

PROJECT FILE



United States Department of the Interior FISH AND WILDLIFE SERVICE

UTAH FIELD OFFICE
2369 WEST ORTON CIRCLE, SUITE 50
WEST VALLEY CITY, UTAH 84119

In Reply Refer To
FWS/R6
ES/UT

May 1, 2006

Dr. Lelia Shultz
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Utah State University
Logan, Utah 84322-5230

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5310 Old Main Hill
Logan, Utah 84322-5310

Dr. Mark Porter
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1500 N. College Ave.
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Dr. Janet Coles
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Boulder, Colorado 80304

Dr. David G. Anderson
Colorado Natural Heritage Program
Colorado State University
8002 Campus Delivery
Fort Collins, Colorado 80523

Rusty Roberts
P.O. Box 284
Meeker, Colorado 81641

Dear Dr. {Fill in the blank}:

Recently the U.S. Fish and Wildlife Service published a proposed rule in the Federal Register to list *Penstemon grahamii* a threatened species under the provisions of the Endangered Species Act of 1973 as amended. We are required, in accordance with our July 1, 1994 peer review policy (59 FR 34270), to solicit a scientific peer review of this proposal. We have solicited peer review nominations from interested parties. You were recommended as a peer reviewer and were contacted verbally as to your willingness and availability to accomplish this task.

The purpose of seeking independent peer review is to ensure use of the best scientific and commercial information available and to maximize the quality, objectivity, utility, and integrity of the information upon which the proposed action is based. Reviews by recognized experts will be incorporated into the rulemaking process. Your review should focus on identifying and characterizing scientific uncertainties. You are asked to answer questions pertaining to the logic of our assumptions, arguments, and conclusions and to provide any other relevant comments, criticisms, or thoughts. You are requested as part of this peer review not to provide advice on policy. Any such comments on policy or advocacy for or against the proposal should be addressed in correspondences separate from your peer review response.

Enclosed are copies of the Proposed Rule, References Cited, and a GIS analysis prepared by the Fish and Wildlife Service. Please base your review and comments on information contained in these documents. We request your review specific to the following questions:

1. Is our description and analysis of the biology, population, and distribution of *Penstemon grahamii* accurate?
2. Does the Proposed Rule provide accurate and adequate review and analysis of the factors relating to the threats to the *Penstemon 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?

You are requested to provide an individual written response. Your review, including your name and affiliation, will (1) be included in the administrative record of our final determination regarding this proposal (i.e., a final rule or a withdrawal), and (2), once all are completed, will be available upon request. We will summarize and respond to the issues raised by you and the other peer reviewers in a special section of the final rulemaking determination. Because this peer review process is running concurrently with public review of the proposed action, peer reviewers will not be provided public comments. A final determination regarding this proposed action is expected in late 2006.

The peer review process was initiated shortly after publication of the proposed rule in the Federal Register, and is being conducted concurrent with the public comment period. Public comments are being accepted through May 19, 2006 (71 FR 19158, April 13, 2006). We request that you complete your review by the close of the public comment period in May.

I thank you on behalf of the U.S. Fish and Wildlife Service for your willingness to perform this important task. If you have any questions please contact Larry England of this office at 801-975-3330 ext. 138 or larry_england@fws.gov.

Sincerely,

ORIGINAL SIGNED

Henry R. Maddux
Utah Field Supervisor

bcc: Project file
Reading file

ENGLAND/tsb:5/1/06

File:

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Utah State UNIVERSITY

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16 May 2006

Henry R. Maddux, Utah Field Supervisor
United States Department of the Interior
Fish and Wildlife Service
2369 West Orton Circle, Suite 50
West Valley City, Utah 84119

Dear Mr. Maddux,

In response to your recent request to review the proposed rule in the Federal Register to list *Penstemon grahamii* as a threatened species, I am pleased to send my comments regarding the biological assessments and delineation of critical habitat addressed in the report. My personal knowledge of the Graham's Penstemon and its habitat is based on fieldwork I conducted on endemic plants of the Uintah Basin in 1978 and 1979. Because my report is cited extensively in the Federal Register report (as Shultz and Mutz 1979), I am pleased to make this response as to the accuracy of findings in listing package.

As to the biology and habitat for the species, the analysis of the biology of the species includes extensive information about life cycles as well as exhaustive (and accurate) details of habitat, population size, mode of pollination, known pollinators for the species, and assessment of the existing vegetation communities. The definition of suitable habitat is accurate and more than adequate. The species occurrence maps are bounded by proposed conservation areas: accurate detail as well as overlays that will be useful in conservation planning. As to the delineation of habitat, the proposed critical habitat is based on existing populations and as such, provides a conservative estimate of potential habitat. The proposal thus defines a minimum core area that should be designated as critical habitat. Furthermore, the proposal does not include a number of peripheral sites for *Penstemon grahamii*.

As to perceived threats to *Penstemon grahamii*, the author of the proposed ruling has done a superb job of providing information about existing and potential uses of the *Penstemon grahamii* habitat for energy development. It is abundantly clear from his review that oil and gas



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wells have been developed throughout the habitat, but there appears to be little adverse effect. My assumption is that the occurrence of gas wells at their existing density is not perceived as not a threat to the Graham's Penstemon, but that an increase in density would be problematic. I concur with this conclusion. The concern regarding threats and the immediate impetus for the listing package is well defended in view of the potential development of oil shale, either in the form of surface mining or *in situ* development. The reason for this development is well-detailed in the proposal, and the economic impact is addressed. For these reasons, I believe that the development of oil shale in the Uintah Basin is inevitable.

Inasmuch as energy development is likely to increase in the very near future, I believe it is imperative that a well-planned program of conservation be developed for *Penstemon grahamii*. The listing package lays the groundwork for this by delineating critical habitat and proposing areas for conservation. The proposed listing for *Penstemon grahamii* is both timely and well-executed. The listing package offers, in my view, an excellent compromise between extreme non-disruptive conservation on the one hand, and 'rip up everything' development that would likely cause the extinction of Graham's Penstemon as well as a number of other Uintah Basin endemic plants.

Fortunately, preservation of the *Penstemon grahamii* habitat should serve to save other species associated with the plant. For purposes of illustration, I have appended some images of the Uintah Basin endemics from the work I did in 1979. I hope these might be helpful if further review is needed. I am pleased to help speed the listing of this species for protection in any way I can.

The proposed ruling will not preclude energy development or, in my opinion, offer significant hindrance. I believe it is of critical importance to finalize this listing package with all possible speed. Protection of habitat is the only thing that will save this species from extinction.

Sincerely,

Leila M. Shultz
Research Professor

Attachment: Uintah Basin Endemic Plants



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Peer Review of:

US Fish and Wildlife Service. 2006. 50 CFR Part 17: Endangered and Threatened Wildlife and Plants; Proposed Threatened Status for *Penstemon grahamii* (Graham's beardtongue) With Critical Habitat, Proposed Rule. Federal Register 71(12): 3158-3195.



Reviewer: David G. Anderson

Review Date: September 15, 2006

This document presents a thorough summary of the need for threatened status for *Penstemon grahamii* and presents proposed sites for critical habitat designation for this species. This document is concise and well written, and presents an objective and convincing argument for the need to change the status of *P. grahamii*. The author has done an excellent job of assimilating all pertinent references and other resources to build a case for threatened status and critical habitat designation. The GIS analyses conducted by the USFWS are thorough and sound, and appropriately identify suitable critical habitat units for *P. grahamii*. Overall, this document does an excellent job of presenting a convincing rationale for threatened status for *P. grahamii* and it appropriately and logically defines critical habitat.

Specific Comments

P. 3160: The Species Information section provides a thorough and accurate review of the history of this species from its discovery and circumscription to our current knowledge of its distribution and status. The author and the GIS team relied heavily on data from the Utah and Colorado Natural Heritage Programs, herbarium specimens, and survey reports to portray our understanding of its range and status. To the best of my knowledge this section is accurate (except for the correction needed on p. 3161- see below), and the information presented for Colorado corroborates with the Colorado Natural Heritage Program database.

Penstemon grahamii is clearly a narrowly restricted globally rare species found only on particular geologic substrates. However, most of the information on *P. grahamii* in Colorado is not current, and there is uncertainty about its distribution and population size because the known occurrences have not been surveyed recently or thoroughly. Element occurrence records maintained by the Colorado Natural Heritage Program indicate that no new information has been obtained at three occurrences (EO#s 6, 7, and 10) in over 25 years, and these areas have never been thoroughly searched for this species (Table 1). An estimated total population size of 200 individuals is presented for *P. grahamii* in Colorado, which seems reasonable given the limited information available (Table 1), but our confidence in this estimate (which should be very low given the incompleteness of the data on which it is based) is not qualified within the document and the range of population estimates is not presented. This is always a difficult issue- presenting the uncertainty inherent in data such as these begs the question: "how do we know this species is really rare and imperiled, versus under-documented?" It is unfortunate that there have been no recent targeted survey efforts for this species to support this proposal

to change the status of *P. grahamii*, and this is probably the greatest weakness in defending the boundaries delineated as critical habitat in this document. However, the author has made a strong case for the imperilment of *P. grahamii* in the subsequent section (Summary of Factors Affecting the Species) which soundly argues for the need to designate critical habitat on Raven Ridge based on imminent threats from energy resource extraction and its secondary impacts. It is well established that *P. grahamii* is a narrow edaphic endemic whose habitat lies atop the world's richest oil shale deposits, and this fact should carry considerable weight in considering this proposed status change. Even if future surveys identify robust populations in Colorado, the need for habitat protection is clear given the types of threats faced by this species. The high level of endemism in the habitat of *P. grahamii* is presented well in this document and also exemplifies the need for habitat protection.

Table 1. Summary information for all occurrences of *Penstemon grahamii* in Colorado. Total population size in Colorado is estimated to be about 200 individuals.

CO EO#	Location	Last Obs	Population size
1	Raven Ridge, Mormon Gap	5/10/1996	Total size unknown. 12 ind. observed in 1993 at one of 6 locations within this occurrence, 101-500 individuals observed at another location in 1987.
5	Raven Ridge, off Bonanza Hwy.	May 1998	Approximately 50 individuals in two subpopulations.
6	Raven Ridge	June 1980	Size unknown
7	White Cliffs over White River	7/28/1981	Size unknown
10	Raven Ridge s. of Moffat County Line	5/28/1981	Size unknown

* The sixth occurrence mentioned on p. 3160 is not mappable and is thus not included as an Element Occurrence Record by the Colorado Natural Heritage Program.

P. 3161: In 2006 (after the publication of this document) the Colorado Natural Heritage Program revised the S rank for *P. grahamii* in Colorado from S2 (imperiled) to S1 (critically imperiled).

Other Comments:

Jill Handwerk with the Colorado Natural Heritage Program sent a copy to USFWS of a recent report that will be useful in compiling the final draft of this document:

Decker, K., A. Lavender, J. Handwerk, and D.G. Anderson. Modeling the Potential Distribution of Three Endemic Plants of the Northern Piceance and Uinta Basins. Unpublished report for US Fish and Wildlife Service by the Colorado Natural Heritage Program.

This report presents the results of a distribution modeling exercise for *P. grahamii* that supports the proposed critical habitat units.

Closing Remarks:

Please feel free to contact me or others at the Colorado Natural Heritage Program if any additional data or references are needed. We will be happy to provide information to support your needs in producing the final draft of this document.

Sincerely,

A handwritten signature in black ink, appearing to read "David G. Anderson". The signature is written in a cursive, somewhat stylized font.

David G. Anderson

Botany Team Leader, Colorado Natural Heritage Program

Janet J. Coles
3520 Cloverleaf Drive
Boulder, Colorado 80304

July 29, 2006

Larry England
U.S.D.I Fish and Wildlife Service
Ecological Services
2369 West Orton Circle, Suite 50
West Valley City, Utah 84119

Dear Larry:

Thank you for the opportunity to review the proposed rule to list *Penstemon grahamii* Keck as Threatened under the provisions of the Endangered Species Act of 1973 (as amended). I have read the proposed rule, reviewed my files, and spoken with other botanists who are familiar with the species. I also visited several of the suboccurrences on Raven Ridge over Memorial Day weekend this year. My comments and responses to the questions contained in your letter appear below, but are limited to the species only as it occurs in Colorado. I am not familiar with *P. grahamii*'s behavior, habitat or threats in Utah.

1. Is our description and analysis of the biology, population and distribution of *Penstemon grahamii* accurate?

The proposed rule provides a thorough summary of the biology, population characteristics and distribution of *Penstemon grahamii*. The only important factors that are missing from the discussion are breeding system and dispersal mechanisms. As far as I know, there have been no formal studies of either aspect of *P. grahamii*'s biology, but it would be worthwhile at least to mention these factors. There appears to be an assumption that *P. grahamii* uses the services of pollinators and is actively dispersed, but the basis for these assumptions is not discussed.

2. Does the Proposed Rule provide accurate and adequate review and analysis of the factors relating to the threats to *Penstemon grahamii*?

A. The present or threatened destruction, modification, or curtailment of its habitat. I was impressed by the specificity and detail provided in describing the processes of oil shale and tar sand extraction, the overlap of proposed sites for energy development with *Penstemon grahamii* occurrences and habitat, and the

potential impacts of energy development on the species. No additional information is required, and the analysis is adequate.

B. Overutilization for commercial, sporting, scientific, or educational purposes. *Penstemon grahamii* is undoubtedly popular in the rock garden (horticultural) trade. The occurrence closest to Mormon Gap in Unit E is well-known among botanists and horticulturalists and there is anecdotal information indicating that collectors visit the site regularly for seed. This particular colony was in poor condition when I visited it in May, 2006. I was able to locate only five plants, only one of which had attempted to flower. The flower had been removed by a browsing animal.

C. Disease and predation. I have seen no evidence of disease on *Penstemon grahamii* plants. I have seen abundant evidence that foliage and especially flowers are browsed by native ungulates, rabbits, insects and domestic sheep. The Colorado occurrences rarely set fruit (because most of the flowers are removed before seeds develop), so I have no information on seed predators.

My sense of the effect of livestock grazing is that it is an additional source of stress for a species already grappling with a stressful environment. From the monitoring studies I conducted in the 1990s, it appears that the number of flowers a plant produces are related to the amount of foliage; browsed plants have less foliage, lower vigor and produce fewer flowers. Studies of the effects of livestock and wildlife exclosures on plant vigor and reproduction would be a high priority for recovery if this species is listed.

D. Adequate regulatory mechanisms. Most of Unit E is contained within the Raven Ridge Area of Critical Environmental Concern administered by the Meeker office of the BLM. The ACEC was established to protect the rare and endemic plants growing on the ridge as well as outstanding paleontological (Eocene invertebrate) resources. However, the degree of protection provided by an ACEC designation is variable and inconsistent. The same BLM office recently permitted Exxon to install a natural gas pipeline through a designated ACEC (Dudley Bluffs), with direct impacts to a population of the federally listed oil shale endemic *Physaria obcordata*. The state of Colorado has no laws or policies that would protect *Penstemon grahamii* on private or state-administered lands.

E. Any other natural or man-made factors affecting its continued existence. I am not aware of any. There are many other weed species that could potentially threaten *Penstemon grahamii*.

3. Are our assumptions and definition of suitable habitat logical and adequate?

The definition of suitable habitat is reasonable. It may be helpful to include some of these considerations in defining critical habitat for *Penstemon grahamii*. The species appears to be a stress-tolerating plant whose basic strategy is avoiding competition. It does not appear to be able to colonize recently disturbed areas, is long-lived, and recruitment events are rare.

There is a small typographic error on p. 3160, paragraph 3, sentence 1: the Raven Ridge Unit (Unit E) is northeast of Unit D, not northwest. The error is repeated on p. 3169, paragraph 11, sentence 1.

Please don't hesitate to contact me if you have questions or require additional information. I am no longer with NatureServe, having accepted a position with the National Park Service's Inventory and Monitoring Program for the Northern Colorado Plateau Network. You can contact me at the offices in Moab. My email after August 7 will be janet_coles@nps.gov.

Sincerely,

A handwritten signature in black ink that reads "Janet J. Coles". The signature is written in a cursive style with a large, looping initial "J".

Janet J. Coles
Consulting Botanist/Ecologist