



# Federal Register

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**Tuesday,  
December 19, 2006**

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## **Part II**

# **Department of the Interior**

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**Fish and Wildlife Service**

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**50 CFR Part 17**

**Endangered and Threatened Wildlife and  
Plants; Withdrawal of Proposed Rule to  
List *Penstemon grahamii* (Graham's  
beardtongue) as Threatened With Critical  
Habitat; Proposed Rule**

## DEPARTMENT OF THE INTERIOR

## Fish and Wildlife Service

## 50 CFR Part 17

RIN 1018-AU49

**Endangered and Threatened Wildlife and Plants; Withdrawal of Proposed Rule to List *Penstemon grahamii* (Graham's beardtongue) as Threatened With Critical Habitat****AGENCY:** Fish and Wildlife Service, Interior.**ACTION:** Proposed rule; withdrawal.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), withdraw the proposed rule, published in the **Federal Register** on January 19, 2006 (71 FR 3158), to list *Penstemon grahamii* (Graham's beardtongue) as a threatened species with critical habitat under the Endangered Species Act (Act) of 1973, as amended. We have determined that listing is not warranted because threats to the species as identified in the January 19, 2006, proposed rule are not significant, and available data do not indicate that the threats to the species and its habitat, as analyzed under the five listing factors described in section 4(a)(1) of the Act, are likely to threaten or endanger the species in the foreseeable future throughout all or a significant portion of its range. Our decision to withdraw the proposed rule to list *Penstemon grahamii* also removes the species from candidate status under the Act.

**DATES:** The proposed rule published at 71 FR 3158, January 19, 2006 concerning Graham's beardtongue is withdrawn effective December 19, 2006.

**ADDRESSES:** Supporting documentation for this rulemaking is available for public inspection, by appointment, during normal business hours at the U.S. Fish and Wildlife Service, Utah Field Office, 2369 W. Orton Circle, West Valley City, Utah 84119.

**FOR FURTHER INFORMATION CONTACT:** Larry England, Botanist, at the above address (telephone 801-975-3330, extension 138; fax 801-975-3331; or e-mail [larry\\_england@fws.gov](mailto:larry_england@fws.gov)).

**SUPPLEMENTARY INFORMATION:****Background**

In this document, it is our intent to discuss only those topics directly relevant to the listing and designation of critical habitat for *Penstemon grahamii*. For additional information on the species, refer to the proposed rule published in the **Federal Register** on January 19, 2006 (71 FR 3158).

The genus *Penstemon* consists of dicotyledonous plants traditionally placed in the Figwort family (*Scrophulariaceae*). *Penstemon grahamii* was first collected from a site west of the Green River and south of Sand Wash, in southern Uintah County, Utah, on May 27, 1933, and from a site north of Sand Wash on the following day (Graham 1937, p. 332). *P. grahamii* is an herbaceous perennial plant within the sub-genus *Cristati* (N. Holmgren in Cronquist *et al.* 1984, p. 380). The species is described in detail in the proposed rule (71 FR 3158).

We delineated all known locations with extant populations of *Penstemon grahamii* into 109 occurrences. An "occurrence" is defined in this document as: an area with continuous suitable habitat with an extant or historical population of *P. grahamii* delineated on aerial photography (Service 2005, pp. 1-3, 13). We grouped these occurrences into five population habitat units separated by unoccupied gaps in the species' range. A "population habitat unit" is defined as continuous groups of occurrences within 5 kilometers (km) (3 miles (mi)) of each other (Service 2005, pp. 4, 7). Available population data information is summarized for the five population habitat units rather than each of the 109 occurrences (Shultz and Mutz 1979b, pp. 25-39; Neese and Smith 1982b, pp. 116-140; Borland 1987 p. 1; Franklin 1993, Appendix D; Franklin 1995, Appendix B; Colorado Natural Heritage Program (Colorado NHP) 2005, pp. 1-20; Utah Natural Heritage Program (Utah NHP) 2005, pp. 1-124; Service 2005, pp. 1-13).

The 109 occurrences within 5 population habitat units of *Penstemon grahamii* collectively form the species' known range, which is distributed in a curved band about 10 km (6 mi) wide and about 128 km (80 mi) long. These units extend from the Sand Wash and adjacent Nine Mile Creek drainages near the point where Carbon, Duchesne, and Uintah Counties, Utah, meet; then easterly across southern Uintah County to near the Colorado border; then northerly to a point near the White River where the population band moves into Colorado to Raven Ridge, the eastern terminus of the species' range. The total documented population of *P. grahamii* is estimated at approximately 6,200 individuals (Shultz and Mutz 1979a, pp. 38-42; Shultz and Mutz 1979b, pp. 25-38; Neese and Smith 1982a, pp. 63-66; Neese and Smith 1982b, pp. 115-140; Borland 1987, p. 1; Franklin 1993, Appendix D; Franklin 1995, Appendix B; Colorado NHP 2005, pp. 1-20; Utah NHP 2005, pp. 1-124;

Service 2005, pp. 1-13; Decker *et al.* 2006, pp. 3-10). Approximately 60 percent of the species' population is on Bureau of Land Management (BLM) managed land with the remainder on non-Federal lands with State and private ownership. The five population habitat units are described in the following paragraphs.

The westernmost *Penstemon grahamii* population habitat unit, named the Sand Wash Unit (Unit A), occurs in the vicinity of Sand Wash in southwestern Uintah and adjacent Carbon and Duchesne Counties, Utah. This population habitat unit consists of 10 separate occurrences with a population estimated at 135 individuals (Shultz and Mutz 1979b, pp. 37-38; Franklin 1993, Appendix D; Utah NHP 2005, pp. 1-4, 21-24, 45-52, 65-80; Service 2005, pp. 1-13). This unit has relatively small numbers (approximately 2 percent of the species' total) compared to those population habitat units in the center of the species' range. The unit is the most isolated of the species' population habitat units. This portion of the species' population has minor morphological differences from the remainder of its population and may, due to geographic isolation, be genetically divergent from the remainder of the species' population (Shultz and Mutz 1979a, p. 41).

A second population habitat unit, named the Seep Ridge Unit (Unit B), occurs approximately 27 km (17 mi) east of the Sand Wash Unit in the Willow and Bitter Creek drainages in the vicinity of Sunday School Canyon near the Seep Ridge road in south central Uintah County, Utah. This unit consists of 53 separate occurrences with an estimated population of 3,200 individuals (Shultz and Mutz 1979b, pp. 25-39; Utah NHP 2005, pp. 5-20, 25-28, 53-56, 61-64, 85-100; Service 2005, pp. 1-13). This population habitat unit is the species' largest with approximately 52 percent of the species' total population.

A third population habitat unit, named the Evacuation Creek Unit (Unit C), occurs approximately 16 km (10 mi) east of the Seep Ridge Unit in the Asphalt Wash and Evacuation Creek drainages near the abandoned Gilsonite mining towns of Dragon and Rainbow. This unit is in southeastern Uintah County, Utah, and adjacent Rio Blanco County, Colorado, and consists of 31 separate occurrences with an estimated population of 2,550 individuals (Neese and Smith 1982b, pp. 115-133, 137-140; Franklin 1995, Appendix B, Map 3; Utah NHP 2005, pp. 29-32, 37-44, 57-60, 81-84, 113-120; Service 2005, pp. 1-13). This population habitat unit is

the species' second largest with approximately 41 percent of the species' total population.

A fourth population habitat unit, named the White River Unit (Unit D), occurs approximately 8 km (5 mi) north of the Evacuation Creek Unit in Hells Hole and Weaver Canyons immediately south of the White River. This unit is in eastern Uintah County, Utah, and consists of 9 separate occurrences with an estimated population of 115 individuals (Neese and Smith 1982b, pp. 134–136; Franklin 1995, Appendix B, Maps 5–8; Utah NHP 2005, pp. 33–36, 101–112, 121–124; Service 2005, pp. 1–13). This population habitat unit is the species' smallest, with approximately 2 percent of the species' total. The unit is important as a link between the largest population habitat units to the south and southwest and the Colorado population to the northeast.

A fifth population habitat unit, named the Raven Ridge Unit (Unit E), occurs approximately 11 km (7 mi) northeast of the White River Unit along the west flank of Raven Ridge and north of the White River between Raven Ridge and the Utah border in extreme western Rio Blanco County, Colorado. This unit consists of 6 separate occurrences with an estimated population of 200 individuals (Borland 1987, p. 1; Colorado NHP 2005, pp. 1–20; Service 2005, pp. 1–13). The population habitat unit harbors approximately 3 percent of the species' total population and includes virtually the species' entire population in Colorado (a portion of a small population occurs in at the eastern margin of the Evacuation Creek Unit at the Colorado-Utah border). As in the case of the Sand Wash Unit, the Raven Ridge Unit is at the extreme end of the species' range. As such this population is important for its representation of a portion of the full spectrum of the species' genetic diversity.

*Penstemon grahamii* habitat is a discontinuous series of exposed raw shale knolls and slopes derived from the Parachute Creek and Evacuation Creek members of the geologic Green River Formation. Most populations are associated with the surface exposure of the petroleum bearing oil-shale Mahogany ledge (Cashion 1967, p. 31, Fig. 8; Shultz and Mutz 1979a, pp. 39–40; Neese and Smith 1982a, p. 64; Franklin 1993, Appendix D; Franklin 1995, Appendix B). The trace of the Mahogany bed correlates very closely with the trace of *Penstemon grahamii* sites from the vicinity of Sand Wash near the Green River to Raven Ridge near the White River (Cashion 1967, p.

31, Fig. 8; Shultz and Mutz 1979a, pp. 39–40; Neese and Smith 1982a, p. 64; Decker *et al.* 2006, pp. 3–10).

*Penstemon grahamii* is associated with a suite of species similarly adapted to xeric growing conditions on highly basic calcareous shale soils. The vascular plant species most commonly associated with *P. grahamii* are listed in the proposed rule (71 FR 3158). The plant community associated with *P. grahamii* forms a distinctive assemblage of plant species dominated by dwarf shrubs and mound-forming perennial herbaceous plants with relatively low plant cover. This plant community forms small patches within the broader plant communities that characterize the southeastern Uinta Basin (Shultz and Mutz 1979a, p. 40; Neese and Smith 1982a, p. 63; BLM 2005, pp. 3–105 to 3–109; Graham 1937, pp. 43–47, 59–71). Pollinators of *Penstemon grahamii* are listed in the proposed rule (71 FR 3158).

The Colorado NHP has assigned *Penstemon grahamii* a global imperilment ranking of G2 and State imperilment ranking of S1. The Utah NHP has assigned *Penstemon grahamii* a global imperilment ranking of G2 and State imperilment rankings of S2. The G2 and S2 rankings mean the species is imperiled at Global and State levels respectively. An S1 ranking means the species is critically imperiled at a State level. These rankings, developed by The Nature Conservancy, and applied by various NHPs associated with State governments, are utilized by the Service in selecting candidate species and by the BLM in selecting "Special Status Species" for enhanced conservation actions and resource planning. The International Union for the Conservation of Nature has given the species a ranking of "Vulnerable."

#### Previous Federal Actions

The history of *Penstemon grahamii* as a candidate species under the Act is recounted in detail in the proposed rule (71 FR 3158). It has been a candidate for listing since 1980 (December 15, 1980; 45 FR 82480).

*Penstemon grahamii* was petitioned three times for listing as endangered or threatened under the provisions of the Act. The first petition was the initial Smithsonian list of 1975 (see above). The second petition was the Fund for Animals' petition of 1990. This petition included 401 species the Service had assigned category 1 status in its previous notices of review. On October 8, 2002, we received a petition specifically for *P. grahamii* from five separate parties—Center for Native Ecosystems, Southern Utah Wilderness Alliance, Utah Native Plant Society,

Colorado Native Plant Society, and American Lands Alliance. This "second" petition reiterated biological information and information on increased levels of threat that, for the most part, was already in our files.

A court settlement required us to submit a proposed rule to list *Penstemon grahamii* to the **Federal Register** by January 9, 2006. Our proposed rule to list *P. grahamii* as threatened with a proposed designation of critical habitat was published in the **Federal Register** on January 19, 2006 (71 FR 3158). The proposed rule announced a 60-day public comment period ending on March 20, 2006. During the public comment period we received a request for a public hearing and an extension of the public comment period. We announced the reopening of the public comment period and notice of a public hearing in the **Federal Register** on April 13, 2006 (71 FR 19158). The public comment period was extended to May 19, 2006, and a public hearing was held at the Uintah County Building, in Vernal, Utah, on April 26, 2006.

#### Summary of Comments and Recommendations

During the open public comment periods between January 19 and March 20, 2006, and April 13 and May 19, 2006, we requested all interested parties to submit information pertaining to both the proposed listing and critical habitat. We also sought specific information on any available preliminary results from the recent lease nominations for research, development, and demonstration of oil-shale recovery technologies on BLM lands; success of ongoing oil-shale or tar-sands development projects, particularly in the Green River formation; available economic and technological analyses; and specific information detailing definitive effects of these operations on environmental resources, as primarily related to losses of individual plants, loss or fragmentation of the habitat, and loss or declines in plant pollinators. Similarly, the Energy Policy Act sets the stage for increased oil and gas drilling activities within *Penstemon grahamii* habitat, so we requested information specific to ongoing or proposed actions in these areas.

The BLM provided us with substantial information concerning: current and projected energy development; grazing use and management; off-road vehicle (ORV) use and management; exotic species (weeds) control activities; wildland fire control actions; and the potential for horticultural collection. In addition,

BLM provided planning and regulatory direction it will use to ensure the conservation of the species as a consequence of any future development of oil-shale or tar-sands that may affect the species. As a consequence we have relied heavily on BLM's comments in this final notice withdrawing the proposed rule to list *P. grahamii* as threatened, incorporating the information it provided within our analysis of threats.

#### Peer Review

In accordance with our July 1, 1994, Interagency Cooperative Policy on Peer Review (59 FR 34270), we requested the expert opinions of six independent specialists regarding pertinent scientific or commercial data and assumptions relating to supportive biological and ecological information in the proposed rule. The purpose of such a review is to ensure that the listing decision is based on scientifically sound data, assumptions, and analyses, including input of appropriate experts and specialists.

The six experts we requested to review the proposed rule were selected on the basis of their expertise on *Penstemon grahamii* natural history and ecology. We requested that they review the proposed rule and provide any relevant scientific data relating to taxonomy, distribution, population status, or the supporting biological and ecological data used in our analyses of the listing factors. We specifically requested information responding to the following six questions. (1) Is our description and analysis of the biology, population, and distribution of *P. grahamii* accurate? (2) Does the proposed rule provide accurate and adequate review and analysis of the factors relating to the threats to the *P. grahamii* (A. The present or threatened destruction, modification, or curtailment of its habitat, B. Overutilization for commercial, sporting, scientific, or educational purposes, C. Disease and predation, D. Adequate regulatory mechanisms, and, E. Any other natural or man made factors affecting its continued existence)? (3) Are our assumptions and definition of suitable habitat logical and adequate? (4) Is our delineation and proposal of critical habitat for this species appropriate? (5) Are the conclusions we reach logical and supported by the evidence we provide? (6) Did we include all the necessary and pertinent literature to support our assumptions/arguments/conclusions?

Three of the six provided comments during the initial peer review process. All three provided information to

correct, clarify, or support statements contained in the proposed rule. We have incorporated their comments into the final determination, as appropriate. The three responding peer reviewers stated that all six of the questions asked were adequately addressed in the proposed rule. One reviewer noted that our proposed critical habitat included only existing populations, and therefore provided a conservative estimate of potential habitat. This same reviewer also agreed that current oil and gas activity appears to provide little adverse affect to the species, but future increase in the density of conventional oil and gas wells and the inevitable development of oil-shale extraction projects would be problematic.

Another peer reviewer stated that *Penstemon grahamii* is clearly a narrowly restricted, globally rare species, but most of the information on the species in Colorado is not current. A lack of recent surveys has resulted in uncertainty about its distribution and population size. He concluded that even if future surveys revealed robust populations, the types of threats faced by the species would result in a need for habitat protection.

The third peer reviewer stated that, in her opinion, “\* \* \* the effect of livestock grazing is an additional source of stress for a species already grappling with a stressful environment.” Therefore, studies of the effects of livestock and wildlife enclosures on plant vigor and reproduction should be a high priority if the species is listed. She also felt that the degree of protection provided to *Penstemon grahamii* by BLM's Area of Critical Environmental Concern designations is variable and inconsistent.

Although the peer reviewers felt that our proposed listing rule justified listing, based on the new scientific and commercial information concerning the species' status received during the comment period, we have determined that *Penstemon grahamii* does not currently warrant protection under the Act.

#### Summary of Public Comments and Recommendations

During the public comment periods, we received written comments from 37 entities. Twenty-two entities advocated listing of the species, 12 entities advocated not listing the species, and 3 entities did not advocate either listing position. The public comments received and our responses are summarized below. Comments that contained new, updated, or additional information were thoroughly considered in this final determination. We received a large

number of identical or similar comments, and we consolidated those into several categories.

#### Comments Related to Energy Development Impacts to the Species and Its Habitat

Comment 1—No overlap exists between current, proposed, and potential future oil-shale/tar-sands development and species' habitat.

Our Response—We evaluated the potential for oil-shale and tar-sands development to impact *Penstemon grahamii* based largely on the plant's dependence on oil-shale geologic strata. There are no ongoing commercial oil-shale or tar-sands activities on Federal lands in the Uinta Basin, Green River formation. We acknowledge that the exact location and extent of future oil-shale or tar-sands commercial development in the Uinta Basin is unknown, and we have considered information from BLM regarding—1) the higher likelihood that oil-shale would progress, at least initially, in the Piceance Basin, Colorado, approximately 30 miles east of known *P. grahamii* occurrences and 2) geologic information depicting mineral development potential compared to known *P. grahamii* habitats. Approved nominations under the BLM oil-shale Research, Development, and Demonstration (RD&D) program also do not overlap known *P. grahamii* habitat.

Comment 2—A high level of technological and economic uncertainty exists for future oil-shale and tar-sands development.

Our Response—We acknowledge there is a high level of technological and economic uncertainty, and that commercial oil-shale or tar-sands development is only a potential future prospect, likely many years away. We have included this information in our analysis.

Comment 3—Even if industry's interest in oil-shale mining eventually moved near *Penstemon grahamii* occurrences, experience shows that industry would likely propose underground mining techniques, or one or more of various in-situ recovery processes. There is considerable flexibility in siting access shafts and supporting surface facilities for an underground mine or in-situ development and they can easily be placed to avoid critical surface resource areas.

Our Response—We acknowledge that there is a high level of technological uncertainty regarding commercial oil-shale development. Until more specific technological decisions are made, it is not feasible for us to make conclusions

regarding the actual effects oil-shale mining may have on *Penstemon grahamii* and its habitat. The different mining technologies are discussed in our analysis. However, we strongly recommend that BLM continue to evaluate technological processes and devise appropriate conservation measures if commercial development progresses in the future.

Comment 4—The GIS analysis supports the concept that engineering and economics generally keep oil and gas wells out of *Penstemon grahamii* habitat. In addition, BLM and industry have implemented species inventories and avoid special status plant species and their habitats.

Our Response—Our evaluation concluded that oil and gas wells, to date, have not been located directly on known *Penstemon grahamii* locations. We encourage BLM and the energy industry to implement appropriate technologies and conservation measures to avoid development that may threaten the species and its habitat in the future.

Comment 5—Several conventional oil and gas exploratory and field development projects are proposed or underway in or near occupied *Penstemon grahamii* habitat, including—the Resource Development Group, GASCO, Dominion Kings Canyon project, Enduring Resource Big Pack project, MakJ Little Canon/Bick Pack Mountain field development project, Pioneer Park Ridge 3D Seismic project, and Columbine 3D seismic project.

Our Response—We have included an evaluation of these projects in our analysis and concluded that they do not significantly affect *Penstemon grahamii* or its occupied habitat. See our discussion of the impacts of oil and gas exploration and development in the Summary of Factors Affecting the Species section.

Comment 6—Industry has historically demonstrated no interest in surface mining the Mahogany outcrops. There is no evidence that potential, foreseeable oil-shale development would occur in the vicinity of the Mahogany ledge outcrops.

Our Response—We have evaluated the information presented and agree that there is no current active interest, to date, for oil-shale development along the Mahogany zone in *Penstemon grahamii* habitat. Technological and economic uncertainties exist to the extent that we cannot conclude that there is a certainty of future threats in this area.

Comment 7—Most *Penstemon grahamii* are located on a bed of petroleum bearing oil-shale in Utah and

Colorado. Ninety-eight percent of *P. grahamii* individuals are located in the Parachute Creek member of the Green River formation. The Parachute Creek member is the most important area in regard to oil-shale. The entire range of *P. grahamii* also is sitting on deposits of natural gas.

Our Response—We have analyzed the distribution of *Penstemon grahamii* relative to the potential for energy development. Significant economic questions remain concerning the development of the Green River formation oil-shale and tar-sands. There are currently no development projects for this resource proposed anywhere within the known range of *P. grahamii*, or anywhere else in the United States. We have included a detailed analysis of potential impacts of oil-shale and tar-sands development, and the current and future impacts of conventional natural gas drilling and production in the Summary of Factors Affecting the Species section.

Comment 8—Oil-shale processing has been attempted many times all over the world with the same result—failure. The processing of oil-shale is far too expensive to be economical. Although the technology for the oil-shale processing may not be quite ready, the potential for it is very real.

Our Response—We acknowledge the technological and economic uncertainty associated with oil-shale development. Until and unless technology advances and commercial oil-shale development plans are proposed, it is inappropriate for us to speculate on the potential scale and distribution of commercial oil-shale development.

Comment 9—Commenters provided information regarding the current and projected future increases in oil and gas development in the Vernal BLM Field Office area respective to the proposed critical habitat units.

Our Response—We have evaluated ongoing and proposed energy development and potential impacts to *Penstemon grahamii* in our finding. We acknowledge the current and projected increases in oil and gas exploration and development in the Uinta Basin. We have addressed energy exploration and development in our final rule. Our analysis of the best available scientific and commercial data reveals that *P. grahamii* is not warranted for listing under the Act.

Comment 10—Shell's Mahogany Project in the Piceance Basin provides a glimpse of what surface impacts using in-situ methods would look like—100 percent surface disturbance. Images posted on the SkyTruth.org Web site show impacts at an oil-shale operation

in Australia that show complete surface disturbance.

Our Response—We acknowledge the potential impacts of oil-shale mining to *Penstemon grahamii* habitat, if this mining occurs in habitat occupied by the species. However, we do not have information to conclude that oil-shale mining will occur in *P. grahamii* habitat.

Comment 11—The Department of the Interior may attempt to argue that until oil-shale development is shown to be technically and economically viable on a commercial scale, it should not be considered a real threat. However, this ignores the fact that members of Congress are actively interested in forcing the BLM to lease large portions of the oil-shale resource now before RD&D projects begin, and that any analysis of economic feasibility must factor in the possibility that the government may be willing to heavily subsidize this experiment. The Service must recognize that interest in oil-shale will not go away as long as oil is valuable. The Service must list now because oil-shale poses an extremely high magnitude threat to *Penstemon grahamii* and Congress has made that threat more imminent today than it has been in the past decades.

Our Response—We acknowledge the potential impacts of oil-shale mining to *Penstemon grahamii* if this mining occurs in habitat occupied by the species. However, we do not have information to conclude that oil-shale mining will occur in *P. grahamii* habitat.

Comment 12—Several comments described the direct, indirect, and cumulative environmental impacts associated with oil-shale mining.

Our Response—We acknowledge the potential effects of oil-shale development on *Penstemon grahamii*. We have evaluated the threat of oil-shale mining in our finding.

Comment 13—Shell Frontier Oil and Gas Corporation's proprietary In-situ Conversion Process (ICP) uses subsurface heating to convert kerogen contained in oil-shale into ultra-clean transportation fuels and gas. Shell's ICP is more environmentally friendly and more efficient than previous oil-shale efforts. It recovers the resources without conventional mining, uses less water, and does not generate large tailing piles.

Our Response—Our finding discusses various technologies for commercial oil-shale mining. Certainly any processes that also provide environmental protections are preferred. We also acknowledge that technologies are still being developed for oil-shale mining and the location and extent of

commercial oil-shale mining is still uncertain.

Comment 14—The proposed rule, if finalized, will impede, if not completely proscribe, oil-shale development in areas occupied by *Penstemon grahamii*.

Our Response—Our determination that this species does not warrant listing under the Act is based on our assessment of the threats to the species, as they are known at the time of the decision, not the potential land management implications of listing. We have evaluated the potential impacts of oil-shale mining in this finding.

Comment 15—There are no present threats to the viability of the species, either listed in the proposed rule or otherwise known. The threats listed in the proposed rule are all perceived future threats, not current activities.

Our Response—We concur that potential threats to *Penstemon grahamii* from oil-shale and tar-sands development described in the proposed rule were speculative, although based on the best information available to the Service. Our analysis in this final rule, based on information received after publication of the proposed rule, recognizes that current impacts to the species from oil and gas development do not rise to level to warrant listing now or for the reasonably foreseeable future.

Comment 16—Destruction of *Penstemon grahamii* habitat is irrevocable. We should not take irrevocable action for the sake of short-term economic benefit.

Our Response—We have evaluated threats to *Penstemon grahamii* and its habitat in our finding. Our determination as to whether or not this species warrants listing under the Act must be based on our assessment of the threats to the species as they are known at the time of the decision.

Comment 17—Boom and bust energy cycles have occurred in Uintah County for the past 75 years. *Penstemon grahamii* has continued to flourish.

Our Response—Our finding has taken into consideration the known species' population status and trends, as well as the potential threat of energy development.

#### *Comments Related to Inadequacy of Existing Regulatory Mechanisms*

Comment 18—Existing regulatory mechanisms, including the Energy Regulatory Act of 2005, are available to protect *Penstemon grahamii* from mineral development as well as other land use activities.

Our Response—We acknowledge that regulatory mechanisms and policies exist to incorporate conservation

measures for this species in oil-shale or tar-sands commercial leasing programs. Regulatory mechanisms and policies also are available for other land-use activities.

Comment 19—Combined hydrocarbon leases (e.g., conventional oil and gas along with tar-sands) have been issued to some extent prior to the Energy Policy Act of 2005. There was no real restriction to leasing in these areas as portrayed in the Service's proposed rule (71 FR 3158).

Our Response—We acknowledge there was some opportunity for oil and gas leasing prior to the Energy Policy Act of 2005. Energy Policy Act provisions alleviate some of the prior restrictions of oil and gas leasing in the tar-sands areas.

Comment 20—Without listing, the BLM can only require that proposed facilities be moved 200 meters (m) (656 feet (ft)) or less, unless special stipulations have been attached to the lease. Even if one were able to preclude direct habitat loss under the 200-m (656-ft) limitation, substantial cumulative indirect effects and habitat fragmentation are likely to occur if one is simply shuffling disturbance around well by well, rather than actively conserving critical habitat.

Our Response—We have considered existing regulatory mechanisms and management activities in this finding, and determined that conventional oil and gas development lease stipulations provide sufficient conservation measures to prevent extinction of *Penstemon grahamii*.

Comment 21—The State of Utah supports the implementation of a Conservation Agreement for the Graham's beardtongue. Implementation of a Conservation Agreement will allow for better species' inventory, the opportunity to protect important habitats, and the opportunity to reduce potential threats to the species.

Our Response—Our analysis of the best available scientific and commercial data indicates that listing *Penstemon grahamii* under the Act is not warranted at this time. Therefore, it was not necessary to further evaluate conservation efforts associated with a Conservation Agreement. We encourage continued development and implementation of conservation measures and a Conservation Agreement to protect and enhance *P. grahamii* and its habitat.

#### **Comments Related to Other Threat Factors**

Comment 22—Information was provided regarding evaluations and conservation measures applied to

grazing allotments in *Penstemon grahamii* habitat.

Our Response—We concluded that grazing does not appear to be a species level threat to *Penstemon grahamii*, and our rationale is presented in the Summary of Factors Affecting the Species section. We encourage continued monitoring and conservation efforts to ensure grazing effects remain minimal in the future.

Comment 23—Information was provided regarding off-road vehicle (ORV) use and available conservation measures to avoid and minimize impacts to *Penstemon grahamii*.

Our Response—We have no information to indicate that ORV use is a threat to *Penstemon grahamii* or its habitat. To date, little ORV use has been observed in the species' range. We encourage continued monitoring and conservation efforts to ensure ORV effects remain negligible in the future.

Comment 24—Overexploitation for horticultural purposes is a threat to *Penstemon grahamii*.

Our Response—We acknowledge that the rarity and beauty of this species makes collection a potential concern. However, we have no information to conclude that collection is impacting wild populations in the species' native habitat. We encourage continued monitoring and conservation efforts to ensure horticultural collection remains a negligible impact in the future.

Comment 25—*Penstemon grahamii* may be at greater risk because of a reduced ability to form a large seed bank to act as a buffer in the face of population decline, whether this decline is weather-related or caused by anthropogenic disturbance.

Our Response—Information pertaining to the status, life history, and distribution of *Penstemon grahamii* has been reviewed and incorporated into our analysis. We have noted the presence of small population sizes at specific locations, but we do not believe that the threats to the species rise to a level that listing is warranted.

Comment 26—Other concerns of increased energy development activities in *Penstemon grahamii* habitat are the incidental spread of noxious and exotic weeds and soil erosion, leading to decreased plant and insect (pollinator) biodiversity.

Our Response—We acknowledge the presence of exotic weeds within occupied *Penstemon grahamii* habitat, including *Bromus tectorum* (cheatgrass) and *Halogeton glomeratus* (halogeton). Habitat disturbances associated with future energy development activities could exacerbate the situation. We encourage the development and

implementation of conservation efforts to minimize the invasion of exotic weed species.

Comment 27—The notice fails to provide any scientific evidence that disease and predation are threats to the species.

Our Response—We have identified that grazing may affect certain populations of *Penstemon grahamii* (see discussion in Factor A in the Factors Affecting the Species section), but we determined that grazing is not a threat to the species as a whole. Therefore, we determined that disease and predation do not constitute threats to the continued existence of *P. grahamii*.

Comment 28—The species responds to cultivation and proliferates in habitats other than its natural habitat and, therefore, is capable of being cultivated for use in reclamation and revegetation.

Our Response—It is true that the species has been cultivated as a garden plant, and is available for sale in catalogs and on the Internet. Propagation in the wild may be explored at a future date, but on an experimental basis. We do not have information at this time to conclude that populations propagated in the wild will be viable in the long-term. Until this information is available, we would not rely on restoration or revegetation of this species from a cultivated source.

#### *Comments Related to the Biology of the Species*

Comment 29—Green River outcrops support a number of rare species of special concern. The edaphic features of Green River outcrops are natural laboratories of evolution and endemism, and should be preserved.

Our Response—We concur that the Green River outcrops have significant ecological and evolutionary values. However, our evaluation of threats under the Act's criteria is restricted to *Penstemon grahamii*. This final rule does not evaluate other species associated with the Green River formation.

Comment 30—The limited distribution and highly specific habitat requirements of this species make it a valuable component of the Utah flora and highly vulnerable to disturbance.

Our Response—We concur that this species is a valuable component of the Utah flora. We considered the habitat requirements and threats to this species in our finding, and determined that the level of threats to *Penstemon grahamii* were insufficient to warrant listing.

Comment 31—*Penstemon grahamii* habitat requirements make restoration/reclamation of the species extremely

difficult, if not impossible, if energy developments were to impact any of the known populations.

Our Response—Our finding has evaluated the potential threats of energy development to *Penstemon grahamii*.

Comment 32—Listing under the Act results in important protections for listed species threatened with development. Unlisted species may receive some consideration, but no real protection in the face of pressure to develop energy resources.

Our Response—Our decision regarding *Penstemon grahamii* is based on the best available scientific and commercial data, as required by the Act. Our determination regarding whether or not this species warrants listing under the Act must be based on our assessment of the threats to the species at the time of the decision. We evaluated the threat of energy development, and the effectiveness of regulatory mechanisms in this finding.

Comment 33—A few comments expressed concern about *Penstemon grahamii*'s low population numbers and low and declining seed set numbers, as a result of substantial herbivory and livestock trampling. The Nature Conservancy's eco-regional assessments confirm that *P. grahamii*, with very low natural population numbers and restricted distribution, is at risk.

Our Response—Information pertaining to the status, life history, and distribution of *Penstemon grahamii* has been reviewed and incorporated in our analysis. We have noted the presence of small population sizes at specific locations, and the potential for threats to have negative impacts if they occur. The referenced study sites are small, and do not provide sufficient information on threats to conclude that *Penstemon grahamii* warrants listing. Although additional studies may be desirable, we have made our decision based on the best available scientific and commercial data, as required by the Act.

Comment 34—The extinction of *Penstemon grahamii* would undoubtedly affect the only specialist wasp, *Pseudomasaris vespoidea*, which feeds its offspring exclusively on *Penstemon* pollen. This wasp should be the subject of further study.

Our Response—Our evaluation is restricted to *Penstemon grahamii*, which we have determined does not warrant listing under the Act. The wasp is a specialist on most species of *Penstemon*. Other *Penstemon* species occur within the range of *P. grahamii* and are apparently supporting *Pseudomasaris vespoidea* populations.

Comment 35—This species may be valuable for a cure to cancer or some other disease.

Our Response—Many plant species have provided important advances in medicine. However, our determination regarding whether or not this species warrants listing under the Act must be based on our assessment of the threats to the species, as they are known at the time of the decision.

Comment 36—Current and historic population trend data do not show any decline in the population of *Penstemon grahamii*.

Our Response—We evaluated available population status and trend information for the species in this finding.

Comment 37—*Penstemon grahamii* habitat is not dependent on oil-shale as represented. The association with oil-shale may be coincidental, and there is a substantial likelihood that the species' distribution is more widespread than presented in the proposed rule.

Our Response—We cite several sources that indicate *Penstemon grahamii* is associated with oil-shale outcrops. We are not aware of any data indicating that the species is more widely distributed than as we described in the proposed rule and this document.

Comment 38—Oil and gas operations are typically able to avoid individual plants.

Our Response—Our finding has evaluated the threat of energy development to *Penstemon grahamii*. We encourage development and implementation of conservation efforts to avoid impacts to *P. grahamii* and its habitat.

Comment 39—There is no clear evidence that the species' environment is as fragmented as is implied by the delineation of the units.

Our Response—Our decision regarding *Penstemon grahamii* is based on the best available scientific and commercial data, as required by the Act. We have described the species' known distribution and provided citations for this information in our finding.

Comment 40—There are areas in Uintah County that have shown no previous signs of this plant. However when the ground has been disturbed, followed by a rainfall, the plant has flourished. Listing this plant to prevent disturbance in the area, seems to defeat the natural course of growth, which includes ground disturbance and water.

Our Response—To our knowledge the potential for land disturbance to facilitate *Penstemon grahamii* conservation has not been studied. However, we have no documentation of this species responding favorably to

disturbance as described above. Observations of biologists studying this species have not shown any such response to surface disturbance, and we provide a detailed description of the species' habitat requirements in the Background section of this document.

Comment 41—*Penstemon grahamii* must be considered extremely rare whether considered at the global, national, State, or county level.

Our Response—Rarity in and of itself does not automatically lead to listing. Our determination of whether or not listing this species under the Act is warranted must be based on our assessment of the threats to the species, as they are known at the time of the decision.

#### *Comments Related to General Listing Issues Under the Act*

Comment 42—The various **Federal Register** notices are deficient in that they do not identify, other than by author, name, and year, the references on which they rely. The Administrative Procedures Act and other authorities require a reasonable opportunity to comment on proposed rules. The publications and page numbers at which the references appear could easily have been included in one of the notices.

Our Response—We have included page numbers with citations in this notice, and the list of references and the references themselves are available for inspection at our Utah Field Office (see **ADDRESSES** section).

Comment 43—Several commenters supported the proposal to list *Penstemon grahamii* and designate critical habitat, based on the species' status and the threats analysis presented in the proposed rule.

Our Response—We have reevaluated the best available scientific and commercial data, based on information received during the public comment period, and have determined that the threats to *Penstemon grahamii* described in the proposed rule are not sufficient to warrant listing under the Act at this time. Our analysis is presented in the Summary of Factors Affecting the Species section.

Comment 44—A commenter felt that listing of this species is not warranted.

Our Response—We have considered all factors potentially affecting *Penstemon grahamii* in our decision and determined that the listing is not warranted. We have made our decision based on the best available scientific and commercial data, as required by the Act.

Comment 45—*Penstemon grahamii* meets all five requirements to be listed as a threatened species.

Our Response—Our analysis of the best available scientific and commercial data determined that listing *Penstemon grahamii* is not warranted at this time. Our analyses and conclusions are described in detail in the Summary of Factors Affecting the Species section.

Comment 46—The U.S. House of Representatives has passed House Bill 3824, which will amend the Act and repeal critical habitat requirements. The Service should delay any listing decisions until a final determination is made on this legislation.

Our Response—The Act requires that we finalize proposed listings within 12 months of publication. In this case, we also are responding to a court-approved settlement agreement to complete a listing determination by December 8, 2006. Therefore, we are unable to postpone completion of this listing decision.

Comment 47—Listing *Penstemon grahamii* now could protect against the most damaging projects in its habitat, and allow for recovery.

Our Response—Our decision regarding *Penstemon grahamii* is a listing, not a recovery decision. Our determination of whether or not this species warrants listing under the Act must be based on our assessment of the threats to the species, as they are known at the time of the decision, not the potential for recovery under the Act.

Comment 48—If listing is denied, the little extra attention that *Penstemon grahamii* has received based on its candidate status will disappear.

Our Response—Candidate species are plants and animals for which the Service has sufficient information on their biological status and threats to propose them as endangered or threatened under the Act, but for which a proposed listing regulation is precluded by other higher priority listing activities. Candidate species receive no statutory protection under the Act. The BLM has designated *Penstemon grahamii* as a "special status species" and as such will provide strong consideration for the species in its land use planning and will implement measures to conserve the species and protect its habitat. The BLM has made an explicit commitment to conserve this species into the future, regardless of any energy or other development action within the species range (BLM 2001, 2006a p. 1–2). We encourage the formation of partnerships to conserve these species because they are, by definition, species that warrant future protection under the Act. Our decision not to list *Penstemon grahamii* removes the species from candidate status. However, *P. grahamii* retains its status

as a BLM special status species. In addition, we are partnering with Federal and State agencies to develop and implement a Conservation Agreement for *P. grahamii*. This Conservation Agreement is not the basis for this withdrawal.

Comment 49—If the plant is listed as threatened, the Service should adopt a special rule under section 4(d) of the Act that would provide that any energy development projects undertaken in accordance with BLM-mandated terms and conditions would not constitute a violation of any of the Act's plant-related prohibitions.

Our Response—Our analysis of the best available scientific and commercial data determines that *Penstemon grahamii* is not warranted for listing under the Act.

Comment 50—The proposed rule pays little attention to the best commercial data which, if considered, would provide both an estimate of the magnitude of the potential threats, and the adverse economic impact of listing *Penstemon grahamii*.

Our Response—This final rule includes our analysis of the magnitude of potential threats to this species, and we have determined that these threats are not sufficient to warrant listing the species under the Act at this time. The Act does not include economic considerations as a factor in listing decisions.

Comment 51—Listing under the Act ensures benign neglect of a species; it does nothing to proactively ensure proliferation of a species.

Our Response—Our determination of whether or not this species warrants listing under the Act must be based on our assessment of the threats to the species, as they are known at the time of the decision, not whether listing would ensure the species' recovery.

Comment 52—Costs to the Nation's economy and energy security can be avoided by withdrawal of the proposed rule, as warranted by the scientific and commercial evidence.

Our Response—Our determination as to whether or not this species warrants listing under the Act must be based on our assessment of the threats to the species, as they are known at the time of the decision. The Act provides for evaluating economic considerations when designating critical habitat, but not when making listing determinations.

Comment 53—A commenter disagreed with the statement on page 3173 that the action is not a significant energy action.

Our Response—Our analysis of the best available scientific and commercial data indicates that listing *Penstemon*



*grahamii* is not warranted at this time. Therefore, it was not necessary to further evaluate significant energy effects, or prepare an economic analysis for the designation of critical habitat.

Comment 54—It appears that no attempt is being made to designate or restore all original habitats once occupied by this species.

Our Response—The Act does not require restoration of all historic habitat for a listed species, nor does it require designation of all historic range as critical habitat. By determining that this species does not warrant listing we indicate that it is not in danger of becoming extinct throughout all or a significant portion of its range, or likely to become so in the foreseeable future.

Comment 55—A recovery plan is not a part of the current proposal.

Our Response—Recovery Plans are only completed for listed species under the Act. This current finding has determined that listing *Penstemon grahamii* under the Act is not warranted.

#### *Comments Related to Agency Management of the Species*

Comment 56—The Energy Policy Act strengthens the BLM and Service capability to protect this species.

Our Response—The 2005 Energy Policy Act resulted in increased staffing and funding levels for pilot project offices, including the Vernal BLM Field Office. We strongly encourage BLM to utilize these available resources to ensure long-term, successful conservation efforts for *Penstemon grahamii* and other listed and sensitive species during energy project planning and implementation.

Comment 57—The BLM has done a poor job of protecting plant communities from rapid industrialization and lawless ORV use.

Our Response—We considered potential threats, such as increased energy development and ORV use, in our finding, but we were unable to document threats from these activities that would warrant listing *Penstemon grahamii*.

Comment 58—There is no assurance at this point that the BLM, through the Vernal Resource Management Plan (RMP), will provide adequate protection for *Penstemon grahamii*.

Our Response—Our determination of whether or not this species warrants listing under the Act must be based on our assessment of the threats to the species, as they are known at the time of the decision. We understand that all action alternatives within the BLM's draft Vernal RMP commit the BLM to protect the populations and habitat of

Special Status Species, including *P. grahamii*.

Comment 59—The Act provides no authority to protect this plant on State or private lands. Therefore, it is that much more important to protect them on Federal lands.

Our Response—Existing regulatory mechanisms were evaluated for our finding. We encourage Federal land management agencies to continue conservation efforts for *Penstemon grahamii* and its habitat. In addition we will work with both the State of Utah and private landowners to encourage voluntary measures to conserve viable populations of the species and its habitat on their properties.

Comment 60—BLM has recently initiated survey and life history studies for *Penstemon grahamii*. Life history and survey data are out of date and may not accurately portray the species' distribution and abundance. Lack of information may affect the Service's decisions regarding critical habitat designation.

Our Response—We agree that additional population status, distribution, and life history information would be useful to determine the status of the species and identification of critical habitat. However, as required by the Act, we have used the best scientific and commercial information available when making the determination on whether to list *Penstemon grahamii*.

Comment 61—All action alternatives in the draft BLM Vernal RMP would lead to *Penstemon grahamii* being more imperiled.

Our Response—The BLM has provided its commitment to continue implementation of effective conservation measures through the RMP to ensure long-term conservation of *P. grahamii*. Our analysis of the best available scientific and commercial data reveals that *P. grahamii* is not warranted for listing under the Act. We have evaluated existing regulatory mechanisms in our finding. All action alternatives within the BLM's draft RMP commit the BLM to protect the populations and habitat of Special Status Species, including *P. grahamii*. We have identified specific protective measures for the protection of *P. grahamii* which BLM will include in the final RMP and as stipulations in all subsequent mineral leases. (See discussion under listing Factors A and D below.)

Comment 62—The BLM Vernal Field Office has continued to offer oil and gas lease parcels even though it is in the midst of a Plan revision, and the Service must consider that the areas released

because of tar-sands development potential could be offered in any upcoming sale.

Our Response—Our analysis assumes that leasing will occur in suitable tar-sands areas and other areas in the Uinta Basin. Leasing does not necessarily mean that an area will be developed for oil and gas. We have addressed the potential impacts of energy development to *Penstemon grahamii* in our finding, and determined that those impacts now and in the foreseeable future do not rise to the level that would warrant listing of the species.

Comment 63—In the Castle Peak Environmental Impact Statement, the BLM was quite frank about not being able to impinge on valid, existing lease rights, and openly refused to require No Surface Occupancy within the Pariette Wetlands Area of Critical Environmental Concern (ACEC), even though (1) that was one of the expectations set forth in the biological opinion, and (2) Uinta Basin hookless cactus' (*Sclerocactus glaucus*) listed status should have allowed the agency to place additional constraints on those leases. The BLM White River Field Office also has permitted pipelines through ACECs designated for the Dudley Bluffs plants, in what appears to be direct contravention of the White River RMP.

Our Response—This finding pertains to *Penstemon grahamii*, not other plant species in the area. Our analysis of the best available scientific and commercial data indicates that *P. grahamii* is not warranted for listing under the Act. We have considered existing regulatory mechanisms and management activities in this finding. The Service encourages the successful development and implementation of conservation measures for *P. grahamii* to maintain the species' status in the long-term.

Comment 64—The BLM has provided very little in the way of conservation measures for *Penstemon grahamii*, despite its candidate status.

Our Response—We have considered existing regulatory mechanisms and management activities in this finding, and determined that the impacts to *Penstemon grahamii* populations and habitat are not sufficient to warrant listing under the Act. This species has been a listing candidate for decades, and we have no evidence to indicate that current BLM management is resulting in serious impacts to populations of this species.

#### *Comments Related to Critical Habitat*

Comment 65—There were numerous comments regarding the importance,

extent, and boundary lines regarding the proposed critical habitat designation.

Our Response—We considered all factors potentially affecting *Penstemon grahamii* in our decision and we have determined that the listing is not warranted. Therefore, we are withdrawing our proposed critical habitat designation.

### Summary of Factors Affecting the Species

Section 4 of the Act and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act set forth the procedures for adding species to Federal lists. We analyzed the threats applicable to the species in the present and foreseeable future to determine whether the species as a whole meets the definition of endangered or threatened due to one or more of the five factors described in section 4(a)(1). The five factors considered and their application to *P. grahamii* are as follows:

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

##### Energy Resources

Our proposed rule concluded that recent Federal policy direction, technological advances, world oil demand, and economics have renewed the desirability to invest in renewed energy development in Utah and Colorado. However, based on comments received on the proposed rule, it appears that the development of oil-shale and tar-sands resources in *Penstemon grahamii* habitat is not likely to occur, if it occurs at all, until at least 20 years into the future.

*Penstemon grahamii* has been listed as a candidate species since 1980, in part due to the potential threat of increased energy development (Service 2004). The habitat of *P. grahamii* is a series of knolls and slopes of raw oil-shale derived from the Green River geologic formation (Shultz and Mutz 1979a, pp. 38–42; Shultz and Mutz 1979b, pp. 25–38; Neese and Smith 1982a, pp. 63–66; Neese and Smith 1982b, pp. 115–140; Borland 1987, p. 1; Franklin 1993, Appendix D; Franklin 1995, Appendix B; Colorado NHP 2005, pp. 1–20; Utah NHP 2005, pp. 1–124; Service 2005, pp. 1–13; Decker *et al.* 2006, pp. 3–10). Oil-shale resources associated with the Green River formation underlie approximately 41,440 km<sup>2</sup> (16,000 mi<sup>2</sup>) and represent the largest known concentration of oil-shale in the world with potential recoverable reserves in excess of 1 trillion barrels (Bartis *et al.* 2005, pp. 5–

7; Bunger *et al.* 2004 p. 1; Dyni 2003, pp. 241–245; Lonnie 2005, pp. 1–3). *P. grahamii* only grows directly on weathered surface exposures of the oil-shale bearing strata in the Parachute member and closely associated strata, making the species vulnerable to impacts if that oil-shale strata is exploited in the future (Bartis 2005, pp. 35–37; Cashion 1967, p. 31, Fig. 8; Johnson *et al.* 2004b, pp. 3–5; Service 2005, p. 21; Shultz and Mutz 1979a, p. 42; Neese and Smith 1982a, pp. 64–66).

One hundred five of 109 (96 percent) *Penstemon grahamii* occurrences are in the Parachute Creek member of the Green River formation; the remaining 4 sites are in oil-shale strata of the Evacuation Creek member of the Green River formation (Service 2005, p. 21; Shultz and Mutz 1979a, p. 39; Neese and Smith 1982a, p. 64). Oil-shale beds are most numerous and important in the Parachute Member of the Green River formation (Cashion 1967, p. 13), but the underlying Evacuation Creek member also contains a few beds of oil-shale (Cashion 1967, p. 17). The 105 occurrences in the Parachute Creek member harbor an estimated 6,100 individuals or 98 percent of the species' estimated population of 6,200 (Shultz and Mutz 1979a, pp. 38–42; Neese and Smith 1982a, pp. 63–66).

There are no oil-shale or tar-sand development projects currently in operation or proposed within the known occupied habitat of *Penstemon grahamii*, or anywhere else in the United States (BLM 2006a, p. 13). The BLM projects that the oil-shale industry will focus its earliest commercial production efforts in the Piceance Basin, Colorado, about 48.3 km (30 mi) from the nearest known *P. grahamii* occurrence (BLM, 2006, pp. 14, 36). The Piceance Basin contains larger oil-shale deposits than the Uinta Basin in Utah. Deposits are more than 305 m (1,000 ft) thick in parts of the Piceance Basin and continuous across 311 km<sup>2</sup> (120 mi<sup>2</sup>) (BLM, 2006, p. 14).

Initial industry interest appears to support BLM projections. In 2005, the BLM received 20 proposals and applications for oil-shale Research, Development, and Demonstration (RD&D) leases on Federal lands in Colorado and Utah. None of these RD&D lease applications are within the occupied habitat of *Penstemon grahamii* (BLM 2006a, pp. 6, 12–13). The nearest is about 3.2 km (2 mi) southeast of known occurrences (on Green River shale barrens). Of the 20 RD&D lease application proposals, the BLM selected 6 for further consideration—5 are in Colorado in the Piceance Basin about 50 km (30 mi) east of the *P. grahamii*'s

population at Raven Ridge. The one Utah RD&D application still under review is located about 8 km (5 mi) west and 13 km (8 mi) north of the nearest *P. grahamii* occurrences in habitat not suitable for the species (BLM 2006a, pp. 12–13, 15, 18–19, 34).

Any future oil-shale development within the Uinta Basin nearest the range of *Penstemon grahamii* is expected to be associated with the thickest deposits of oil-shale, which occur about 8 km (5 mi) from the nearest occurrence of *P. grahamii* (BLM 2006a, pp. 12–13). These deposits occur in the vicinity of the aforementioned Utah RD&D proposal. We do not have information to indicate that oil-shale development, if it occurs at commercial levels, will overlap known *P. grahamii* occurrences.

Oil-shale and tar-sands development has failed to materialize due largely to technological problems and unfavorable economics. The first interest in oil-shale extraction occurred in the latter years of and immediately following World War I. However, limited accessibility and low economic viability resulted in declining interest. More recently in the 1970–1980s, BLM made oil-shale resources on public lands available through the Oil Shale Prototype Program, which was designed to allow companies to develop and refine the technology for extracting oil from oil-shale. Since then, during the mid-1980s and 1990s, interest in oil-shale development lagged because of declining petroleum prices (Bartis *et al.* 2005, p. 1; Lonnie 2005, pp. 1–3).

Significant economic questions remain concerning the development of the Green River formation oil-shale and tar-sands (Bartis *et al.* 2005, pp. 15, 53; BLM 2006a, pp. 7, 15–19, 31, 34–36). The cost associated with an enormous and essentially new industry using new and innovative technologies is likely to be great. Economic success of oil-shale and tar-sands derived petroleum will depend on continuing and stable petroleum prices at a level of \$70 to \$95 per barrel. Due to past fluctuation of petroleum prices, private industry has exhibited a reluctance to proceed with research, development, and subsequent commercial production of oil-shale. This situation will likely continue unless the petroleum industry is convinced that petroleum prices will remain high well into the future (Bartis *et al.* 2005, pp. 59–61; Bunger *et al.* 2004, pp. 7–9).

Various technologies for oil-shale extraction and processing into synthetic petroleum have been explored. The traditional approach is mining the oil-shale either by surface mining (i.e., removing the surface non oil-shale bearing material from the underlying

oil-shale ore body then removing the oil-shale itself for further processing) or underground mining (i.e., digging a vertical shaft through the surface non oil-shale bearing material to the underlying oil-shale ore body, or where possible digging a horizontal shaft into the oil-shale ore body, then removing the oil-shale by various underground mining techniques for further processing) (Bartis *et al.* 2005, pp. 11–13; BLM 2006a, pp. 14, 32–33). Raw oil-shale is then retorted by heating to vaporize the carbon containing kerogen (shale oil) and then hydrolyzed, by the adding of hydrogen, to form synthetic petroleum which then can be refined by traditional methods into hydrocarbon fuels and other products (Bartis *et al.* 2006, pp. 13–14). Mining techniques are centuries old and are an effective direct approach to accessing ore bodies including oil-shale. Recent new technologies involve in-situ removal of kerogen directly from oil-shale by drilling wells into the oil-shale ore body and heating the underground oil-shale ore body and then extracting the liquefied kerogen for further processing (Bartis *et al.* 2005, p. 17; BLM 2005, pp. 32–33). There have been several variations of in-situ oil-shale recovery proposed and investigated (Bartis *et al.* 2005, pp. 17–20; BLM 2006a, pp. 32–33).

Surface mining is potentially the most damaging process to the environment. In-situ oil-shale recovery may be much less destructive to the environment. There is still great uncertainty as to the procedures that may be used in future oil-shale development, including within the range of *Penstemon grahamii* where there are no current proposals for oil-shale development.

Even if economic and technological conditions favor oil-shale and tar-sand development, it would be at least 20 years before any production would begin in or near *Penstemon grahamii* occupied habitat, if it occurs in those locations at all. Indications are that initial oil-shale development will take place at existing RD&D sites in the Piceance Basin of Colorado and immediately south of the White River in the Uinta Basin of Utah (BLM 2006a, pp. 6, 38–40). None of the sites are within the range of *P. grahamii*, nor does suitable habitat exist for the species at those sites. At present there are no tar-sand development projects proposed for the PR springs tar-sand area which underlies portions of *P. grahamii*'s range (BLM 2006a, p. 33).

The entire range of *Penstemon grahamii* also is underlain with deposits of traditional petroleum resources, primarily natural gas. Impacts to *P.*

*grahamii* from energy development have been largely avoided to date because surface disturbance within the species' habitat has been minimal. For example, under the existing development situation, only 5 of the known occurrences (4.6 percent) have oil and gas wells located within them (Service 2005, p. 17). Thirty-nine active wells are within 1.6 km (1 mi) of *P. grahamii* occupied habitat, and future oil and gas development within *P. grahamii* habitat is likely. Of the 109 occurrences of *P. grahamii*, 69 (63 percent) are currently leased for oil and gas drilling, or are within established oil and gas fields that have active resource extraction programs. Ninety-six of the species' 109 known occurrences (88 percent) are within active seismic exploration areas (BLM 2003).

The BLM reports that conservation stipulations for *Penstemon grahamii* near well locations have prevented adverse impacts to the species' habitat and possible loss of *P. grahamii* individuals (BLM 2005, pp. 2–29, 2–30, 3–94, 4–233; Specht 2005). Conservation measures include moving well pad and pipeline locations to avoid direct impacts to the species. The BLM considers these measures to be effective protection mechanisms (Specht 2005). The BLM, as part of its sensitive species program outlined in its Administrative Manual 6840, will continue to provide protection to the species and its habitat through land use planning and implementation of conservations measures for oil and gas development (BLM 2005, pp. 2–29, 2–30, 3–94, 4–233; BLM 2006a, p. 43).

The BLM has stressed its commitment to develop appropriate regulations for the leasing program, and to develop conservation measures for *Penstemon grahamii* and other plant species within future Federal oil-shale and tar-sand lease areas in Utah and Colorado (BLM 2006b). These conservation measures are intended to eliminate significant potential threats to *P. grahamii* from oil-shale and tar-sand development, and will be applied to lease stipulations for oil-shale and tar-sands when and if they are issued (BLM 2000, p. 8). Additional mitigation measures to conserve *P. grahamii* also will be developed at the operational stage (BLM 2006a, pp. 24–27). Because these conservation measures have not yet been developed, we are not basing this withdrawal on their potential implementation. However, we expect development and implementation of sufficient conservation measures to help ensure long-term protection of the plant if oil-shale development becomes

economically and technologically feasible.

Approximately 60 percent of the species' population and 75 percent of the species' occupied habitat is on Bureau of Land Management (BLM) managed land with the remainder on non-Federal lands under State or private ownership (USFWS 2005). These State and private lands are intermingled within a broad mosaic of land ownerships dominated by Federal (BLM) lands. With this "checkerboard" spatial pattern of ownerships, large-scale development on non-Federal lands would, at a minimum, require coordination with the BLM. In most cases, development of these lands would only be possible via consolidation of Federal and non-Federal lands into economically viable development units (Bunger 2006), which would require extensive review under the National Environmental Policy Act (NEPA) among other Federal laws.

Biological studies specific to *Penstemon grahamii* and sympatric species are in their beginning phase (Lewinsohn *et al.* 2005).

At this time, we have no information demonstrating population declines, range contraction, or significant habitat impacts for *P. grahamii* because of energy development (which includes current traditional oil and gas exploration, drilling and production, and potential oil-shale and tar-sand development). Therefore, we conclude that energy development within the range of *P. grahamii* is not currently a threat to the species, nor is it likely to become a significant threat in the foreseeable future, such that listing under the Act is warranted.

#### Other Activities

Grazing may have localized effects on *Penstemon grahamii*, and one occurrence of the species is believed to have been eradicated by livestock trampling. The Dragon Sheep bed site first recorded in a 1982 survey (Neese and Smith 1982b, p. 137) has not been relocated in recent years. This is an area of heavy sheep grazing and trampling, which is thought to have caused the possible extirpation of this occurrence (England 2003). Lewinsohn (2005 pp. 1, 12–14) reported a general decline in the species at one study area due to overgrazing. However, no research has been conducted to document effects of grazing on *P. grahamii* populations or habitat, and we have no information indicating that grazing impacts threaten the continued existence of the species throughout all or a significant portion of its range.

To date little ORV use has been observed in the species' range. Federal and energy industry personnel are increasingly utilizing ORVs in oil and gas field survey and site location development prior to the establishment of oil field road networks (Specht 2005). However, we do not have any information indicating that ORV use is a threat to *Penstemon grahamii* or its habitat.

Based on our analysis of the best available scientific and commercial information, we conclude that the present or threatened destruction, modification, or curtailment of *Penstemon grahamii* habitat or range is not currently a threat to the species, nor is it likely to become a significant threat in the foreseeable future, such that listing under the Act is warranted.

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

*Penstemon grahamii* is a species of horticultural interest. The species is advertised on the internet and plants and seed are available. In 2004, a *Penstemon* collector approached Red Butte Garden (the Utah State botanical garden located at the University of Utah) inquiring how to obtain seeds of *P. grahamii* (Lewinsohn 2004). Several internet sites identify *P. grahamii* as a desirable plant for gardens or horticultural exhibitions. However, we do not have any information indicating that collection from the wild is occurring or if it is occurring, the level of collection or the impact of collection on wild populations.

Based on our analysis of the best available scientific and commercial information, we conclude that overutilization of *Penstemon grahamii* for commercial, recreational, scientific, or educational purposes habitat or range is not currently a threat to the species, nor is it likely to become a significant threat in the foreseeable future, such that listing under the Act is warranted.

#### C. Disease or Predation

*Penstemon grahamii* is grazed by wildlife, including rodents, rabbits, antelope, deer, elk, and insects (Shultz and Mutz 1979a, pp. 37–42; Neese and Smith 1982a, pp. 63–66; England 1979; Specht 2005; Lewinsohn *et al.* 2005, pp. 2, 12–14, 17). The species also is grazed by livestock, primarily sheep. There are some anecdotal reports of the possible impacts of grazing on *P. grahamii*. For example, recent attempts to establish pollination studies and population monitoring plots for the species were complicated by overgrazing, which resulted in the loss of flowers before

seeds set, resulting in no reproduction (Lewinsohn *et al.* 2005, p. 17). Lewinsohn also reported that all sites visited in southern Uintah County were either too small or too heavily grazed to conduct suitable pollination studies. However, there are no specific studies on the effects of grazing on this species.

Based on our analysis of the best available scientific and commercial information, we conclude that disease or predation are not currently threats to *Penstemon grahamii*, nor are they likely to become significant threats in the foreseeable future, such that listing under the Act is warranted.

#### D. The Inadequacy of Existing Regulatory Mechanisms

No Federal or State laws or regulations specifically protect *Penstemon grahamii*. The species is not protected by the Convention on International Trade in Endangered Species of Wild Fauna and Flora. Some populations occur on private lands, which were given mineral entry patents during the 1920s specifically because of oil-shale values. There is no regulatory protection for *Penstemon grahamii* on non-Federal lands.

The majority of *Penstemon grahamii* populations occur on lands administered by the BLM. The BLM administratively recognizes rare and potentially imperiled plant species for special management consideration through its 6840 Manual for special status species, which includes *P. grahamii*. Because *P. grahamii* will be classified as a special status species, BLM will continue to provide conservation protection to the plant (BLM 2006b, pp. 1–2). The BLM, through existing land management regulations, land use planning, and specific lease and use stipulations (BLM 2006a, pp. 43–70), has considerable regulatory authority to manage lands and resources under its jurisdiction. These include oil and gas leasing regulatory mechanisms such as: land use planning guidance; lease sale stipulations; exploration and field development analysis and planning guidance for oil and gas fields and geophysical exploration; an individual oil and gas well review and approval (Applications for Permit to Drill (APD)) process; and on-the-ground inspection processes for compliance with lease and APD stipulations (BLM 2005; BLM 2006a, pp. 45–53, 60, 67–69).

Oil-shale and tar-sand regulatory mechanisms are under development, but will follow a similar environmental protection direction (BLM 2006a, p 45). These measures will only be necessary if oil-shale development occurs in the

future in habitat for *Penstemon grahamii*. In addition, the BLM has significant authority to regulate and manage grazing on lands under its jurisdiction (BLM 2005; BLM 2006a, pp. 54–56, 60); ORV use (BLM 2005; BLM 2006a, pp. 58, 60); and collection of plant materials for horticultural and other uses (BLM 2006a, pp. 56–58).

We conclude that BLM has the necessary regulatory mechanisms in place to provide for the conservation of *Penstemon grahamii* and the protection of its habitat.

Based on our analysis of the best available scientific and commercial information, we conclude that the inadequacy of existing regulatory mechanisms is not currently a threat to *Penstemon grahamii*, nor is it likely to become a significant threat in the foreseeable future, such that listing under the Act is warranted.

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

We note the presence of exotic weeds within occupied *Penstemon grahamii* sites, including *Bromus tectorum* (cheatgrass) and *Halogeton glomeratus* (halogeton) (England 2003). These invasive exotic species are most abundant along roads and well site locations (Specht 2004). These species may compete with *P. grahamii*, thus further degrading habitat quality. However, we have no information to indicate that exotic weeds threaten the existence of *P. grahamii*.

Little is known concerning the species' pollination biology. The BLM is currently funding pollination biology studies (Bolander 2005; Lewinsohn *et al.* 2005, pp. 12–14, 17). Collections and observations of pollinators to the flowers of *Penstemon grahamii* have been limited over the past two flowering seasons because of the paucity of flowering plants. The most consistent pollinator of this species is likely to be the wasp *Pseudomasaris vespoidea* (Lewinsohn *et al.* 2005, p. 17). Because flowers of *P. grahamii* appear to be very scarce, this plant species may be unable to support a viable population of *P. vespoidea*. Successful reproduction by *P. grahamii* may depend on the occurrence of other concurrently blooming *Penstemon* species which support and keep abundant populations of *P. vespoidea* in the area.

Low population numbers and habitat fragmentation pose a threat to rare plant species' genetic potential to adapt to changing environmental conditions (Lienert 2002, pp. 62, 63, 66; Matthies *et al.* 2004, pp. 481, 486). Three of *Penstemon grahamii*'s 5 population habitat units have 200 or fewer

individuals. In addition, 8 smaller occurrences with populations of 20 or fewer individuals are isolated, and 10 km (6 mi) or more from the core area of the 5 *P. grahamii* population units. These smaller occurrences of *P. grahamii* may not be at levels that would ensure the species' long-term demographic stability and genetic viability. The effects of habitat degradation and fragmentation caused by human activities in concert with the effects of deleterious natural phenomena, such as drought, may lead to the extirpations of small, localized populations. At present there are no studies or information on these threats relative to *P. grahamii*, and we have no information to indicate that low population levels and habitat fragmentation have range-wide effects on the species.

Based on our analysis of the best available scientific and commercial information, we conclude that there are no other natural or manmade factors affecting the continued existence of *Penstemon grahamii* such that listing under the Act is warranted.

#### Listing Determination

We have carefully assessed the best scientific and commercial information available regarding threats to *Penstemon grahamii*. After a review of additional information provided during the public comment period, we have determined that existing and potential threats to *P. grahamii* and its habitat are not sufficient to warrant listing the species

as threatened or endangered under the Act. No documented decreases in population numbers or range of distribution have been documented for *P. grahamii*. Potential threats to the species' habitat from energy development, including traditional oil and gas exploration, field development, and production, have been adequately addressed and mitigated by BLM policies, land use planning, and on-the-ground protective measures. Oil-shale development has the potential to cause increased habitat loss and fragmentation in areas of occupied *P. grahamii* habitat. However, there is great uncertainty over the technological and economic viability of commercial production, and, therefore, over timing and eventual location of oil-shale extraction. Based on the best available information, we conclude that there may never be a significant impact to the species from oil-shale or tar-sand energy development, and if there is it will not occur for at least the next 20 years. No significant habitat threats from livestock grazing or ORV use are presently affecting the species. Overutilization for horticultural use is not known to be negatively impacting populations.

Because we have determined there are no significant threats that warrant listing this species under the Act, we withdraw our proposed listing rule and proposed critical habitat designation for *Penstemon grahamii*, as published in the **Federal Register** of January 19, 2006 (71 FR 3158). We are taking this action under section 4(b)(6)(A)(i)(IV) of the

Act. Our decision to withdraw the proposed rule to list *Penstemon grahamii* also removes the species from candidate status under the Act.

In making this finding, we recognize there are potential future threats to the species from energy development, particularly if oil-shale and tar-sands development is commercialized in the Uinta Basin. We further conclude that additional population inventory, habitat and population monitoring, and life history studies are needed for *P. grahamii*. If realization of any potential threats occurs, we will reexamine the status of *P. grahamii*.

#### References Cited

A complete list of all references cited is available at the Utah Field Office, U.S. Fish and Wildlife Service (see **ADDRESSES** above).

#### Author

The primary author of this document is John L. England of the Utah Fish and Wildlife Service Field Office (see **ADDRESSES** above).

#### Authority

The authority for this action is section 4(b)(6)(B)(ii) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: December 6, 2006.

#### Marshall Jones,

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

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