of the occurrence, in connection to the energy development, has resulted in trampling of individual plants by people collecting the data (Ewing 2009a, p. 1).

The Smith Gulch occurrence of approximately 12 plants was discovered on BLM lands below Mount Callahan during surveys for a proposed oil and gas development project in June 2009 (Graham 2009b, p. 1). Two well pads, and corresponding roads and pipelines, are proposed for this area (Graham 2009b, p. 1).

The BLM develops a Reasonably Foreseeable Development scenario (RFD) to project the level of oil and gas activity that can be expected to occur. The RFD is intended as a technical and scientific approximation of anticipated levels of oil and gas development during the planning timeframe (BLM 2006, p. 4–2). It is not intended to define specific numbers and locations of wells and pads. An RFD for oil and gas is a long-term projection of oil and gas exploration, development, production, and reclamation activity within the lands and minerals managed by the BLM Field Office (BLM 2005b, p. 2). The RFD is a technical report typically referenced in the NEPA document for the RMP (BLM 2005b, p. 2).

The RFD for the Glenwood Springs BLM Field Office, Roan Plateau Planning Area, which contains the Anvil Points Road and Anvil Points *Penstemon debilis* occurrences, used 20 years as the foreseeable development timeframe. Based on the RFD, the Roan Environmental Impact Statement (EIS) Proposed Plan projected approximately 669 pads, 3,691 wells, 2,791 ac (1,129 ha) of long-term disturbance, and 1,624 ac (657 ha) of short-term disturbance in the Roan Planning Area (BLM 2006, p. 4–11). The other occurrences located on BLM land (Mount Logan Mine and Mount Logan Road) are within the BLM Grand Junction Field Office, which is currently in the process of developing a new RFD. The current RFD was developed in 1987, and forecasted 50 wells a year for a 20–year timeframe (Anderson 2008, p. 1). No RFD projection is available for the lands containing the Mount Callahan Natural Area, Mount Callahan Ridge, and private portion of the Mount Logan Mine occurrences, because they are on private lands with privately owned minerals.

*Penstemon debilis* is not protected by Federal regulation for about 82 percent of the total known and estimated plants because they are on private land. The remaining 18 percent of plants are on BLM lands. The BLM controls access to the Anvil Points Mine (containing the Anvil Points Road occurrence) with a gate. This gate is often left open, allowing public access to the plant occurrence Access to the other BLM occurrence (the Mount Logan Road occurrence) is controlled by a guard station. Approximately 300 trucks, associated with energy development, drive by this occurrence every day after checking with the guard (Mayo 2005, p. 1).

In summary, three of the four viable occurrences (Mount Callahan Natural Area, Mount Logan Mine, and Mount Callahan Ridge) are on lands owned wholly or partially by an energy development company. Some individuals of the fourth occurrence (Anvil Points Road), on BLM land, are subject to transplantation or destruction as a result of an ongoing mine restoration project and road maintenance. Over the past 6 years, oil and gas exploration and production has increased substantially in the area containing the habitat for *Penstemon debilis* making it likely that the species will become endangered in the foreseeable future. The pace of new development slowed in 2009; however, it is still far above pre-2004 levels. *P. debilis* grows on steep shifting slopes, and roads through *P. debilis* habitat are unstable and require frequent maintenance, which often destroys plants. Plants seem to be able to recolonize their habitat after disturbance; however, recolonization is slow, and would not be able to keep pace with rapid development. For these reasons we consider destruction and modification of the species' habitat for natural gas production, oil shale mining, mine reclamation, road maintenance, and associated impacts resulting from increased vehicle access to the occurrences, a moderate but immediate threat to *P. debilis*.

*B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes*

Overutilization for commercial, recreational, scientific, or educational purposes is not known to be a threat to *Penstemon debilis*. Therefore, this factor is not addressed in this proposal.

*C. Disease or Predation*

Seed predation of *Penstemon debilis* by small mammals has shown to be very low (McMullen 1998, pp. 39–40). Grazing, predation, and disease are not known to be a threat to *P. debilis*. Therefore, this factor is not addressed in this proposal.

*D. The Inadequacy of Existing Regulatory Mechanisms*

Local Laws and Regulations

Approximately 82 percent of *Penstemon debilis* occupied habitat occurs on private lands. We are not aware of any city or county ordinances or zoning that provide for protection or conservation of *P. debilis* or its habitat.

State Laws and Regulations

No State laws or regulations protect rare plant species in Colorado on private land or otherwise. The Mount Callahan Natural Area and Mount Callahan Ridge occurrences, including approximately 82 percent of total known *Penstemon debilis* plants, occur on land owned by an energy development company. With the cooperation of the landowner, the CNAP, a State agency, has designated the area of Mount Callahan (referred to throughout the document as the Mount Callahan Natural Area occurrence) and Mount Callahan Ridge occurrences as Natural Areas (Kurzel 2008, pers. comm.; CNAP 1987, pp. 1–7;, CNAP 2008a, pp. 1–7;, Webb 2008, p. 1) Through these designations, the landowner has agreed to develop the natural gas pads in a way that should minimize impacts to the *P. debilis* occurrences (Ewing 2008a, pp. 1–2). The agreements include conservation measures such as stormwater management and a noxious weeds management plan in order to minimize development impacts to the species (CNAP 2008b, pp. 1–4; CNAP 2008c, pp. 1–4). The CNAP has been very successful in garnering landowner participation in conservation of rare species in Colorado. However, natural area agreements are voluntary and can be terminated at any time by either party with a 90-day written notice. For this reason, and because no legally binding conservation easements or candidate conservation agreements protect any of the occurrences on private land, we have concluded that the Natural Area designation alone does not constitute an adequate regulatory mechanism to conserve *P. debilis*. We consider inadequate State laws and regulations a significant and immediate threat to this species, because the laws do not ameliorate the threats to the species.

Federal Laws and Regulations

The Federal Land Policy and Management Act (FLPMA) (43 U.S.C. 1701 *et seq.*) directs BLM, as part of the land use planning process, to "give priority to the designation and protection of areas of critical environmental concern" (Sec. 202(c)(3)).

The FLPMA defines areas of critical environmental concern (ACECs) as "areas within public lands where special management attention is required ... to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards" (Sec. 103 (a)). Designation as an ACEC recognizes an area as possessing relevant and important values that would be at risk without special management attention (BLM 2006, pp. 3–110). The ACEC designation carries no protective stipulations in and of itself (BLM 2006, pp. 2–65).

Following an evaluation of the relevance and importance of the values found in potential ACECs, a determination is made as to whether special management is required to protect those values and, if so, to specify what management prescriptions would provide that special management (BLM 2006, pp. 3–111). The Records of Decision (RODs) for the Roan Plateau RMP Amendment were signed June 8, 2007, and March 12, 2008. The March 12, 2008, ROD establishes the Anvil Points ACEC, an area designated for management of sensitive resources including *Penstemon debilis* (BLM 2008a, ROD p. 4). The ROD lists as an objective for the Anvil Points ACEC to "protect occupied habitat and the immediately adjacent ecosystem processes that support candidate plants." This ROD also authorizes oil and gas development in the ACECs, making the portions of these areas that are not currently leased, available for lease (BLM 2008a, ROD p. 2). Anvil Points ACEC covers most of the formerly occupied occurrence area at Anvil Points, and the entire Anvil Points Road occurrence.

In order to protect *Penstemon debilis* in the ACEC, a No Surface Occupancy (NSO) and No Ground Disturbance (NGD) stipulation was established for both Anvil Points *P. debilis* occurrences (BLM 2007b, ROD p. 26). The term NGD applies to all activities except oil and gas leasing and permitting, while the term NSO applies only to oil and gas leasing and permitting (BLM 2008a, ROD p. 6). The NSO designation prohibits long-term use or occupancy of the land surface for fluid mineral exploration or development to protect identified resource values (BLM 2006, pp. 2–3). This designation means that an area is protected from permanent structures or long-term ground-disturbing activities (i.e., lasting longer than 2 years) (BLM 2006, pp. 2–3). For example, an NSO designation would preclude construction of a well pad (because it would last longer than 2 years) but not a typical pipeline (because it would be revegetated within 2 years) (BLM 2006, pp. 2–3). Also, an NSO does not preclude the extraction of underlying fluid minerals if they can be accessed from outside the area by directional drilling (BLM 2006, pp. 2–3). Directional drilling may not disturb the overlying surface, including *Penstemon debilis* habitat. Except for specified situations, individual NSOs may include exceptions so that BLM may allow a ground-disturbing activity if it meets specific, stated criteria (BLM 2006, pp. 2–3). For example, the NSO designation for these occurrences allows for the BLM to grant exceptions for long-term ground disturbing activities if consultation with the Service indicates that proposed activity would not impair maintenance or recovery of the species (BLM 2007a, pp. F6-F7).

The protections provided by the NSO/NGD provision of the ACEC designation should be adequate to provide for maintenance of the Anvil Points Road occurrence. When applied, the NSO/NGD would require BLM to consult with the Service and ensure that proposed activity would not impair maintenance or recovery of the species prior to authorizing an exception to the NSO/NGD (BLM 2007a, pp. F6-F7). However, despite NSO/NGD provisions, projects have proceeded without consultation that resulted in destruction of *Penstemon debilis* individuals, and other projects with likely impacts to *P. debilis* are being considered by BLM without consultation. This ability to proceed without consultation indicates that the NSO/NGD provisions are inadequate to protect *P. debilis* and its habitat. Recent examples demonstrating the inadequacy of the NSO/NGD provisions follow. (1) The BLM approved work under the CERCLA to remove health and safety hazards from the Anvil Points Road occurrence. This project resulted in direct impacts to at least 90 *Penstemon debilis* individuals (DeYoung 2009c, p. 1). We believe many of these impacts could have been avoided or minimized through the consultation process. (2) BLM is considering granting permission for continued maintenance of the Garfield County transmitter tower access road (DeYoung 2009b pers. comm.). Maintaining the existing road rather than relocating it increases the likelihood of destroying *P. debilis* plants and prevents the recolonization of plants in the current road bed. (3) BLM has authorized oil shale research projects in the past at the Anvil Points mine (Ewing 2008a, p.4), which lead to the destruction of *P. debilis* plants (BLM 2007a, p. F6-F7; DeYoung 2009a, pers. comm.). (4) The land containing the Anvil Points Road occurrence was leased for oil and gas development under the BLM August lease sale (DeYoung 2008b, p. 1; BLM 2008b, p. 1; Ewing 2008a, p. 7). Increased energy exploration in the Anvil Points Road area may increase maintenance and vehicle access and consequently increase the likelihood of other adverse affects. Continued adverse impacts to the Anvil Points Road occurrence, beyond those currently occurring during the mine reclamation effort, could result in reduced viability and possible extirpation of the Anvil Points Road occurrence.

In summary, we found that existing regulatory mechanisms are inadequate to protect *Penstemon debilis*. No State or local laws or regulations protect *Penstemon debilis. P. debilis* is afforded some protection on Federal lands as a candidate species; however, the protection has been inadequate, and would be reduced if we find that *P. debilis* does not meet the definition of an endangered or threatened species. *P. debilis* has no regulatory protection for approximately 82 percent of the total estimated plants because they are on private land. The private land owner has pledged to protect these plants from direct impacts, but the agreement is not legally binding. Because of this lack of regulation, we consider inadequate regulatory mechanisms to be a significant and immediate threat to this species.

*E. Other Natural or Manmade Factors Affecting Its Continued Existence*

The Anvil Points occurrence, which formerly included several hundred plants on BLM land, has been reduced to zero plants since 1994 for unknown reasons (CNHP 2009e, p. 1). It appears that the decline of this occurrence was a result of natural processes including competition by surrounding native vegetation, which includes *Chrysothamnus viscidiflorus* (yellow rabbitbrush) (DeYoung 2008a, p. 1; CNHP 2009e, p. 2). New *Penstemon debilis* plants grown off site from seeds were introduced but declined over several years (CNHP 2009e, p. 2). Monitoring failed to show a cause for the disappearance of *P. debilis* (DeYoung 2008a, p. 1).

*Penstemon debilis* population sizes are small, and the smaller the population, the more likely extinction is in any given period of time (Shaffer 1987, p. 70). All occurrences of *P. debilis* grow on a 17-mi (27-km) stretch of the rim of the Roan Plateau in

Garfield County, Colorado (Ewing 2008a, p. 7). The two largest occurrences are within 2 mi (3 km) of each other (Ewing 2008a, p. 7). A species with such a small range could be particularly susceptible to extirpation from a stochastic event such as an earthquake, rockslide, or severe hail storm (McMullen 1998, p. 3). This increased susceptibility is due to the likelihood that, although stochastic events are often localized in severity, such a localized event would likely impact all occurrences of the species, rather than just a small portion of the occurrences, as may be expected for a species with a larger range. For example, the newly discovered Smith Gulch occurrence is small (12 plants), and because of its positioning in a drainage, has a high potential for being destroyed by a rain event (DeYoung 2009e, p. 1).

In addition, the fragmentation of *P. debilis* habitat by human-related activities threatens to reduce the species to mosaics of small populations occurring in isolated habitat remnants. Occurrences with small population size (fewer than 50 individuals) are more likely to suffer genetic problems such as genetic drift and inbreeding depression due to losses of individuals in such events (McMullen 1998, p. 3; Ellstrand & Elam 1993, p. 226). Conversely, if the current population structure is similar to the historical range, it is possible that *P. debilis* has adapted to be less vulnerable to inbreeding depression (Ellstrand & Elam 1993, p. 225).

Climate change could potentially impact *Penstemon debilis*. According to the Intergovernmental Panel on Climate Change (IPCC), "Warming of the climate system in recent decades is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global sea level" (Bates *et al.* 2008, p. 15). Average Northern Hemisphere temperatures during the second half of the 20th century were very likely higher than during any other 50–year period in the last 500 years and likely the highest in at least the past 1,300 years (IPCC 2007, p. 30). It is very likely that over the past 50 years, cold days, cold nights, and frosts have become less frequent over most land areas, and hot days and hot nights have become more frequent. It is likely that heat waves have become more frequent over most land areas, and the frequency of heavy precipitation events has increased over most areas (IPCC 2007, p. 30). As described above, climate modeling is not currently to the level that we can predict the amount of temperature and precipitation change within *P. debilis*'s limited range. Therefore, we generally address what could happen under the current climate predictions. However, we need further refinement of the current predictions to draw more reliable conclusions concerning the effects of climate change on the species.

It is unknown how *Penstemon debilis* responds to drought; however, in general, plant numbers decrease during drought years, but recover in subsequent seasons that are less dry. Drought years could result in a loss of plants. Changes in the global climate system during the 21st century are likely to be larger than those observed during the 20th century. For the next 2 decades, a warming of about 32.4 °F (0.2 °C) per decade is projected (IPCC 2007, p. 45). Afterward, temperature projections increasingly depend on specific emission scenarios. Various emissions scenarios suggest that by the end of the 21st century, average global temperatures are expected to increase 33 to 39 °F (0.6 to 4.0 °C) with the greatest warming expected over land. Localized projections suggest the Southwest may experience the greatest temperature increase of any area in the lower 48 States. It is likely that hot extremes, heat waves, and heavy precipitation will increase in frequency (IPCC 2007, p. 30). There also is high confidence that many semi-arid areas like the western United States will suffer a decrease in water resources due to climate change. A 10- to 30-percent decrease in precipitation in mid-latitude western North America is projected by the year 2050 based on an ensemble of 12 climate models (Milly *et al.* 2005, p. 1). When plant populations are impacted by additional threats during drought years, they may require several years to recover. Climate change may exacerbate the frequency and intensity of droughts. Under drought conditions, plants generally are less vigorous and less successful in reproduction. With small populations and their inherent genetic risk, lowered reproduction could result in reduced population viability.

Recent analyses of long-term data sets show accelerating rates of climate change over the past 2 or 3 decades, indicating that the extension of species' geographic range boundaries towards the poles or to higher elevations by progressive establishment of new local populations will become increasingly apparent in the relatively short term (Hughes 2000, p. 60). The limited geographic range of the oil shale substrate that makes up the entire *Penstemon debilis* habitat could limit the ability of the species to adapt to changes in climatic conditions by progressive establishment of new populations.

Incidental disturbance by humans, and stochastic events, such as drought, landslides, or encroaching vegetation can impact *Penstemon debilis*. However the species likely evolved under these factors and we do not consider them significant immediate threats. Climate change could exacerbate these factors, causing them to pose a threat to *P. debilis*; however the current data are not reliable enough at the local level for us to draw conclusions regarding the imminence of climate change threats to *P. debilis*.

## Background—*Phacelia submutica*

### *Previous Federal Actions*

We included *Phacelia submutica* as a category 1 candidate species in the 1980 Review of Plant Taxa for Listing as Endangered or Threatened Species (45 FR 82480, December 15, 1980). In that notice, category 1 candidates were defined as species for which the Service had "sufficient information on hand to support the biological appropriateness of their being listed as Endangered or Threatened species." We changed the candidate status of *P. submutica* to category 2 on November 28, 1983 (45 FR 82480). On February 21, 1990, we again identified *P. submutica* as a category 1 candidate species (55 FR 6184). In the February 28, 1996, **Federal Register** (61 FR 7596) all category 1 candidate species became candidates under the current definition. We assigned *P. submutica* an LPN of 11. In the 2005 CNOR (70 FR 24870, May 11, 2005) we raised the LPN to 8, to reflect the increasing level of threats, which are imminent and of moderate magnitude.

On May 11, 2004, we received a petition from the CBD to list, as endangered, 225 species we previously had identified as candidates for listing, including *Phacelia submutica* (CBD 2004, p. 146). Under requirements in section 4(b)(3)(B) of the Act, the CNOR and the Notice of Findings on Resubmitted Petitions published by the Service on May 11, 2005 (70 FR 24870), included a finding that the immediate issuance of a proposed listing rule and the timely promulgation of a final rule for each of these petitioned species, including *P. submutica*, was warranted but precluded by higher priority listing actions, and that expeditious progress was being made to add qualified species to the Lists.

On April 28, 2005, the CNE, the Colorado Native Plant Society, and botanist Steve O'Kane, Jr., Ph.D., submitted a petition to the Service to

list *Phacelia submutica* as endangered or threatened within its known historical range, and to designate critical habitat concurrent with the listing (CNE *et al.* 2005, p. 1). We considered the information in the petition when we prepared the 2006 CNOR (71 FR 53756, September 12, 2006). Section 4(b)(3)(C) of the Act requires that when we make a warranted-but-precluded finding on a petition, we are to treat such a petition as one that is resubmitted on the date of such a finding. We identified *P. submutica* as a species for which we made a continued warranted-but-precluded finding on a resubmitted petition in the **Federal Register** on December 6, 2007 (72 FR 69034), and December 10, 2008 (73 FR 75176). We retained an LPN of 8 for the species. In the 2008 notice, we announced that we have not updated our assessment for this species, as we were developing this proposed listing rule (73 FR 75227).

In each assessment since its recognition as a candidate species under the current definition in 1996, we determined that publication of a proposed rule to list the species was precluded by our work on higher priority listing actions. In 2008, we received funding to initiate the proposal to list *Phacelia submutica*.

*Species Information*

*Phacelia submutica* is a rare annual plant endemic to clay soils derived from the Atwell Gulch and Shire members of the Wasatch Formation in Mesa and Garfield Counties, Colorado. The 25 known occurrences of the plant occupy a total of 104 ac (42 ha) (CNHP 2009g, records a-hh; CNHP 2010, records ii-jj; WestWater Engineering 2004, pp. 2; Ewing 2008b, map). Fifteen of the occurrences occupy patches of 1 ac (0.4 ha) or less. All occurrences consist of small patches of plants on uniquely suitable soil separated by larger areas of similar soils that are not occupied by *P. submutica*. The estimated total number of plants differs from 84 to 42,926 per year, depending on growing conditions. The species depends on its seed bank to survive for one or many years, again depending on growing conditions.

*Phacelia submutica* was first described by Howell based on specimens collected from the town of DeBeque, Mesa County, Colorado, in 1911 and 1912 (Howell 1944, pp. 370–371Halse (1981, pp. 121, 129, 130) reduced it to varietal status as *P. scopulina* var. *submutica.* This has been challenged as incorrect by O'Kane (1987, p. 2), who claimed Halse used inadequate collection materials, and that *P. submutica* is geographically isolated from *P. scopulina* (O'Kane 1987, p. 2; 1988, p. 462). *Phacelia submutica* is recognized at the species rank by current floristic treatments in Weber and Wittmann (1992, p. 98; 2001, p. 203) and by the Director of the Biota of North America Program (Kartesz 2008, pers. comm.). While the Integrated Taxonomic Information System (2001) database cites John Kartesz as the expert source for this species, it is not updated with his currently accepted name for the species: *Phacelia submutica* (Kartesz 2008, pers. comm.). *Phacelia* is included in the Hydrophyllaceae (waterleaf family). Recent molecular data suggest that this family should be combined in an expanded Boraginaceae (borage family). There are conflicting views on the configuration of this larger Boraginaceae and the lead author of the family treatment for the upcoming Flora of North America has chosen to retain the Hydrophyllaceae. Therefore, we will retain *Phacelia* in the Hydrophyllaceae family for this proposal.

*Phacelia submutica* is a low-growing, herbaceous, spring annual plant with a tap root. The stems are typically 0.8 to 3 in. (2 to 8 cm) long, often branched at the base and mostly laying flat on the ground as a low rosette (Howell 1944, pp. 371–372). Stems are often deep red and more or less hairy with straight andstiff hairs. Leaves are similarly hairy, reddish at maturity, 0.2 to 0.6 in. (5 to 15 mm) long, egg-shaped or almost rectangular with rounded corners, with bases abruptly tapering to a wedge-shaped point. Leaf margins are smooth or toothed. The yellowish flowers are arranged on somewhat congested racemes; the stamens are shorter than the corolla throat and the fruits are not attenuate at the apex (Howell 1944, pp. 371–372).Unlike many *Phacelia* species, the stamens do not protrude beyond the petals. The style is 0.04 to 0.06 in. (1 to 1.5 mm) long and nearly hairless. The bracts around the seed capsules are 0.2 to 0.4 in. (6 to 10 mm) long. The elongated egg-shaped seeds are 0.6 to 0.8 in. (1.5 to 2 mm) long with 6 to 12 crosswise corrugations, and are blackish brown and somewhat iridescent (Howell 1944, p. 370; Halse 1981, p. 130; O'Kane 1987, p. 3).

*Phacelia submutica* seeds usually germinate in early April; the plants may flower between late April and late June. Fruit set is from mid-May through late June. Individuals finish their life cycle by late June to early July, after which time they dry up and disintegrate or blow away, leaving no indication that the plants were present (Burt and Spackman 1995, p. 23). The species grows in a habitat with wide temperature fluctuations, long drought periods, and erosive saline soils. Upon drying,cracks form in the soils. Seeds plant themselves by falling into the cracks that close when wetted, thus covering the seeds (O'Kane 1988, p. 20). Plant sites differ in numbers of flowering plants each year, but there are no observations of site expansion. Seeds do not appear to disperse to adjacent soils. The ideal conditions required for seeds of this species to germinate are unknown.

It is likely that the number of seedlings depends not on total precipitation but on the temperature after the first major storm event of the season (Levine *et al.* 2008, p. 795). *Phacelia submutica* seeds can remain dormant for 5 years (and probably longer) until the combination and timing of temperature and precipitation are optimal (CNHP 2009g, records a–hh). Rare annuals that flower every year are subject to extinction under fluctuating conditions, because they exhaust their seed reserves (Meyer *et al.* 2006, p. 901). Rare ephemeral annuals, such as *P. submutica*, that save their seed bank for the best growing conditions are more resilient to fluctuating conditions. *P. submutica* numbers at Horsethief Mountain fluctuated from 1,700 plants in 1986, to 50 in 1992, up to 1,070 in 2003, and down to only a few from 2006 to 2008 (CNHP 2009g, records q–t). The fluctuation in numbers indicates that many seeds remain dormant in the seed bank during years when few plants can be found.

*Phacelia submutica* is restricted to exposures of chocolate to purplish brown and dark charcoal gray clay soils derived from the Atwell Gulch and Shire members of the Wasatch Formation (Donnell 1969, pp. M13–M14; O'Kane 1987, p. 10). These expansive clay soils are found on moderately steep slopes, benches, and ridge tops adjacent to valley floors of the southern Piceance Basin in Mesa and Garfield Counties, Colorado. On these slopes and soils, *P. submutica* usually grows only on one unique small spot of ground that shows a slightly different texture and color than the similar surrounding soils (Burt and Spackman 1995, p. 15). We do not have a precise description of the soil features required to support this species, but it is clear that the identified habitat that appears to be suitable will never be fully occupied by the plants. The currently known occupied habitat where the plants grow covers about 104 ac (42 ha) (CNHP 2009g, records a–hh; CNHP 2010, records ii–jj; Ewing 2008b, map; see Table 3 below). About 538 ac (216 ha) of suitable habitat have been mapped (CNHP 2009g, records a–hh;

CNHP 2010, records ii–jj). A general range, encompassing outlying occurrences of *P. submutica*, includes about 86,000 ac (34,800 ha) (WestWater Engineering 2004, pp. 2, 11; Western Ecological Resource 2008, pp. 54–65, 100; CNHP 2009g, records a–hh; CNHP 2010, records ii–jj; Ewing 2008b, map). The growing town of DeBeque and about 10 mi (16.4 km) of interstate highway 70 and the Colorado River bisect the species' range.

Each occurrence of the species includes one or more sites that often cover only a few square meters (O'Kane 1987, p. 16). Twenty-five occurrences of *Phacelia submutica*, including 37 sites, are documented (CNHP 2009g, records a–hh; WestWater Engineering 2007, p. 26;, CNHP 2010, records ii–jj). Two of the occurrences were newly recorded in 2009 (CNHP 2010, records ii–jj). All occurrences are separated from one another by at least 0.6 mi (1 km) of unsuitable habitat or 1.2 mi (2 km) of suitable habitat (CNHP 2007, p, 1). Six of the 25 occurrences are considered historical records, and three additional occurrences have historical sites included with occupied habitat data. Historical occurrences or sites have either not been revisited for at least 20 years, or they were revisited but no plants were found within the last 20 years. Historical records are included in the following table of occurrences and subsequent analyses of status. The highest total number of *P. submutica* plants that have ever been counted at the 25 occurrences is 42,926 (see Table 3 below). The lowest total count was 84 plants (CNHP 2009g, records a–hh; WestWater Engineering 2007, pp. 17, 26; CNHP 2010, records ii, jj).

*Phacelia submutica* is classified by the CNHP as a G2 and S2 species, which means it is imperiled across its entire range and within the State of Colorado (CNHP 2007, p. 1). CNHP ranks the quality of each occurrence on a scale of A to E, with A meaning abundant and viable, and E meaning extant, but no ranking information is available. There is also an H rank for historical records. Ranks are based on the viability and number of plants, the amount of anthropogenic (human) disturbance, and the amount of weed cover and intact habitat (CNHP 2007, p. 1). No *P. submutica* occurrences are ranked A by CNHP. Eleven percent are ranked B, 33 percent have a C rank, 19 percent have a D rank, and 1 percent has an E rank. The H rank is assigned to 38 percent of the records (see Table 3 below; CNHP 2009g, records a–hh; CNHP 2010, records ii–jj).

No occurrences of *Phacelia submutica* have been found beyond the described habitat and range, including the two new occurrences recorded in 2009 (CNHP 2010, records ii, jj). Surveys for *P. submutica* have been conducted outward from DeBeque as far as the exposed soil members extend within the geologic formation (Burt and Spackman 1995, p. 14). CNHP botanists also conducted surveys for the species as part of the Garfield County Survey of Critical Biological Resources without finding *P. submutica* in known locations or in any new areas (Lyon *et al.* 2001, pp. 7, 11). CNHP identified potential habitat beyond the known range of the species using modeling techniques (Decker *et al.* 2005, pp. 9, 13, 18). This new potential habitat has not yet been verified in the field because *P. submutica* plants have not been present to confirm that it is occupied habitat.

TABLE 3. OCCUPIED AND SUITABLE HABITAT FOR *Phacelia submutica* (CNHP 2009G, RECORDS A–HH, OBSERVATION DATES 1982 TO 2008; WESTWATER ENGINEERING 2007, PP. 16, 17, 19, 27, PVT INDICATES PRIVATE OWNERSHIP)

| Occurrence | Sites | Site Ranks | High Counts | Low Counts | Occupied | | Suitable | | Land Ownership | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ac | ha | ac | ha | | |
| A—Pyramid Ridge | a-b | B,H | 1,500 | 4 | 12 | 4.8 | 48 | 19.4 | BLM | |
| B—Pyramid Rock | c | C | 2,055 | 31 | 20 | 8 | 160 | 64.7 | BLM | |
| C—Ashmead Draw | d-e | D,C | 215 | 0 | 2 | 0.8 | 14 | 5.6 | BLM | PVT |
| D—Logan Wash* | f-h | H,H,H | 5,817 | 0 | 5 | 2 | 46 | 18.6 | BLM | PVT |
| E—Coon hollow 1 | i-l | C,H,D,H | 10,092 | 10 | 4 | 1.6 | 63 | 25 | BLM | |
| F—Dry Fork | m-n | C,E | 400 | 34 | 3 | 1.2 | 19 | 7.6 | BLM | PVT |
| G—Mount Low | o-p | H,C | 10,000 | 0 | 1 | 0.4 | 16 | 6.5 | BLM | PVT |
| H—Horsethief Mountain | q-t | B,C,C,C | 7,500 | 4 | 13 | 5 | 67 | 27 | BLM USFS | |
| I—Sulphur Gulch 1* | u-v | H,H | 50 | 0 | 2 | 0.8 | 4 | 1.6 | BLM | |
| J—DeBeque West* | w | C | 500 | 0 | 1 | 0.4 | 8 | 3 | BLM | |
| K—Baugh Reservoir* | x | H | 1,000 | 0 | 1 | 0.4 | 6 | 2.4 | BLM | PVT |
| L—Coon Hollow 2* | y | H | 150 | 0 | 1 | 0.4 | 2 | 0.8 | BLM | |
| M—Sulphur Gulch 2* | z | H | 10 | 0 | 1 | 0.4 | 2 | 0.8 | BLM | |
| N—DeBeque South | aa | D | 17 | 0 | 1 | 0.4 | 4 | 1.6 | BLM | |
| O—Moffat Gulch | bb | D | 20 | 0 | 1 | 0.4 | 2 | 0.8 | BLM | |
| P—Horsethief Creek | cc | D | 10 | 0 | 1 | 0.4 | 2 | 0.8 | BLM | |
| Q—Jerry Gulch | dd | C | 250 | 0 | 1 | 0.4 | 3 | 1.2 | | PVT |
| R—Sulphur Gulch 3 | ee | D | 25 | 0 | 1 | 0.4 | 8 | 3 | BLM | |
| S—DeBeque East | ff | D | 20 | 0 | 1 | 0.4 | 24 | 9.7 | BLM | |
| T—Roan Creek | gg | C | 195 | 0 | 1 | 0.4 | 6 | 2.4 | | PVT |
| U—Mount Logan | hh | C | 30 | 0 | 1 | 0.4 | 2 | 0.8 | BLM | |
| V—Housetop Mtn., Atwell Gulch + | ii | B | 1,000 | 0 | 28 | 11.3 | 28 | 11.3 | BLM USFS | |
| W—Plateau Creek State Wildlife Area + | jj | B | 1,700 | 1 | 1 | 0.4 | 2.5 | 1 | State | |
| X—Little Anderson Gulch | none | none | 370 | 0 | 1 | 0.4 | 1 | 0.4 | | PVT |
| TOTALS | 37 | | 42, 926 | 84 | 104 | 42 | 538 | 216 | | |

+ indicates 2009 data (CNHP 2010, records ii-jj)

* indicates historical records

Summary of Factors Affecting *Phacelia submutica*

*A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range*

*Phacelia submutica* is threatened with destruction and modification of its seed bank and habitat due to ground disturbance from natural gas exploration, production and pipelines, other energy development, expansion of roads and utilities, the Westwide Energy Corridor, increased access to the habitat by off-road vehicles (ORVs), soil compaction by cattle, and proposed water reservoir projects. All known occurrences are in the midst of the third largest natural gas producing area in Colorado (Colorado Oil and Gas Conservation Commission (COGCC 2008, p. 1)).

About 78 percent of the occupied habitat for the species and 67 percent of the entire range of *Phacelia submutica* are on BLM lands currently leased for oil and gas drilling (Ewing 2009, map). An additional 8 ac (3 ha) of occupied *P. submutica* habitat within about 65 ac (26 ha) of suitable habitat may be opened to natural gas development by BLM pending development of a new Resource Management Plan for the Grand Junction Field Office (Ewing 2008a, pers. comm.; BLM 2005b, p. 5). About 3 percent of occupied habitat is on private land owned by energy companies (Burt and Spackman 1995, p. 25; CNHP 2009g, records f–g). Although the sale of oil and gas leases by BLM does not directly impact rare plant habitat, it indicates the intention to continue and increase the level of development in an area that covers a large portion of the range of *P. submutica*. Likewise, COGCC issues permits to drill that indicate imminent development at specific sites on private and Federal lands (COGCC 2009b, pp. 1–3). Ten new drilling permits have been issued, and 178 natural gas wells exist within the 86,000-ac (34,800-ha) range of *P. submutica;* 60 of the gas wells are located within the same 640-ac (259-ha) section as 18 occurrences of occupied *P. submutica* habitat (Ewing 2009, map).

The ongoing threats to habitat associated with oil and gas development include well pad and road construction; installation of pipelines; and construction of associated buildings, holding tanks, and other facilities. All of these actions would destroy the seed bank of *Phacelia submutica* where they occur on occupied habitat for the species, and modify suitable habitat so that the plants cannot grow there, making it likely that the species is in danger of extinction.

The Energy Policy Act of 2005 (42 U.S.C. 15801 *et seq.*)) directed the Secretaries of Agriculture, Commerce, Defense, Energy, and Interior to designate energy transport corridors for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities on Federal lands. A portion of the designated Westwide Energy Corridor crosses 16,326 ac (6,621 ha) of BLM land within the range of *Phacelia submutica*. Nine of the species' 25 occurrences are located within this energy corridor, including 8 ac (3.2 ha), or about 8 percent, of occupied habitat and 290 ac (117 ha), or 54 percent, of suitable habitat (Westwide 2009, map; Ewing 2009, map). Pipeline and transmission line routes along the energy corridor are not yet identified. It is not feasible that all suitable habitat for *P. submutica* will be avoided as the corridor continues to be developed, within the next 10 to 20 years.

The energy development activities described above are occurring in close proximity to *Phacelia submutica* locations (WestWater Engineering 2004, p. 11). Oil and gas pipelines, well pads, and access roads are present on six *P. submutica* sites within occurrences A, D, E, and G (see Table 3 above; CNHP 2009g, records a, c, i, j, m, q). Frequently travelled roads bisect and cross the edges of occurrences A, D, and E. It is likely that some of the seed bank was displaced or destroyed to build the roads and pipelines. On Federal lands, direct impacts to known plant locations are mostly being avoided by careful placement of pipelines, well pads, and associated facilities, due to the candidate status of the species. Our concern is primarily for the cumulative impacts of energy development. When all of the oil and gas wells are connected to the system of local pipelines, roads, and pumping stations, in combination with cross-country transmission lines and pipelines, more ROWs will be necessary. Under these conditions, it is difficult to protect occupied or potential habitat for *P. submutica*. Blading of the top few inches of soil during well pad and road construction, installation of underground pipelines, and construction of associated buildings, holding tanks, and other facilities alters the unique soil structure and may disturb, damage, or remove seed banks that are critical to the survival of this species. Any soil disturbance on occupied habitat is likely to have a deleterious effect on the *in situ* seed bank and, therefore, on successful plant recruitment and survival of the species in subsequent years (Meyer *et al.* 2005, p. 22).

Energy development increases access to previously roadless areas, which encourages ORV traffic to drive on nearby slopes that support plant habitat. ORV use occurs on BLM lands in the general vicinity of *Phacelia submutica* and is recorded within occupied habitat at three sites within occurrences A and I (seeSee Table 3 above) (CNHP 2009g, records a, c, w; Mayo 2008d, photo). The vehicles stray from designated roads to climb hills for recreational purposes. At a site in occurrence A, the tracks from ORVs have disturbed most of the habitat (Mayo 2008d, photo). Substantial surface disturbance due to churning by ORV tires can alter the unique soil structure required by this species, with the same negative effects on the seed bank as described above.

Cattle trampling within occupied habitat is documented at 5 sites within occurrences B, F, and G (see Table 3 above; CNHP 2009g, records d, o, q, r, t). The Ashmead Draw occurrence (C) is severely trampled, with a poor viability (D) rank (CNHP 2009g, records d–e). Substantial surface disturbance, due to heavy trampling by cattle, increases soil compaction and erosion and alters the microhabitat, such as the cracked soil surface, the species requires.

Livestock-related impacts have resulted in the loss of similar plant species in other locations. A rare ephemeral annual desert plant in Idaho (comparable to *P. submutica*), with highly specific soil requirements and that depends on its seed bank, went from thousands of plants in 1995 to no new plants after intensive trampling by cattle when the soil was wet and seeds were germinating (Meyer *et al.* 2005, p. 22). The population has not recovered, which is believed to be due to damage and burying of seeds that prevented them from germinating. After 11 years of monitoring, researchers have clear evidence that "any form of soil disturbance is likely to have a deleterious effect on the *in situ* seed bank," and that all potential habitat for such a species (like *P. submutica*) should be managed as if it were currently occupied (Meyer *et al.* 2005, p. 22).

Two water reservoir projects known as Roan Creek and Sulphur Gulch have been proposed in the past within occupied habitat of *Phacelia submutica*. The potential reservoir locations would have impacted two sites within the Sulphur Gulch 1 occurrence (I, u-v in Table 3 above) and three sites within the Logan Wash occurrence (D, f-g-h in Table 3 above). Recently, both projects were again evaluated as potential

reservoirs to provide a water supply for instream flows for endangered fishes in the Colorado River (Friedel 2004, p. 1; Grand River Consulting Corporation 2009, p. 3). After evaluation of numerous alternatives, the Sulphur Gulch and Roan Creek projects are no longer being considered as an alternative for a water supply for endangered fishes (Bray and Drager 2008, pers. comm.; Grand River Consulting Corporation 2009, pp. 1–5). The Roan Creek reservoir project was also proposed by Chevron Shale Oil Company and Getty Oil Exploration Company to be used for development of oil shale extraction (Chevron-Getty 2002, pp. 2, 8). These potential reservoirs could permanently destroy plants and their habitat by project construction and inundation. Since the proposals have been withdrawn, these threats are not imminent; however, the sites have been identified as potential reservoir locations that could be developed within 20 years if warranted by increased demands for water. Increased demands are likely, depending on the oil shale market, urban development in Colorado, and less precipitation due to climate change.

TABLE 4. THREATS TO *Phacelia submutica* HABITAT BY SOURCE AND OCCURRENCE. OCCURRENCES

A to X refer to Table 3 (CNHP 2009g, records a–hh, observation dates 1982 to 2008; CNHP 2010, records ii, jj; WestWater Engineering 2007, pp. 16, 17, 19, 27; Ewing 2009, map).

| Occurrence | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Energy | X | | X | X | X | X | X | | | | | | | | | | | | | | X | | | |
| WestWide Corridor | X | X | | | X | X | | | X | X | | | X | | | | | X | | | | | | |
| Trampling | X | X | | X | X | X | X | | | | | | | | | X | | | | | | | | |
| ORV | X | | | | X | | | X | X | | | | | | | | | | | | | | | |
| Roads | X | | X | X | X | | | | X | | | | | | | | | | | | | | | |
| Reservoirs | | | X | | | | | X | | | | | | | | | | | | | | | | |
| No Data | | | | | | | | | | | X | X | | X | X | | X | | X | X | | X | X | X |

We consider destruction, modification and fragmentation of habitat to be moderate threats to *Phacelia submutica* throughout its range, due to ongoing development of oil and gas with associated pipelines, construction of new road and utility ROWs, road widening, and construction of access roads. *P. submutica* habitat is also threatened by soil modification resulting from livestock trampling and ORV tracking. These threats are of moderate magnitude because they are currently affecting at least 14 of the 25 occurrences, and because the plants and their seed banks occur in small isolated patches that are easily destroyed by small-scale disturbances. If these threats increase in frequency or severity, the species is likely to become endangered within the foreseeable future.

*B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes*

Overutilization for commercial, recreational, scientific, or educational purposes is not known to be a threat to *Phacelia submutica*. Therefore, we are not addressing this factor in this proposed rule.

*C. Disease or Predation*

Disease and herbivory are not known to affect *Phacelia submutica*. Therefore, we are not addressing this factor in this proposed rule.

*D. The Inadequacy of Existing Regulatory Mechanisms*

Local Laws and Regulations

Approximately 3 percent of *Phacelia submutica* occupied habitat occurs on private lands and another 12 percent on a combination of private and BLM lands (see Table 3 above). We are not aware of any city or county ordinances or zoning that provide for protection or conservation of *P. submutica* or its habitat on private lands.

State Laws and Regulations

No State regulations protect rare plant species in Colorado. The CNAP has entered into agreements with BLM to help protect the Pyramid Rock occurrence of *Phacelia submutica,* by managing it as a Designated State Natural Area that is monitored by volunteer stewards. This management agreement can be terminated with 90–day written notice by either party. Therefore, we have concluded that the Designated Natural Area designation alone does not constitute an adequate regulatory mechanism to conserve *P. submutica*.

Federal Laws and Regulations

Section 365 of the Energy Policy Act of 2005 (42 U.S.C. 15801 *et seq.*) establishes a Federal Permit Streamlining Pilot Project with the intent to improve the efficiency of processing oil and gas use authorizations on Federal lands. The two BLM pilot project offices for Colorado are in the Glenwood Springs and Grand Junction Field Offices, both of which manage *Phacelia submutica* habitat. Faster processing of permits to drill increases the likelihood of ground disturbance on *P. submutica* habitat because the plants are ephemeral annuals that can only be found for about 6 weeks during favorable years, and not all suitable habitat has been surveyed. When the plants are not present or previously documented, avoidance of the seed bank depends on field assessments of suitable habitat. Suitable habitat covers more area than the "sweet spots" where the plants grow, and suitable habitat has no regulatory protection (BLM 2008d, p. 36). As a result, seed banks and suitable habitat are increasingly likely to be disturbed or removed during the process of approving locations for new energy development projects.

Candidate species are managed by BLM as sensitive species; BLM has a policy for management of sensitive species that recommends avoidance and minimization of threats to plants and habitat, as well as habitat conservation assessments and conservation

agreements (BLM 2008d, pp. 8, 36–38). No assessments or agreements have been formalized for *Phacelia submutica*. As opposed to listed species, biological assessments or consultation with the Service are not required for BLM-designated sensitive species during the authorization process for oil and gas use on Federal lands (BLM 2008d, p. 33).

*Phacelia submutica* is currently on the sensitive species list for the USFS, Region 2, which includes all USFS lands in Colorado. The USFS manages less than 10 percent of the suitable habitat for *P. submutica* (Occurrence H, CNHP 2009g, records q, r, s, t). A proposed Lower Battlement Mesa Research Natural Area to protect the species on the White River National Forest has not been formally established (Ladyman 2003, pp. 8, 23; Proctor 2010, pers. comm). If established, protection would include restrictions on ORV use, livestock grazing, and resource extraction. Trampling of the habitat of *P. submutica* by cattle has been observed at three of the four occupied sites on USFS land (CNHP 2009g, records q, r, t).

The BLM policy of avoidance and minimization of threats to plants and habitatmay not adequately protect *Phacelia submutica* because the plants can only be found for a few weeks during years when growing conditions have been favorable (Burt and Spackman 1995, p. 8). Thus, well-intentioned avoidance and minimization measures may not be implemented if no plants are seen even in areas where subsequent timely surveys would likely demonstrate a persistent seed bank. Because available inventories are not all recent, and drilling permits are expedited, plant occurrences, especially as seed banks, may be overlooked in the permitting process. The BLM attempts to avoid disturbances that would adversely affect sensitive species' viability or trend the species toward Federal listing. This includes avoidance of suitable habitat if it can be identified as such (BLM 2008d, pp. 8, 36; BLM 2008e, pp. 5–7). In spite of such efforts, pipeline ROWs exist within 20 ft (6 m) and 100 ft (30 m) of known *P. submutica* occurrences (DeYoung 2009f, pers. comm.). We recommend buffers of 656 ft (200m) between the edge of disturbance and suitable plant habitat to protect the plants from destruction by vehicles that stray outside of the project area, runoff, erosion, dust deposition, or other indirect effects such as destruction of pollinator nesting habitat.

Five occurrences of *Phacelia submutica* are located on BLM land in an area called South Shale Ridge that covers more than a third of the known range for this species (BLM 2005b, p. 5). Part of South Shale Ridge was recommended as an ACEC for protection of *P. submutica* in 1995, but was not designated as an ACEC (Burt and Spackman 1995, p. 36) in that area. Portions of South Shale Ridge that were withheld from leasing in the past were leased for oil and gas development in November 2005 (BLM 2005b, p. 5). These leases were subsequently deferred pending development of a new Resource Management Plan for the Grand Junction Field Office (Ewing 2008c, pers. comm.; BLM 2005b, p. 5). If the BLM sells these leases, then 8 ac (3 ha) of occupied *P. submutica* habitat within about 65 ac (26 ha) of suitable habitat will be newly opened to natural gas development in a previously undeveloped area (Ewing 2009, map).

Pyramid Rock is adjacent to South Shale Ridge, and the Pyramid Rock occurrence of *Phacelia submutica* is within the BLM Pyramid Rock ACEC, including an estimated 31 to 2,055 plants (depending on the year) within 20 occupied ac (8 ha) on 160 ac (64.7 ha) of suitable habitat (CNHP 2009g, record c; Wenger 2009, pp. 1-11). The ACEC designation carries no protection in and of itself (BLM 2006, pp. 2–65). Stipulations of no new surface occupancy or ground disturbance apply to this ACEC for protection of candidate, proposed, and listed plant species. However, due to the possibility of exceptions being granted, we cannot predict with any degree of certainty what stipulations will actually be applied to the plant or its habitat that ensure the long term conservation of the species. BLM installed cable fence in 2007 to deter ORVs from crossing habitat for a federally threatened cactus *(Sclerocactus glaucus*, Colorado hookless cactus) and *P. submutica*. The BLM excluded this ACEC from a South Shale Ridge lease sale in 2005 (CNHP 2005, p. 5; BLM 2005b, p. 5). *P. submutica* plants have not been directly impacted since the fence was installed, and existing pipeline and roads remain outside the fence. The ACEC has provided adequate protection thus far for about 5 percent of the known occupied habitat for the species (CNHP 2009g, record c).

No adequate regulatory mechanisms currently exist to protect *Phacelia submutica*. We consider the inadequacy of existing regulatory mechanisms to be a significant and ongoing threat to *P. submutica* because no formal plans or agreements beyond one ACEC are in place to protect this plant. Sensitive species designations provide policies to be carried out with the resources available, but they do not provide regulations to protect this species from losing habitat and seed banks to energy development projects, cattle trampling, or ORV traffic over the next 10 to 20 years. Therefore, this plant is likely to become endangered within the foreseeable future.

*E. Other Natural or Manmade Factors Affecting Its Continued Existence*

Climate change is likely to affect *Phacelia submutica* because seed germination, seed dormancy, and persistence of the seed bank are all directly dependent on precipitation and temperature patterns (Levine *et al.* 2008, p. 805). As described above, climate modeling is not currently to the level that we can predict the amount of temperature and precipitation change within the limited range of *P. submutica*. Therefore, this discussion generally addresses what could happen under the current climate predictions. However, we need further refinement of the current predictions to draw more reliable conclusions concerning the effects of climate change on the species. Localized projections suggest the Southwest, including Colorado, may experience the greatest temperature increase of any area in the lower 48 States (IPCC 2007, p. 30). It is very likely that hot extremes, heat waves, and heavy precipitation will increase in frequency (IPCC 2007, p. 46). A 10- to 30-percent decrease in runoff in mid-latitude western North America is projected by the year 2050 based on an ensemble of 12 climate models (Milly *et al.* 2005, p. 1).

Future changes in the timing of the first major spring rains each year, and temperatures associated with the first major spring rains each year may more strongly affect germination and persistence of ephemeral annual plants than changes in season-long rainfall (barring severe droughts) (Levine *et al.* 2008, p. 805). Increasing environmental variance might decrease extinction risk for rare desert ephemeral plants, because these plants typically rely on extremely good years to restock the persistent seed bank while extremely bad years have little impact (Meyer *et al.* 2006, p. 901). However, extremely long droughts resulting from climate change, with no good years for replenishing the seed bank, would likely cause *Phacelia submutica* to become endangered. A persistent seed bank enables the species to survive drought. However, because the soil can remain bare of *P. submutica* plants for several years, it is difficult to identify and protect the seemingly unoccupied habitat that occurs in small, isolated patches that are easily

destroyed by small-scale disturbances, and can be overlooked during habitat assessments. The longer the species remains dormant, the less likely it is that we will know if an area is occupied, reducing our ability to avoid impacts to the species and protect it from becoming endangered.

While current climate change predictions are not reliable enough at the local level for us to draw conclusions about its effects on *P. submutica*, it is likely that there will be drying trends in the future and the seeds will remain dormant for long periods. This would make it increasingly difficult to detect occupied habitat and avoid destruction of habitat and more likely that the species will become endangered.

**Proposed Determination**

We have carefully assessed the best scientific and commercial information available regarding past, present, and future threats to *Ipomopsis polyantha, Penstemon debilis*, and *Phacelia submutica*. Section 3(6) of the Act defines an endangered species as "any species which is in danger of extinction throughout all or a significant portion of its range," and section 3(20) defines a threatened species as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Under the Act and our implementing regulations, a species may warrant listing if it is endangered or threatened throughout all or a significant portion of its range. Each of the three endemic plant species proposed for listing in this rule is highly restricted in its range and the threats occur throughout its range. Therefore, we assessed the status of each species throughout its entire range. In each case, the threats to the survival of these species occur throughout the species' range and are not restricted to any particular significant portion of that range. Accordingly, our assessment and proposed determination applies to each species throughout its entire range. Our proposed determination for each species is presented below.

*Ipomopsis polyantha*

The species' highly restricted soil requirements and geographic range make it particularly susceptible to extinction at any time due to commercial, municipal, and residential development; associated road and utility improvements and maintenance; heavy livestock use; inadequacy of existing regulatory mechanisms; fragmented habitat; and prolonged drought (see Factors A, C, D, and E).

The main occurrence of *Ipomopsis polyantha* includes 3 mi (4.8 km) of highway ROW and the private properties that extend 0.25 to 1.2 mi (0.4 to 1.9 km) on either side of the highway. A smaller occurrence of about 23 ac (9 ha) includes highway ROWs, private land, and 20 ac (8 ha) of BLM land. The loss or fragmentation of either occurrence would represent a substantial loss to the viability of the species. Both known occurrences face ongoing, new, and potential threats, including commercial, residential and municipal development; associated road and utility improvements and maintenance; heavy livestock use; inadequacy of existing regulatory mechanisms; fragmented habitat; and prolonged drought conditions. The level of threat for *I. polyantha* is high due to the direct overlap of rapid land development on 91 percent of the known suitable habitat. The County and Town Community Plan includes high to low density development over the species' entire range. Private landowners are considering commercial and residential development that would include a parcel at the intersection of US 160 and US 84 that currently contains the highest density of plants.

Planned development will transform the land adjacent to US 84, at the center of the species' distribution, from low-density residential/agricultural land use to commercial, townhome, and higher density residential use. The cumulative impact of current and planned development could result in extensive disturbance and destruction of the remaining habitat within the next 5 to 10 years, putting the species in danger of extinction.

On the basis of the best available information, we propose to list *Ipomopsis polyantha* as an endangered species. Endangered status reflects the vulnerability of this species to threat factors negatively affecting it and its limited and restricted habitat. *I. polyantha* is in danger of extinction throughout all of its range.

*Penstemon debilis*

Extremely low numbers and a highly restricted geographic range make *Penstemon debilis* particularly susceptible to becoming endangered in the foreseeable future. Threats to the species and its habitat include energy development, road maintenance, inadequacy of existing regulatory mechanisms, and stochastic events (see Factors A, D, and E).

The total estimated number of plants in the 4 viable occurrences is about 4,000 individuals. It is likely that additional unknown occurrences exist (Spackman-Panjabi 2008, pers. comm.). Three of the 4 viable occurrences are on lands owned by an energy development company. The energy development company has pledged to manage development to minimize impacts to the plants; however, the agreement is not legally binding. The fourth occurrence, on BLM land, is subject to disturbance as a result of the ongoing CERCLA project and road maintenance. The loss of any one occurrence would represent a substantial diminution in the viability of the species. All four known occurrences face ongoing or potential threats, including oil and gas development, oil shale mining and associated impacts, road maintenance, inadequacy of existing regulatory mechanisms, and potential stochastic events. The level of threats this poses for *Penstemon debilis* is considered high due to the direct overlap of energy resources and all known species occurrences. The BLM RFD scenario predicts extensive gas development within or near the species' range within the foreseeable future (BLM 2005b, pp. 4–11). The BLM RFD, in conjunction with the stated intention of the owner of the land containing the majority of the plants to develop natural gas in the vicinity of the plant occurrences, could result in disturbance to the remaining occurrences within the next 20 years, resulting in the species being likely to become endangered.

The primary factors threatening *Penstemon debilis* are: the present or threatened destruction, modification or curtailment of *P. debilis* habitat and range; and the inadequacy of existing regulatory mechanisms. These factors pose immediate threats to the species because they have been ongoing. However, these threats are moderate in severity because actual impacts to individual plants and occupied habitat as a result have been, and are expected to be limited, and the species is able to slowly recover and recolonize after disturbance. Therefore, on the basis of the best available information, we propose to list *P. debilis* as a threatened species. Threatened status reflects the vulnerability of this species to factors that negatively affect the species and its limited and restricted habitat. *Penstemon debilis* is likely to become endangered in the foreseeable future if present threats increase.

*Phacelia submutica*

The current range of *Phacelia submutica* is subject to human-caused modifications from natural gas exploration and production with associated expansion of pipelines, roads, and utilities; development within

the Westwide Energy Corridor; increased access to the habitat by ORVs; soil and seed disturbance by cattle (Factor A); and inadequate regulations (Factor D). The species' small geographic range, highly specific soil and germination requirements, limited seed dispersal, fragmented habitat, prolonged seed dormancy, and potential seed bank depletion by prolonged drought (Factor E) make *P. submutica* vulnerable to these threats to an extent that the species may become endangered within the foreseeable future (10 to 20 years), depending primarily on the rate of future energy development.

*Phacelia submutica* occurs on about 104 ac (42 ha) of known occupied habitat (see Table 3 above) (CNHP 2009g, records a–hh; CNHP 2010, records ii–jj; WestWater Engineering 2007, pp. 16, 17, 19, 27). All known occurrences are in the midst of the third largest natural gas-producing area in Colorado (COGCC 2008, p. 1). Based on the rate of current and proposed energy development over the entire range of the species (COGCC 2008 p. 1; COGCC 2009 p. 1; Ewing 2009, map), we estimate that at least 50 percent of the known habitat has the potential to be modified or destroyed within 10 to 20 years, thus making it likely that the species will become endangered within that time.

The plants and their seed banks occur in small, isolated patches that are easily destroyed by small-scale disturbances. In the past 20 years, we have found three new occurrences, but no expansion of the known range of the species (CNHPg 2009, a–hh; CNHP 2010, records ii–jj; WestWater Engineering 2007, pp. 16, 17, 19, 27). Numbers of flowering plants fluctuate, but they do not disperse seeds beyond the existing patches of unique soil that are separated from one another by a few yards or several miles (Ewing 2008b, map). Any loss of occupied habitat will be a permanent loss for the foreseeable future, and cause a decline in the status of the species.

On the basis of the best available information, we propose to list *Phacelia submutica* as a threatened species. Threatened status reflects the vulnerability of this species to factors that negatively affect the species and its limited and restricted habitat. While not in immediate danger of extinction, *P. submutica* has the strong potential to become an endangered species in the foreseeable future if habitat is lost and existing seed banks cannot expand to maintain the species' range.

**Available Conservation Measures**

Conservation tools provided by the Service's Candidate Conservation Program are available for these three species. Our Candidate Conservation Program assesses species and develops and facilitates the use of voluntary conservation tools for collaborative conservation of candidate and other species-at-risk and their habitats, so that they do not need the protection of the Act. Candidate Conservation Agreements (CCAs) could provide adequate regulatory mechanisms for these three species if such agreements could be finalized by the time of our final listing determination. The CCAs are voluntary conservation agreements between the Service and one or more public or private parties that identify threats to candidate species, plan actions to address threats and conserve the species, and implement conservation measures.

Because the three species are narrowly distributed on lands owned by a relatively small number of landowners, we believe that the development of CCAs with the BLM and with private entities and State and local agencies could be effective in addressing the threats. We are open to working with any landowners on developing such plans to assure the conservation of these species. Any such agreement finalized before our listing decision will be evaluated according to our Policy on Evaluating Conservation Efforts When Making Listing Decisions (68 FR 15100, March 28, 2003) to determine if the agreement constitutes an adequate regulatory mechanism.

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

The primary purpose of the Act is the conservation of endangered and threatened species and the ecosystems upon which they depend. The ultimate goal of such conservation efforts is the recovery of these listed species, so that they no longer need the protective measures of the Act. Subsection 4(f) of the Act requires the Service to develop and implement recovery plans for the conservation of endangered and threatened species. The recovery planning process involves the identification of actions that are necessary to halt or reverse the species' decline by addressing the threats to its survival and recovery. The goal of this process is to restore listed species to a point where they are secure, self-sustaining, and functioning components of their ecosystems.

Recovery planning includes the development of a recovery outline shortly after a species is listed, preparation of a draft and final recovery plan, and revisions to the plan as significant new information becomes available. The recovery outline guides the immediate implementation of urgent recovery actions and describes the process to be used to develop a recovery plan. The recovery plan identifies site-specific management actions that will achieve recovery of the species, measurable criteria that determine when a species may be downlisted or delisted, and methods for monitoring recovery progress. Recovery plans also establish a framework for agencies to coordinate their recovery efforts and provide estimates of the cost of implementing recovery tasks. Recovery teams (comprised of species experts, Federal and State agencies, non-government organizations, and stakeholders) are often established to develop recovery plans. When completed, the recovery outline, draft recovery plan, and the final recovery plan will be available on our website (*http://www.fws.gov/endangered*), or from our Western Colorado Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Implementation of recovery actions generally requires the participation of a broad range of partners, including other Federal agencies, States, non-governmental organizations, businesses, and private landowners. Examples of recovery actions include habitat restoration (e.g., restoration of native vegetation), research, captive propagation and reintroduction, and outreach and education. The recovery of many listed species cannot be accomplished solely on Federal lands because their range may occur primarily or solely on non-Federal lands. Achieving recovery of these species requires cooperative conservation efforts on private and public lands.

If these three plant species are listed, funding for recovery actions will be available from a variety of sources, including Federal budgets, State programs, and cost share grants for non-Federal landowners, the academic

community, and nongovernmental organizations. In addition, under section 6 of the Act, the State of Colorado would be eligible for Federal funds to implement management actions that promote the protection and recovery of *Ipomopsis polyantha, Penstemon debilis*, and *Phacelia submutica*. Information on our grant programs that are available to aid species recovery can be found at: *http://www.fws.gov/grants*.

Although *Ipomopsis polyantha, Penstemon debilis*, and *Phacelia submutica* are only proposed for listing under the Act at this time, please let us know if you are interested in participating in recovery efforts for these species. Additionally, we invite you to submit any new information on these species whenever it becomes available and any information you may have for recovery planning purposes to the person listed under **FOR FURTHER INFORMATION CONTACT.**

Section 7(a) of the Act requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any action that is likely to jeopardize the continued existence of a species proposed for listing or result in destruction or adverse modification of proposed critical habitat. If a species is listed, section 7(a)(2) of the Act requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of the species or destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service.

Federal agency actions within the habitat of these species that may require conference or consultation or both, as described in the preceding paragraph, include the following for each species:

*Ipomopsis polyantha*—Permitting of grazing and authorization of utility or access ROWs by the BLM. Other types of actions that may require consultation include provision of Federal funds to State and private entities through Federal programs, such as Colorado Department of Transportation highway construction or improvement projects, Housing and Urban Development Tax Credit Assistance Program, the Service's Landowner Incentive Program, and various grants administered by the U.S. Department of Agriculture and Natural Resources Conservation Service (USDA-NRCS)

*Penstemon debilis*—Oil and gas leasing, exploration, and permitting; oil shale research; authorization of transmission towers, pipelines and power lines; reclamation actions; travel management; and authorization of road maintenance by the BLM. Other types of actions that may require consultation include provision of Federal funds to State and private entities through Federal programs, such as the Service's Landowner Incentive Program, State Wildlife Grant Program, and Federal Aid in Wildlife Restoration program, as well as the various grants administered by USDA-NRCS.

*Phacelia submutica*—Oil and gas leasing, exploration, permitting, development, pipelines and transmission lines; permitting of grazing; authorization of travel routes; road construction or maintenance by the BLM or the USFS; and authorization of pipeline and power line routes within the Westwide Energy Corridor. Other types of actions that may require consultation include water reservoir construction and provision of Federal funds to State and private entities through Federal programs, such as the Service's Landowner Incentive Program, and various grants administered by USDA-NRCS.

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to threatened and endangered plants. All prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.61 and 50 CFR 17.71, apply. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to import or export, transport in interstate or foreign commerce in the course of a commercial activity, sell or offer for sale in interstate or foreign commerce, or remove and reduce the species to possession from areas under Federal jurisdiction. In addition, for plants listed as endangered, the Act prohibits the malicious damage or destruction on areas under Federal jurisdiction and the removal, cutting, digging up, damaging, or destroying of such plants in knowing violation of any State law or regulation, including State criminal trespass law. Certain exceptions to the prohibitions apply to agents of the Service and State conservation agencies. Colorado's Endangered Species law does not currently cover plants and does not provide protection to *Ipomopsis polyantha, Penstemon debilis*, and *Phacelia submutica*. Therefore, listing under the Act will offer additional protection to these species.

The Act, 50 CFR 17.62, and 50 CFR 17.72 also provide for the issuance of permits to carry out otherwise prohibited activities involving endangered and threatened plants under certain circumstances. Such permits are available for scientific purposes and to enhance the propagation or survival of the species. We anticipate that the only permits that would be sought or issued for *Ipomopsis polyantha, Penstemon debilis*, and *Phacelia submutica* would be in association with research and recovery efforts, as these species are not common in cultivation or in the wild. Requests for copies of the regulations regarding listed species and inquiries about prohibitions and permits may be addressed to U.S. Fish and Wildlife Service, Ecological Services, P.O. Box 25486 - DFC, Denver, CO 80225-0486 (telephone 303-236-4256; facsimile 303-236-0027).

## Critical Habitat

### *Background*

Critical habitat is defined in section 3(5)(A) of the Act as:

(i) The specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the Act, on which are found those physical or biological features

(I) essential to the conservation of the species and

(II) which may require special management considerations or protection; and

(ii) specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Conservation, as defined under section 3(3) of the Act, means to use and the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which the measures provided under the Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, and transplantation.

Critical habitat receives protection under section 7 of the Act through the prohibition against Federal agencies carrying out, funding, or authorizing the destruction or adverse modification of critical habitat. Section 7(a)(2) requires consultation on Federal actions that

may affect critical habitat. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Such designation does not allow the government or public to access private lands. Such designation does not require implementation of restoration, recovery, or enhancement measures by non-Federal landowners. Where a landowner seeks or requests Federal agency funding or authorization for an action that may affect a listed species or critical habitat, the consultation requirements of section 7(a)(2) of the Act would apply, but even in the event of a destruction or adverse modification finding, the Federal action agency's and the applicant's obligation is not to restore or recover the species, but to implement reasonable and prudent alternatives to avoid destruction or adverse modification of critical habitat.

For inclusion in a critical habitat designation, the habitat within the geographical area occupied by the species at the time it was listed must contain the physical and biological features essential to the conservation of the species, and be included only if those features may require special management considerations or protection. Critical habitat designations identify, to the extent known using the best scientific and commercial data available, habitat areas that provide essential life cycle needs of the species (areas on which are found the physical and biological features laid out in the appropriate quantity and spatial arrangement for the conservation of the species). Under the Act and regulations at 50 CFR 424.12, we can designate critical habitat in areas outside the geographical area occupied by the species at the time it is listed only when we determine that those areas are essential for the conservation of the species and that designation limited to those areas occupied at the time of listing would be inadequate to ensure the conservation of the species.

Section 4 of the Act requires that we designate critical habitat on the basis of the best scientific, commercial, and economic data available. Further, our Policy on Information Standards under the Act (published in the **Federal Register** on July 1, 1994 (59 FR 34271)), the Information Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106-554; H.R. 5658)), and our associated Information Quality Guidelines, provide criteria, establish procedures, and provide guidance to ensure that our decisions are based on the best scientific data available. They require our biologists, to the extent consistent with the Act and with the use of the best scientific data available, to use primary and original sources of information as the basis for recommendations to designate critical habitat.

When we determine which areas should be designated as critical habitat, our primary source of information is generally the information developed during the listing process for the species. Additional information sources may include the recovery plan for the species, articles in peer-reviewed journals, conservation plans developed by States and counties, scientific status surveys and studies, biological assessments, or other unpublished materials and expert opinion or personal knowledge.

Habitat is often dynamic, and species may move from one area to another over time. Furthermore, we recognize that critical habitat designated at a particular point in time may not include all of the habitat areas that we may later determine are necessary for the recovery of the species. For these reasons, a critical habitat designation does not signal that habitat outside the designated area is unimportant or may not be required for recovery of the species.

Areas that are important to the conservation of the species, but are outside the critical habitat designation, will continue to be subject to conservation actions we implement under section 7(a)(1) of the Act. Areas that support occurrences also are subject to the regulatory protections afforded by the section 7(a)(2) jeopardy standard, as determined on the basis of the best available scientific information at the time of the agency action. Federally funded or permitted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, habitat conservation plans, or other species conservation planning efforts if new information available at the time of these planning efforts calls for a different outcome.

*Prudency Determination*

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

There is no documentation that *Ipomopsis polyantha, Penstemon debilis*, or *Phacelia submutica* are threatened by collection or other intentional taking. In the absence of finding that the designation of critical habitat would increase threats to a species, if there are any benefits to a critical habitat designation, then a designation is prudent. The potential benefits include: (1) Triggering consultation under section 7 of the Act, in new areas for actions in which there may be a Federal nexus where it would not otherwise occur because, for example, it is or has become unoccupied or the occupancy is in question; (2) focusing conservation activities on the most essential features and areas; (3) providing educational benefits to State or county governments or private entities; and (4) preventing people from causing inadvertent harm to the species because they do not know it may be present.

The primary regulatory effect of critical habitat is the section 7(a)(2) requirement that Federal agencies refrain from taking any action that destroys or adversely affects critical habitat. At present, the only known extant individuals of *Ipomopsis polyantha* occur on private, town, county, and BLM lands, and on Federal highway ROWs. Most of the known individuals of *Penstemon debilis* occur on private land; however, approximately 18 percent of the individuals occur on Federal lands. Approximately 3 percent of known occupied habitat for *Phacelia submutica* occurs on private lands and another 12 percent on a combination of private and BLM lands, with the remaining 85 percent occurring on BLM and USFS lands. Lands that may be designated as critical habitat for these species in the future may be subject to Federal actions that trigger the section 7 consultation requirement. All projects taking place on Federal lands that may affect critical habitat would require consultation. Projects on private land would require consultation if they include a Federal action, such as the granting of Federal monies for conservation projects or the need for Federal permits for projects.

There also may be some educational or informational benefits to the designation of critical habitat. Educational benefits include the notification of landowners, land managers, and the general public of the importance of protecting the habitat of this species. In the case of *I. polyantha, P. debilis*, and *P. submutica*, these aspects of critical habitat designation would potentially benefit the conservation of these species. Therefore, because we have determined that the designation of critical habitat will not likely increase the degree of threat to these species and may provide some measure of benefit, we find that designation of critical habitat is prudent for *I. polyantha, P. debilis*, and *P. submutica*.

*Critical Habitat Determinability*

As stated above, section 4(a)(3) of the Act requires the designation of critical habitat concurrently with the species' listing "to the maximum extent prudent and determinable." Our regulations at 50 CFR 424.12(a)(2) state that critical habitat is not determinable when one or both of the following situations exist:

(i) Information sufficient to perform required analyses of the impacts of the designation is lacking, or

(ii) The biological needs of the species are not sufficiently well known to permit identification of an area as critical habitat.

When critical habitat is not determinable, the Act provides for an additional year to publish a critical habitat designation (16 U.S.C. 1533(b)(6)(C)(ii)).

In accordance with section 3(5)(A)(i) and 4(b)(1)(A) of the Act and the regulations at 50 CFR 424.12, in determining which areas occupied by the species at the time of listing to designate as critical habitat, we consider the physical and biological features essential to the conservation of the species which may require special management considerations or protection. These include, but are not limited to:

(1) Space for individual and population growth and for normal behavior;

(2) Food, water, air, light, minerals, or other nutritional or physiological requirements;

(3) Cover or shelter;

(4) Sites for breeding, reproduction, and rearing (or development) of offspring; and

(5) Habitats that are protected from disturbance or are representative of the historical geographical and ecological distributions of a species.

We are currently unable to identify the essential physical and biological features for *Ipomopsis polyantha, Penstemon debilis*, and *Phacelia submutica*, because information on the physical and biological features that are considered essential to the conservation of these species is not sufficiently known at this time. Explanations for each species follow:

*Ipomopsis polyantha*—As discussed in the "Species Information" section of this proposed rule, the historical range of the species is unknown, and access to potential habitat on private land is restricted. The role of disturbance in the species' spread and persistence is currently unknown. Our ability to translocate the species is limited at this time. Key features of the plant's life history, such as longevity, dispersal mechanisms, or vectors for pollination, are not entirely known. Much of the plant community where the remaining individuals of *I. polyantha* are found has been highly modified by the presence of grazing livestock and road maintenance activities. The poor viability of species' occurrences observed in recent years indicates that current conditions are not sufficient to meet the basic biological requirements of this species. Although we can surmise that habitat degradation from threats described under Factor A above has contributed to the decline of the species, we do not know specifically what essential physical or biological features of that habitat are currently lacking for *I. polyantha*. Because we are unable to identify the physical and biological features essential to the conservation of *I. polyantha*, we are unable to identify areas that contain these features.

*Penstemon debilis*—Although we know the specific elevation, soil and geology types to which this species is restricted, there is much more suitable habitat in Western Colorado than that known to be occupied by *P. debilis*. Further scientific studies are needed to determine the specific factors, unique to the occupied habitat, to better determine habitats suitable for designation as critical habitat.

*Phacelia submutica*—Specific components of occupied versus non-occupied sites and soils have not been analyzed for the Atwell Gulch and Shire members of the Wasatch Formation where the species occurs. Key features of the plant's life history, such as longevity of the seed bank, dispersal mechanisms, or vectors for pollination, are unknown. Pollinator requirements for habitat or alternate hosts have not been identified. Because we are unable to identify the physical and biological features essential to the conservation of *P. submutica*, we are unable to identify areas that contain these features.

Although we have determined that the designation of critical habitat is prudent for *Ipomopsis polyantha, Penstemon debilis*, and *Phacelia submutica*, the biological needs of these species are not sufficiently well known to identify the physical and biological features that may be essential for the conservation of these species, or those areas essential to the conservation of these species. Additionally, we have not gathered sufficient economic and other data on the impacts of a critical habitat designation. These factors must be considered as part of a designation procedure. Therefore, we find that critical habitat for *I. polyantha, P. debilis*, and *P. submutica* is not determinable at this time. We intend to continue gathering information regarding the essential life-history requirements of these species to facilitate identification of essential features and areas. Field research in 2010 will increase our understanding of pollinator needs and soil characteristics for *P. submutica*, of development status in *I. polyantha* habitat, and of the habitat for the new occurrence of *P. debilis* found in 2009. We will evaluate the needs of *I. polyantha, P. debilis*, and *P. submutica* within the ecological context of the broader ecosystems in which they occur, similar to the approach that we recently used in our final designation of critical habitat for 47 species endemic to the island of Kauai (October 21, 2008; 73 FR 62592), and will consider the utility of using this approach for these species as well.

**Peer Review**

In accordance with our joint policy published in the **Federal Register** on July 1, 1994 (59 FR 34270), we will seek the expert opinions of at least three appropriate and independent specialists regarding this proposed rule. The purpose of peer review is to ensure that our determination of status for these species is based on scientifically sound data, assumptions, and analyses. We will invite these peer reviewers to comment, during the public comment period, on the specific assumptions and conclusions regarding the proposal to list *Ipomopsis polyantha* as endangered and *Penstemon debilis* and *Phacelia submutica* as threatened, and our proposed determination regarding critical habitat for these species. We will send copies of this proposed rule to the peer reviewers immediately following publication in the **Federal Register**.

We will consider all comments and information we receive during the

comment period on this proposed rule during preparation of a final rulemaking. Accordingly, the final decision may differ from this proposal.

**Public Hearings**

The Act provides for one or more public hearings on this proposal, if requested. Requests must be received within 45 days after the date of publication of this proposal in the **Federal Register**. Such requests must be sent to the address shown in the **FOR FURTHER INFORMATION CONTACT** section. We will schedule one or more public hearings on this proposal, if any are requested, and announce the dates, times, and places of those hearings, as well as how to obtain reasonable accommodations, in the **Federal Register** and local newspapers at least 15 days before the hearing(s).

Persons needing reasonable accommodations to attend and participate in a public hearing should contact the Western Colorado Ecological Services Field Office at 970-243-2778, as soon as possible. To allow sufficient time to process requests, please call no later than 1 week before the hearing date. Information regarding this proposed rule is available in alternative formats upon request.

**Required Determinations**

*Clarity of the Rule*

Executive Order 12866 requires each agency to write regulations that are easy to understand. We invite your comments on how to make this rule easier to understand including answers to questions such as the following: (1) Are the requirements in the rule clearly stated? (2) Does the rule contain technical language or jargon that interferes with its clarity? (3) Does the format of the rule (grouping and order of sections, use of headings, paragraphing, etc.) aid or reduce its clarity? (4) Would the rule be easier to understand if it were divided into more (but shorter) sections? (5) Is the description of the rule in the **SUPPLEMENTARY INFORMATION** section of the preamble helpful in understanding the emergency rule? What else could we do to make the rule easier to understand?

Send a copy of any comments that concern how we could make this rule easier to understand to Office of Regulatory Affairs, Department of the Interior, Room 7229, 1849 C Street, NW., Washington, D.C. 20240. You also may e-mail the comments to this address: *Exsec@ios.goi.gov*.

*Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.)*

This proposed rule does not contain any new collections of information that require approval by Office of Management and Budget (OMB) under the Paperwork Reduction Act. This rule would not impose new recordkeeping or reporting requirements on State or local governments, individuals, businesses, or organizations. We may not conduct or sponsor and you are not required to respond to a collection of information unless it displays a currently valid OMB control number.

*National Environmental Policy Act*

We have determined that Environmental Assessments and Environmental Impact Statements, as defined under the authority of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*), need not be prepared in connection with regulations adopted under section 4(a) of the Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

**References Cited**

A complete list of all references cited in this proposed rule is available on the Internet at *http://www.regulations.gov* or upon request from the Field Supervisor, Western Colorado Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT** section).

**Author(s)**

The primary authors of this document are staff members of the Western Colorado Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT** section).

**List of Subjects in 50 CFR Part 17**

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

**Proposed Regulation Promulgation**

Accordingly, we propose to amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

## PART 17—[AMENDED]

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

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

2. In § 17.12(h) add entries for *Ipomopsis polyantha, Penstemon debilis*, and *Phacelia submutica*, in alphabetical order under FLOWERING PLANTS, to the List of Endangered and Threatened Plants, as follows:

**§ 17.12 Endangered and threatened plants.**

* * * * *

(h) * * *

| Species | | Historic range | Family | Status | When listed | Critical habitat | Special rules |
|---|---|---|---|---|---|---|---|
| Scientific name | Common name | | | | | | |
| | | | | | | | |
| FLOWERING PLANTS | | | | | | | |
| * | * | * | * | * | | * | * |
| *Ipomopsis polyantha* | Pagosa skyrocket | U.S.A (CO) | Polemoniaceae | E | | NA | NA |
| * | * | * | * | * | | * | * |
| *Penstemon debilis* | Parachute beardtongue | U.S.A. (CO) | Plantaginaceae | T | | NA | NA |
| * | * | * | * | * | | * | * |

| Species | | Historic range | Family | Status | When listed | Critical habitat | Special rules |
|---|---|---|---|---|---|---|---|
| Scientific name | Common name | | | | | | |
| *Phacelia submutica* | DeBeque phacelia | U.S.A. (CO) | Hydrophyllaceae | T | | NA | NA |
| * | * | * | * | * | | * | * |

* * * * *

Dated: June 8, 2010

**Jeffrey L. Underwood,**

*Acting Director, U.S. Fish and Wildlife Service.*

[FR Doc. 2010–15251 Filed 6–22–10; 8:45 am]

**BILLING CODE 4310–55–S**

## DEPARTMENT OF THE INTERIOR

## Fish and Wildlife Service

## 50 CFR Part 17

**[FWS-R9-ES-2009-0094]**
**[MO92210-0-0010-B6]**

## Endangered and Threatened Wildlife and Plants; 90-Day Finding on a Petition to List the Honduran Emerald Hummingbird as Endangered

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Notice of 90–day petition finding and initiation of status review.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), announce a 90–day finding on a petition to list as endangered under the Endangered Species Act of 1973, as amended (Act), the Honduran emerald hummingbird (*Amazilia luciae*). We find that the petition presents substantial scientific or commercial information indicating that listing the Honduran emerald hummingbird may be warranted. Therefore, with the publication of this notice, we are initiating a status review of the Honduran emerald hummingbird to determine if listing is warranted. To ensure that the status review is comprehensive, we are soliciting information and data regarding this species.

**DATES:** To allow us adequate time to conduct this review, we request that we receive information on or before August 23, 2010. After this date, you must submit information directly to the address in the **FOR FURTHER INFORMATION CONTACT** section). Please note that we may not be able to address or incorporate information that we receive after the above requested date.

**ADDRESSES:** You may submit comments by one of the following methods:

• Electronically: Go to the Federal eRulemaking Portal: *http://www.regulations.gov*. In the Keyword box, enter Docket No. **FWS-R9-ES-2009-0094** which is the docket number for this rulemaking. Then, in the Search panel on the left side of the screen under the **Document Type** heading, click on the **Proposed Rules** link to locate this document. You may submit a comment by clicking on "**Send a Comment or Submission**."

• *By hard copy*: Submit by U.S. mail or hand-delivery to: Public Comments Processing, Attn: **FWS-R9-ES-2009-0094**; Division of Policy and Directives Management; U.S. Fish and Wildlife Service; 4401 N. Fairfax Drive, Suite 222; Arlington, VA 22203.

We will post all comments on *http://www.regulations.gov*. This generally means that we will post any personal information you provide us (see the **Information Solicited** section below for more details).

**FOR FURTHER INFORMATION CONTACT:** Nicole Alt, Chief, Division of Conservation and Classification, Endangered Species Program, U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive, Room 420, Arlington, VA 22203; telephone 703-358-2171; facsimile 703-358-1735. If you use a telecommunications device for the deaf (TDD), call the Federal Information Relay Service (FIRS) at 800-877-8339.

**SUPPLEMENTARY INFORMATION:**

### Request for Information

When we make a finding that substantial information is presented to indicate that listing a species may be warranted, we are required to promptly review the status of the species (status review). To ensure that the status review is complete and based on the best available scientific and commercial information, we request information on the Honduran emerald hummingbird. We request scientific and commercial information from the public, concerned governmental agencies, the scientific community, industry, or any other interested parties on the status of the Honduran emerald hummingbird, throughout its range, including but not limited to:

(1) Information on taxonomy, distribution, habitat selection and trends (especially breeding and foraging habitats), diet, and population abundance and trends (especially current recruitment data) of this species.

(2) Information on the effects of habitat loss and changing land uses on the distribution and abundance of this species and its principal food sources over the short and long term.

(3) Information on whether changing climatic conditions are affecting the species, its habitat, or its prey base.

(4) Information on the effects of other potential threat factors, including live capture and collection, domestic and international trade, predation by other animals, and diseases of this species or its principal food sources over the short and long term.

(5) Information on management programs for hummingbird conservation, including mitigation measures related to conservation programs, and any other private, tribal, or governmental conservation programs that benefit this species.

(6) Information relevant to whether any populations of this species may qualify as distinct population segments.

(7) Information on captive populations and captive breeding and domestic trade of this species in the United States

(8) Genetics and taxonomy;

(9) The factors that are the basis for making a listing determination for a species under section 4(a) of the Act (16 U.S.C. 1531 *et seq.*), which are:

(a) The present or threatened destruction, modification, or curtailment of its habitat or range;

(b) Overutilization for commercial, recreational, scientific, or educational purposes;

(c) Disease or predation;

(d) The inadequacy of existing regulatory mechanisms; or

(e) Other natural or manmade factors affecting its continued existence.

Please include sufficient information with your submission (such as full references) to allow us to verify any scientific or commercial information you include.

We will base our status review on the best scientific and commercial information available, including all information we receive during the public comment period. Please note that