United States Department of the Interior

FISH AND WILDLIFE SERVICE

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In Reply Refer To:
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JUL 08 2013

Memorandum

To: Deputy State Director, Resources Policy and Management, Bureau of Land Management, State Office, Cheyenne, Wyoming

From: For Field Supervisor, U.S. Fish and Wildlife Service, Wyoming Field Office, Cheyenne, Wyoming

Subject: Formal Statewide Programmatic Consultation for the Impacts from the Wyoming Bureau of Land Management Resource Management Plans and their Effects to the Blowout Penstemon (*Penstemon haydenii*)

This biological opinion (BO) is in response to the U.S. Bureau of Land Management's (BLM's) request for formal consultation for the impacts from the BLM's Wyoming Resource Management Plans (RMPs) to the blowout penstemon (*Penstemon haydenii*) that may occur on BLM-administered lands in Wyoming. The U.S. Fish and Wildlife Service (USFWS or Service) has reviewed the Statewide Programmatic Blowout Penstemon Biological Assessment (BA) submitted by your office describing the effects of the Wyoming RMPs and proposed BLM-committed conservation measures on the blowout penstemon. Your September 13, 2012, request for formal consultation was received on September 17. This correspondence is provided in accordance with section 7(a)(2) of the Endangered Species Act of 1973 (ESA), as amended (50 CFR §402.13 and §402.14).

This consultation will cover four BLM RMPs: the approved Green River, Casper, and Rawlins RMPs (BLM 1997a, 2007, 2008a), as well as the draft Lander RMP (BLM 2011) in Wyoming. At this point, the BLM does not expect the potential effects to blowout penstemon, as described in the draft Lander RMP, to change substantially before the Record of Decision for the Lander RMP is signed. Furthermore, the effects to all federally-listed species (including the blowout penstemon) will also be analyzed during separate section 7 consultation for the Lander RMP prior to its finalization. The BLM also evaluated and considered the applicability of including the eight remaining Wyoming RMPs in this consultation. However, those RMPs were not included, based on the lack of suitable blowout penstemon habitat in those planning areas. Those RMPs will not be discussed further in this consultation.

This BO addresses potential adverse effects to the blowout penstemon from the described BLM activities of one planned program as well as the BLM's commitment to the Conservation Measures listed in the BLM's BA. The planned program with activities that may affect and are

likely to adversely affect the blowout penstemon is the Livestock Grazing Management Program of the Rawlins RMP.

The BLM's blowout penstemon BA made "likely to adversely affect (LAA)", "not likely to adversely affect (NLAA)" or "no effect (NE)" determinations for the effect of all BLM planned programs on the blowout penstemon in all of the four pertinent BLM RMP planning areas in Wyoming. These are displayed in Table 1 below.

Table 1. Blowout penstemon effects determinations made by the BLM.

Resource Management Plan (RMP) / Management Program	Rawlins RMP (Rawlins Field Office)	Casper RMP (Casper Field Office)	Draft Lander RMP (Lander Field Office)	Green River RMP (Rock Springs Field Office)
Air Quality	NLAA	NE	NE	NE
Cultural Resources	NLAA	NLAA	NLAA	NLAA
Fire and Fuels Management	NLAA	NLAA	NLAA	NLAA
Fish and Wildlife Resources	NLAA	NLAA	NLAA	NLAA
Forest Resources	NE	NE	NE	NE
Lands and Realty	NLAA	NE	NLAA	NE
Livestock Grazing	LAA	NLAA	NLAA	NLAA
Minerals (locatable, leasable, salable)	NLAA	NLAA	NLAA	NLAA
OHV's and Travel Management Areas	NLAA	NLAA	NLAA	NLAA
Paleontological Resources	NE	NLAA	NLAA	NE
Recreation Resources	NLAA	NLAA	NLAA	NLAA
Special Designations and Management Areas	NLAA	NLAA	NLAA	NLAA
Transportation and Access Management	NLAA	NLAA	NLAA	NLAA
Vegetative Resource Management	NLAA	NLAA	NLAA	NLAA
Visual Resource Management	NLAA	NLAA	NLAA	NLAA
Water and Soil Resources	NLAA	NLAA	NLAA	NLAA
Wild Horses	NE	NLAA	NLAA	NLAA

This consultation is based on the project description, our review of your BA and analysis of effects (BLM 2013), and the BLM-committed Conservation Measures (Appendix) as described in your September 13, 2012, letter of initiation of formal consultation as well as the adjustments made in the March 2013 updated BA. A complete administrative record of all documents and correspondence concerning this consultation are on file in the Wyoming Ecological Services Field Office.

Consultation History

The Service and the BLM began statewide programmatic formal consultation on impacts of BLM activities to the blowout penstemon on October 23, 2001. The BLM provided drafts of the programmatic blowout penstemon BA in February 2004, October 2004, August 2012, and September 2012. The Service received the BLM's request for formal consultation on this proposed action on September 17, 2012. On October 9, 2012, the Service issued a memo to the BLM notifying them that all materials necessary for the initiation of formal consultation had

been received. The Service provided the BLM with a draft BO on January 16, 2013. Comments on the draft BO and an updated programmatic BA were received by the Service in March 2013. The Service then began preparing a second draft BO in response to the comments received and based upon the updated programmatic BA. Additional comments on the draft BO were received on May 23, 2013. On June 6, it was determined that all comments from the BLM had been addressed, and the Service then began to finalize this consultation.

Informal Consultation

The BLM has determined that certain programs under the Casper, Green River, Rawlins, and draft Lander RMPs in Wyoming, coupled with the BLM's commitment to the conservation measures listed in the Appendix will have "no effect" or are "not likely to adversely affect" the blowout penstemon (see Table 1 above). These 17 programs are (1) Air Quality (2) Cultural Resources, (3) Fire and Fuels Management, (4) Fish and Wildlife Management, (5) Forest Resources, (6) Lands and Realty, (7) Livestock Grazing, (8) Minerals (locatable, leasable, salable), (9) Off-Highway Vehicles (OHVs) and Travel Management Areas, (10) Paleontological Resources, (11) Recreation Resources, (12) Special Designations and Management Areas, (13) Transportation and Access Management, (14) Vegetation Resources, (15) Visual Resource Management, (16) Water and Soil Resources, and (17) Wild Horses. Some of the identified RMP programs contained overlapping activities and any activities which overlapped among two or more programs are described under the program to which they were most closely associated.

The Service concurs with your "may affect, not likely to adversely affect" determinations presented in Table 1 that indicate certain programs will not likely adversely affect the blowout penstemon. The Service does not provide concurrence to "no effect" determinations but appreciates receiving the information that led to those determinations. A description of the programs and a summary of the rationale behind the "may affect, not likely to adversely affect" determinations follow.

General Description of Activities Identified in Table 1. The following discussion is a general overview of the Wyoming BLM RMP activity programs and potentially-authorized activities of the BLM that are not likely to adversely affect or will not affect the blowout penstemon, now or in the foreseeable future. The names of the different programs are summarized here as in the BA (see Table 2, BLM 2013) to accommodate similar activities under varying program names between the individual RMPs. Conservation Measures (see Appendix) were identified in the Programmatic Blowout Penstemon BA and the BLM has committed to implementing those conservation measures. For the purposes of this consultation, the Service has analyzed the effects to the blowout penstemon taking into account the BLM's commitment to the implementation of the conservation measures. As per the BLM's letter, commitment of the BLM to the conservation measures will be formalized through a maintenance action of all pertinent Wyoming RMPs following completion of this formal consultation.

As per section 7 of the ESA, the BLM will conduct site-specific consultation with the Service prior to authorization of any activity authorized under the Casper, Green River (Rock Springs), Rawlins, and Lander RMPs which "may affect" the blowout penstemon. These future consultations will provide additional means for site-specific analyses and documentation of the commensurate levels of potential impact to the blowout penstemon.

Air Quality

Program Description. The BLM's management objectives for the air quality program are to maintain or enhance air quality and minimize emissions that could result in atmospheric deposition, violations of air quality standards, or reduced visibility. The BLM air quality program includes monitoring efforts in coordination with the Service, Wyoming Department of Environmental Quality (WDEQ) and the U.S. Environmental Protection Agency (EPA). Concentrations of air contaminates must be within limits of Wyoming ambient air quality standards (WAAQS) and National Ambient Air Quality Standards (NAAQS). New sources of air pollutants or modifications to sources must comply with the new source performance standards and prevention of significant deterioration (PSD). The PSD program is used to measure air quality to ensure that areas with clean air do not significantly deteriorate, while maintaining a margin for industrial growth.

Monitoring for air quality components (i.e. carbon monoxide, nitrogen dioxide, sulfur dioxide, ozone, etc.) is conducted from various facilities around Wyoming. Air quality management actions typically are associated with limiting, reducing, and monitoring pollutant levels and dust during other BLM management actions. Special requirements (i.e. stipulations, mitigation measures, conditions of approval, etc.) to alleviate air quality impacts will be identified on a case-by-case basis and included in use authorizations. Examples of such requirements include: limiting emissions, spacing of source densities, requiring the collection of meteorological and air quality data, covering conveyors at mine sites (to lower dust emissions), and restricting natural gas flaring (to reduce sulfur emissions).

Activities associated with air quality management include gathering of meteorological and air quality data for air quality components and concentrations and conducting dust control inspections. These activities require travel to monitoring sites located throughout the state.

Anticipated Effects to Blowout Penstemon. Air quality management activities within the Rawlins RMP planning area may affect, but are not likely to adversely affect the blowout penstemon given that (1) the BLM has committed to requiring surveys for this plant or assuming species-presence, and implementing applicable conservation measures, including potentially the modification of operational plans, protection requirements related to seasonal use or occupancy restriction, facility design, etc. (BLM 2013); (2) only three populations of this plant are currently known to exist in Wyoming; (3) placement of air monitoring stations would not be likely in blowout penstemon habitat as the nature of shifting sands would not provide for a stable foundation for such structures, and (4) management actions associated with this program other than placement of equipment are expected to have only beneficial effects to air quality and the blowout penstemon (BLM 2013).

Cultural Resources.

Program Description. The BLM's objectives for the cultural resource management program include the protection and preservation of cultural resources and historic trails to ensure they are available for use by present and future generations. Cultural resources receive full consideration in all BLM land-use planning and management decisions to reduce threats from natural- or human-caused deterioration and conflicts with other resources and values. The BLM pursues listing of sites for eligibility on the National Register of Historic Places in coordination with the Wyoming State Historic Preservation Office.

Cultural resource management actions include conducting inventories and data collection for documenting and developing mitigation plans prior to surface disturbing activities often associated with other resource programs. During inventory activities, the BLM inventories, categorizes, and preserves cultural resources, conducts field activities, performs excavations, maps and collects surface materials, researches records, and photographs sites and cultural resources. The intensity and length of cultural resource inventories varies on a case-by-case basis, and temporary campsites may be set up to facilitate inventory activities.

Land management actions associated with cultural resources involve managing sites for scientific, public, and sociocultural use. Activities may include developing interpretive sites, restricting certain land uses, closing areas to exploration, prohibiting or restricting surface disturbing activities and preparing interpretive materials. The cultural resource program may also install fences to protect resources such as historic trail segments, stabilize deteriorating buildings and other cultural structures, pursue land access or withdrawals when necessary, designative avoidance areas, or construct scenic overlooks, signs and walking trails. Some of the activities and actions associated with cultural resource inventories and management involve the use of hand and power tools, motorized vehicles and heavy equipment.

Anticipated Effects to Blowout Penstemon. Activities associated with the Cultural Resources Program are not expected to adversely affect the blowout penstemon in the four BLM RMP planning areas given that: (1) the BLM has committed to requiring surveys for this plant or assuming species-presence, and implementing applicable conservation measures, including potentially the modification of operational plans, protection requirements related to seasonal use or occupancy restriction, facility design, etc. (BLM 2013); and (2) only three populations of this plant are currently known to exist in Wyoming. Furthermore, cultural resource activities of the BLM are normally in response to other proposed projects (projects which would be prohibited in or unlikely to occur in blowout penstemon habitat).

Fire and Fuels Management.

Program Description. The BLM's objectives for the fire and fuels management program are to restore the natural role of fire in fire dependent ecosystems and to protect life, property, and resource values from wildfire. There are two major categories of activities involved in the BLM fire management program, prescribed fire, and wildland fire suppression.

Prescribed fire is a management tool used to restore natural fire regimes and enhance rangeland habitat for livestock and wildlife. Fire is also considered as a fuels treatment management tool and can be used for the disposal of timber slash, seedbed preparation, reduction of hazardous fuel, or the control of disease or insects. The BLM evaluates areas for prescribed burns, prepares fire breaks and coordinates with interested parties to write activity plans prior to conducting treatments.

Wildland fire suppression objectives are to protect life, property and resources values from wildland fire. The BLM has identified site-specific fire management practices for sites within the Wyoming planning areas for wildland fire suppression actions. Planning is done in advance to determine the type of suppression activities that will be allowed in a planning unit, where they will be allowed, and what type of equipment will be used. Full suppression is a strategy requiring immediate and aggressive attack of a fire and typically relies on mechanized equipment on or off roads. In contrast, limited fire suppression is a less aggressive strategy, and is used to keep a fire within a specified area. In the event that a wildfire requiring immediate suppression

or has the potential to impact a threatened and endangered species or its habitat, the Service will be contacted for emergency consultation and all conservation measures that do not hinder protection of human life and property will be applied.

There are a multitude of activities associated with the fire and fuels management program. Hand and mechanized equipment ranging from pulaskis to chain saws to bulldozers may be used to reduce fuel loads or prepare fire breaks. Ground access to a site may be by trail, road or cross-country and can occur on foot, truck or OHV, depending on the severity of the fire and need for immediate suppression. Water and chemical fire retardants are dispersed during prescribed and wildland fires using either backpumps, engine pumps or air tanker water drops. Fire crews can range in size from a few individuals to many, and may require the establishment of temporary campsites with areas large enough to accommodate personnel, cooking facilities, and equipment storage areas. "Mop-up" operations involve activities such as extinguishing burning embers or tree snags with tools or water. Rehabilitation after a fire is conducted on a case-by-case basis and can involve activities such as planting to restore previous vegetative cover.

Anticipated Effects to Blowout Penstemon. Given that: (1) the BLM has committed to requiring surveys for this plant or assuming species-presence, and implementing applicable conservation measures, including potentially the modification of operational plans, protection requirements related to seasonal use or occupancy restriction, facility design, etc. (BLM 2013); (2) only three populations of blowout penstemon are currently known to exist in Wyoming; and (3) there is very little possibility, if any, for wild fires to occur in the sparsely vegetated sand dunes occupied by blowout penstemon; activities associated with the Fire and Fuels Management Program are not likely to adversely affect the blowout penstemon in the four BLM RMP planning areas.

Fish and Wildlife Resources.

Program Description. The BLM's general objectives for fish and wildlife management actions are to maintain and enhance habitat for a diversity of fish and wildlife species and provide habitats for special status species in compliance with the ESA, approved species recovery plans and the BLM Manual 6840. Fish and wildlife program actions may include inventorying, surveying, monitoring, habitat improvement projects, and predator control.

Fish and wildlife inventory, survey and monitoring actions often include sampling and documenting populations, habitat occurrence, and habitat conditions. Techniques include, but are not limited to: satellite imagery mapping and interpretation, measurement of resource transect parameters on the ground, and data collection for laboratory analysis. These activities often include off-road field travel, but generally no significant surface disturbance activities.

Habitat development and improvement projects may include, but are not limited to, developing water sources, managing resources to maintain rangeland forage productivity and quality, treating vegetation chemically, mechanically or biologically, and constructing and maintaining fences in accordance with the BLM Fencing Manual Handbook (BLM 1989). Together these actions may require the use of hand tools, heavy and/or mechanical equipment, hauling and transportation of materials (road/trail construction), and removal of vegetation. Development of water sources can be labor intensive and can cause surface disturbance as a result of earth moving activities.

The BLM develops stipulations and protective measures to for fish and wildlife habitat. These can include authorizing withdrawals of specific areas from surface disturbing activities,

restricting use of OHVs, snowmobiles, and horses, imposing road closures, and restricting access to public lands for recreational uses. The BLM may also acquire land or easements to protect habitat.

There are a variety of restoration techniques used by the fish and wildlife resource program that are used on a site-specific and case-by-case basis. These techniques can vary in size and intensity of ground disturbance. Distributing information to landowners and developing public education programs are additional activities authorized under the program.

Predator control methods include trapping, snaring, denning, dog tracking, calling, shooting, and predacide applications. Rodent controls involve the use of rodenticides, burrow gassing, shooting and occasionally trapping and can be delegated to local or county weed and pest agents, or recreational shooters. Predator and rodent control efforts can take days or months, until the predator control objectives are met.

Anticipated Effects to Blowout Penstemon. Management activities of this program within the Wyoming BLM's RMP planning areas are expected to maintain or may improve the conditions for target wildlife species. Given that: (1) the BLM has committed to requiring surveys for this plant or assuming species-presence, and implementing applicable conservation measures, including potentially the modification of operational plans, protection requirements related to seasonal use or occupancy restriction, facility design, etc. (BLM 2013); (2) only three populations of this plant are currently known to exist in Wyoming; (3) the BLM has committed to prohibiting surface disturbing activities within 0.25 miles of blowout penstemon populations; and (4) management actions associated with this program are expected to have beneficial effects to blowout penstemon habitat through habitat protective measures (BLM 2013); activities associated with the BLM's Fish and Wildlife Management Program are not likely to adversely affect the blowout penstemon in the four BLM RMP planning areas.

Forest Resources.

Program Description. The BLM's objectives for the forest resources program are to maintain and enhance the health, productivity, and biological diversity of forest and woodland ecosystems and to provide a balance of natural resource benefits and uses, including opportunities for commercial forest production. Forest management involves timber harvesting, cutting, removal and spraying of diseased trees, and spraying of grasses and shrubs. Timber harvesting may occur on forestlands with slopes less than 45%, and commercial operations are authorized under sale contracts or permits. Clearcuts, slash disposal, commercial thinning, logging and skidder-type or cable yarding may be allowed during timber harvesting by the BLM. Other commercial uses include post and pole harvest and the removal of wildlings for transplanting. Individual authorized clearcuts are restricted in size and proximity to surface water. Slash is to be lopped and scattered, roller chopped, or burned. During restoration efforts following timber harvest, the BLM ensures site regeneration and stand replacement.

Non-commercial timber harvests are allowed under individual permits for collection or cutting of firewood, Christmas trees, and posts or poles. Additionally, BLM forest management activities include assessment of the effects of prescribed burning, grazing, and recreation on forest resources.

There are many actions related to forest management that can cause surface disturbance, including, but not limited to the following: timber harvesting; rehabilitation surveys; artificial

regeneration (planting harvested areas), fencing regenerated areas, collection of firewood and non-commercial timber harvests; road and landing construction; chemical applications to diseased trees, grasses and shrubs; erosion control techniques; or re-contouring of the landscape after harvest. All of these actions require the use of vehicles and human presence, and may require the use of heavy machinery.

Anticipated Effects to Blowout Penstemon. The habitat for the blowout penstemon does not occur in forested areas. The BLM has determined that no Forest Resources activities will affect the blowout penstemon in any of the four RMP planning areas.

Lands and Realty.

Program Description. The BLM's objectives for the lands and realty program are to manage the acquisition, disposal, withdrawal and use of public land to meet the needs of the BLM and the public and to develop and maintain a land ownership pattern that provides for more efficient access to and protection of public lands. The lands and realty management program responds to requests for land use authorizations, sales and exchanges, withdrawals, and designates right-of-way (ROW) access to serve administrative and public needs (BLM 2013).

Public land tracts that are not critical to current management objectives can be disposed of through the lands and realty program. These lands will be considered for sale or disposal on a case-by-case basis when a definite need for the land is identified, the proposal meets the requirements of the Recreation and Public Purpose Act of 1954 (R&PP), and local land use laws. Generally, lands with special status species are not eligible for disposal and are retained in Federal ownership. Protective withdrawals of Federal lands may be established to preserve important resource values.

All BLM federally administered public lands will be open to consideration for utility, transportation, communication, and renewable energy ROW developments, with the exception of Wilderness Study Areas (WSAs), and some special designation and management areas. Most ROWs require the use of medium to heavy equipment and human presence during construction and maintenance. Areas with important resource values will not be selected for ROWs. However, if utility/transportation systems or communication sites are necessary in avoidance areas, effects of placement will be subject to mitigation measures and be intensively managed. Proposals for renewable energy developments will be considered on a case-by-case basis.

Through the lands and realty program, the BLM also pursues cooperative agreements, develops recreation site facilities, considers offsite mitigation proposals, minimizes access in wildlife habitat, fences revegetation sites, blocks linear ROWs to vehicle use, considers temporary-use permits, and leases acres for public uses such as landfills. Access management of non-Federal lands is generally in support of other resource management programs. Non-Federal lands may be acquired through exchange, sale or easement negotiations in areas with potential for recreation development or in areas containing important wildlife, cultural, scenic, natural, open space, or other resource values.

Anticipated Effects to Blowout Penstemon. Activities associated with the Lands and Realty Program are not likely to adversely affect the blowout penstemon in the Rawlins, Lander, and Green River RMP planning areas because: (1) the BLM has committed to requiring surveys for this plant or assuming species-presence, and implementing applicable conservation measures, including potentially the modification of operational plans, protection requirements related to

seasonal use or occupancy restriction, facility design, etc. (BLM 2013); (2) only three populations of this plant are currently known to exist in Wyoming; (3) the BLM has committed to prohibiting rights-of-way projects (powerlines, pipelines, roads, etc.) within 0.25 miles of blowout penstemon populations for powerlines, pipelines, roads, etc., and within 1.0 mile of wind energy projects; and (4) there is a very low probability for lands and realty actions to occur in the steep, shifting, unstable sand dune habitat occupied by this species. In addition, according to the BLM's 6840 Special Status Species Manual, the BLM "shall retain in Federal ownership those habitats essential for the conservation of any listed species, particularly those that are part of a broader, logical public land ownership management unit. The BLM may dispose of lands providing habitat for listed species, including critical habitat, only following consultation with the FWS or NMFS and upon a determination that such action is consistent with relevant law" (BLM 2008b).

Livestock Grazing.

Program Description. The BLM's main objective for the livestock grazing management program is to maintain, restore and enhance livestock grazing on public lands and meet Wyoming Standards for Healthy Rangelands. The BLM strives to utilize livestock grazing management techniques to attain desired plant communities and ecosystem functions in coordination with grazing permittees and the public. The livestock grazing management program is comprised of livestock management, vegetation treatment and rangeland improvement management actions.

All public lands are open to livestock grazing with the exceptions of some recreation areas, wetland/riparian areas and specific Special Designation/Management Areas. Cattle are the predominant class of livestock grazed on public lands, but sheep, horses, goats and bison are also authorized. Grazing systems used on public lands consist of year-long, season-long, early-season, late-season, split-season, and rotational grazing management systems. Grazing management systems are designed to maintain healthy rangelands, achieve livestock management goals, and meet the Wyoming Standards for Healthy Rangelands. These standards include watershed, wetland/riparian, vegetation, water quality, and air quality health standards and provide the basis for assessing and monitoring rangeland conditions and trends. If livestock are found to be a cause for non-attainment of a standard(s), management guidelines and practices are implemented to ensure progress is made towards meeting the standard(s). Standard 4 of the '*Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for the Public Lands Administered by the State of Wyoming*' (1997b) addresses grazing practices and the role they play in managing and conserving threatened and endangered species and their associated habitats.

Livestock management includes authorizing livestock grazing and grazing systems, and adjusting seasons of use, distribution, kind, class, and numbers of livestock. Additionally, placement of supplemental feed, minerals and water sources is managed as the location of these supplements greatly influences livestock concentrations and distributions. Most livestock operations require the use of OHVs, trucks, or horses to access allotments, patrol fence lines, and trail or herd livestock. Rangeland management activities can include: prescribed fire, seeding (aerial, drilling, disking), fertilizing, pesticide applications, plowing, fencing, or off-stream water development construction and maintenance.

Anticipated Effects to Blowout Penstemon. Grazing livestock, if present in habitat occupied by blowout penstemon, would have the potential to consume the vegetative and flowering parts of

blowout penstemon plants. If areas of blowout penstemon were overgrazed, then survival or reproductive fitness of any given blowout penstemon plant could be compromised. Other possible effects to the blowout penstemon from livestock grazing activities could include (1) the trampling or destruction of individual blowout penstemon plants related to fence maintenance operations, (2) any manipulation of the timing or intensity or cessation of grazing of the habitat of the blowout penstemon, (3) the removal or destruction of individual plants through activities related to the issuance of rights-of-way, (4) competition with blowout penstemon from introduced weeds, (5) destruction of individual plants from herbicide use, and (6) destruction of plants from the implementation of other range improvement practices. These effects, however, are not expected to occur in the Green River, Casper, and Lander RMP planning areas as there are no populations of blowout penstemon known to occur in these areas. However, some of these effects may occur in the Rawlins RMP planning area and are the subject of the attached BO.

To further ensure that any potential impact to blowout penstemon is minimized, the BLM has committed to (1) requiring surveys for this plant or assuming species-presence, and implementing applicable conservation measures, including potentially the modification of operational plans, protection requirements related to seasonal use or occupancy restriction, facility design, etc. (BLM 2013); (2) restoring, maintaining, or improving plant communities in grazing allotments to assist in the recovery of federal threatened and endangered species or the conservation of federally-listed species of concern and other state-designated special status species, (3) placing mineral supplements, or new water sources (permanent or temporary), for livestock, wild horses, or wildlife at least 1.0 mile from known blowout penstemon populations, (4) ensuring that straw or other livestock feed must be certified weed-free, (5) not altering livestock grazing permits/leases in any allotment with pastures containing blowout penstemon populations, without coordinating adjustments with the Service, (6) prohibiting biological control of noxious and invasive plant species in blowout penstemon habitat until the impact of the control agent has been fully evaluated, (7) prohibiting herbicide treatment within 0.5 miles of occupied blowout penstemon habitat, (8) prohibiting aerial insecticide treatments of malathion or carbaryl within 3.0 miles of occupied habitat, (9) only using carbaryl bran bait or diflubenzuron Reduced Agent Area Treatments within 3.0 miles of occupied habitat, (10) not applying carbaryl bran bait within 0.25 miles of occupied blowout penstemon habitat, (11) not authorizing revegetation projects in known or potential blowout penstemon habitats without coordination with the Service, (12) reclaiming existing roads near blowout penstemon populations that are not required for operations or maintenance, or lead to abandoned projects, (13) prohibiting BLM-authorized surface disturbing activities within 0.25 mile of known blowout penstemon populations, (14) prohibiting new ROW projects within 0.25 miles of known occupied blowout penstemon habitat, and (15) providing educational materials to authorized permittees in blowout penstemon habitat (See Appendix).

For information regarding anticipated livestock-related effects that are likely to adversely affect blowout penstemon plants in the Rawlins RMP planning area, see the Biological Opinion included in this correspondence.

Minerals (leasable, locatable, salable).

Program Description. The BLM's objectives for minerals management are to make public lands and federal mineral estate available for efficient and orderly development while minimizing the impacts to the environment, public health and safety and other resource uses and values. The development of minerals (salable, locatable, or leasable) must comply with Federal mineral law

and occurs through leasing, location, or sale. All mineral developments are determined through land use planning. Surface disturbing activities associated with mineral exploration and extraction will be intensively managed, such that proper distance restrictions, mitigation stipulations, seasonal or timing restrictions, rehabilitation standards, reclamation measures, BMPs and the application of the Wyoming Mitigation Guidelines for Surface Disturbing and Disruptive Activities will be applied.

Leasable Minerals. Leasable minerals are grouped into fluid and solid minerals. Leasable fluid minerals include oil, gas, and geothermal resources. All public lands are open to oil and gas leasing, except those that have been determined to possess land uses or resource values that can only be protected by closing the lands to leasing. Oil and gas leases are administered by the BLM and may include reasonable measures (conditions of approval) to operational aspects of oil and gas development, including modification of siting, facility design, or timing of operations and specification of interim or final reclamation measures to control the pace and manner of development. Leases are made through a competitive and non-competitive bidding process and are granted for 10-year terms or as long as oil or gas is being extracted.

Indirect or direct methods can be used to explore for oil and gas resources. Overall these methods involve ground disturbing activities such as road construction, OHV use, drilling, and construction of facilities. Oil and gas extraction also involves many of the same activities and developments associated with exploration, but may include other surface uses necessary for the extraction of the resource, such as pumps and engines. Discovery of a producing area may result in additional wells being drilled and establishing a pipeline system to transport the oil or gas to a storage facility or terminal. The size of disturbance associated with oil and gas extraction varies greatly. Water is a byproduct with oil and gas extraction. Water that is unable to be discharged to the surface must be treated and re-injected, which requires the construction of water treatment facilities. When wells are no longer used, reclamation actions such as re-contouring and reseeding of native vegetation are required.

Geothermal resources are available for exploration and development under the Geothermal Steam Act of 1970 and are subject the same surface disturbing restrictions that are applied to oil and gas exploration and development. The most widespread geothermal resource is water in hot springs. Geothermal energy in the form of hot water can be acquired in two ways; drilling a well to an aquifer containing hot water and bringing the water to the surface, or pumping liquid (usually water) down a well, letting the warm rock heat the liquid and then pumping the heated liquid to the surface for use. The most probable uses of geothermal energy will be in direct use applications that are likely to be local and not result in large areas of ground disturbance.

Leasable solid minerals include coal and trona. In Wyoming, coal is generally extracted using surface mining methods. Coal leases are administered by the BLM, permits by the State, and the Office of Surface Mining (OSM) approves mine plans. Surface mining involves large areas of surface disturbance as a consequence of topsoil removal, stockpiling, and the construction of roads for haul truck usage. These activities often require the use of large equipment. Once an area is mined, reclamation must begin and can include activities such as: reconstruction of drainages, re-contouring of disturbed land surfaces, vegetation reseeding, and monitoring to assess that habitat is useable.

The largest reserve of trona in the world is located in Wyoming. Trona is used in baking soda, glass, toothpaste, soaps, ceramic tiles, porcelain fixtures, paper, water softeners and

pharmaceuticals. This mineral is generally mined underground and surface disturbing activities associated with mining trona include road and facility construction.

Locatable Minerals. All public lands are open to exploration for locatable minerals under the 1872 Mining Law, except those withdrawn to protect other resource values and uses. Locatable minerals include gypsum, silver, gold, platinum, cobalt, and other precious and base minerals. Bentonite and uranium are also considered locatable minerals except on acquired lands. Activities related to locatable mineral exploration or extraction that cause surface disturbance within the Rawlins RMP blowout penstemon ACEC boundaries will require plans of operations to be written regardless of the size of disturbance (BLM 2008a).

Salable Minerals. Varieties of sand, gravel, sandstone, shale, limestone, dolomite, and granite rock are identified as salable minerals and are generally used for road maintenance. Prior to the issuance of contracts or use-permits for salable minerals, the BLM conducts environmental analyses and resource inventories that include studies or inventories of threatened and endangered plant and wildlife species. Based on the results of the analyses and inventories, stipulations or permit conditions may be included on a case-by-case basis to provide natural resource protection and ensure reclamation of the land following project completion.

In general, salable minerals are extracted using heavy equipment are moved using large haul trucks. All reclamation proposals must conform to state agency requirements and be approved by the BLM. Activities associated with reclamation include removing surface debris, re-contouring, reducing steep slopes, or planting vegetation.

Anticipated Effects to Blowout Penstemon. The BLM's Mineral (leasable, locatable, salable) Programs in Wyoming are not likely to adversely affect the blowout penstemon in the four RMP planning areas, given that the BLM has agreed to (1) requiring surveys for this plant or assuming species-presence, and implementing applicable conservation measures, including potentially the modification of operational plans, protection requirements related to seasonal use or occupancy restriction, facility design, etc. (BLM 2013); (2) prohibiting BLM-authorized surface disturbing activities within 0.25 mile of known blowout penstemon populations, (3) prohibiting sale and removal of salable minerals (including sand) within 0.25 miles of known blowout penstemon populations, and (4) prohibiting new ROW projects within 0.25 miles of known occupied blowout penstemon habitat.

Off-highway Vehicles and Travel Management Areas.

Program Description. The BLM's management objective for OHV use on public lands is to provide an adequate and safe OHV network while preventing or minimizing resource damage resulting from OHV use. OHV road networks on public lands are used for both recreational and non-recreational purposes and serve a fundamental role in public land management. Typical OHV recreational uses include all-terrain vehicles (ATVs), motorcycle trail riding, trail competitions and snowmobiling. OHVs can also be used for recreational purposes such as fishing, hunting, or primitive camping. Non-recreational OHV uses on public lands include livestock operations and mineral management and development, and necessary tasks related to public lands management.

Travel management areas are delineated within Wyoming BLM RMP planning areas and include areas designated as closed, limited-use, or open. Areas designated as limited use have restrictions placed on OHV use, including seasonal or spatial travel restrictions or a combination

of both. These limited use areas can be further grouped into geographic subareas in which specific roads or routes are designated as opened/closed. This sub-area designation process is determined by criteria such as current OHV use, areas with sensitive resources, areas with special management restrictions (i.e. ACECs), wildlife habitat management areas, and/or special recreation management areas. Further, in localized areas temporary closures may occur for public health and safety concerns and for the protection of resources.

Bureau of Land Management OHV management actions include designating and maintaining use areas within travel management areas, posting signs and developing maps or brochures, permitting OHV rallies, cross-country races and outings, monitoring OHV recreational uses, and performing necessary tasks requiring OHV use.

Anticipated Effects to Blowout Penstemon. According to the Programmatic Blowout Penstemon BA, the BLM will implement statewide mandatory conservation measures that will reduce the potential that off-highway vehicle management actions will impact any blowout penstemon populations in Wyoming. BLM actions associated with OHV management in Wyoming in the four RMP planning areas are not likely to adversely affect blowout penstemon because (1) No OHV competitive events will be allowed within 1.0 mile of known blowout penstemon populations, (2) roads that have the potential to impact blowout penstemon plants that are not required for routine operations or maintenance of developed projects or lead to abandoned projects will be reclaimed as directed by the BLM and (3) the BLM will limit the use of OHVs to designated roads and trails within 1.0 mile of known blowout penstemon populations. Exceptions may be made for the performance of authorized necessary tasks for (1) firefighting, (2) hazardous material clean-up, and (3) existing ROW maintenance and inspection. These three exceptions are not expected to adversely affect blowout penstemon plants because activities associated with these exceptions are not expected to overlap currently known blowout penstemon locations. However, exceptions may also be made for livestock fence maintenance. This exception may affect and is likely to adversely affect the blowout penstemon as part of the Livestock Grazing Program in the Rawlins RMP planning area and is therefore included as part of the Biological Opinion in this correspondence (see attached BO).

Paleontological Resources.

Program Description. The objective of paleontological resources management is to manage paleontological resources that are part of the BLM-administered public land surface estate for their informational, educational, scientific, public and recreational uses. Paleontological resources, usually referred to as fossils, includes the bones, teeth, body remains, traces or imprints of plants and animals preserved in the earth through geologic time. A paleontological collecting permit is required before collecting fossils on BLM-administered public lands, whether for scientific or hobby collection purposes.

Management of paleontological resources involves actions related to inventory and preservation of resources. During inventory and categorizing actions, the BLM conducts field surveys, performs excavations, maps and collects surface materials and photographs sites. These actions are generally undertaken to document and develop mitigation plans prior to surface-disturbing activities associated with other resource management programs. Hand tools, power tools, or heavy machinery can be used during inventories.

To protect paleontological resources, area closures, restrictions or other mitigation measures will be used on a case-by-case basis. The BLM will pursue withdrawal of areas from exploration and

development of locatable minerals and designate avoidance areas to minimize impacts and maintain the integrity of paleontological resources. Interpretive sites may be developed to manage paleontological resources for scientific and public use.

Anticipated Effects to Blowout Penstemon. Activities associated with the paleontological resources program are not likely to adversely affect the blowout penstemon in the Casper and Lander RMP planning areas given that: (1) the BLM has committed to requiring surveys for this plant or assuming species-presence, and implementing applicable conservation measures, including potentially the modification of operational plans, protection requirements related to seasonal use or occupancy restriction, facility design, etc. (BLM 2013); (2) only three populations of this plant are currently known to exist in Wyoming; and (3) paleontological resource activities would be highly unlikely to occur in shifting sand dune substrates.

Recreation Resources.

Program Description. The BLM's objectives for recreation resources management are to ensure the continued availability of outdoor recreational opportunities on lands administered by the BLM while providing for visitor health, safety, and services and minimizing conflicts with other resource values. Recreational activities allowed by the BLM include hiking, hunting, mountain biking, boating, fishing, OHV use, horseback riding, and camping. Most recreation use on public lands is dispersed human use by low numbers of individuals and occurs on or near existing trails or roads. However, larger concentrated human uses of public lands occur during certain activities, such as formation of hunting camps in the fall. Additionally, for large recreational events, the BLM may issue Special Recreation Permits and the BLM can also authorize commercial recreation uses, as well.

Special recreation management areas (SRMAs) are areas designated by the BLM that require explicit recreation management to achieve recreation objectives and provide specific recreation opportunities. SRMAs are located throughout all the RMP planning areas and each SRMA has particular management actions and restrictions associated with it to protect recreational uses and resources.

Recreation management actions of the BLM include allowing recreational access and use by the public, developing recreational areas, imposing restrictions on use of recreational areas, and assessing the effects of recreational use to other resources and resource values. The BLM monitors recreational use, develops management plans, and evaluates and updates recreation potential of areas. Recreational site development includes maintaining or developing recreational sites and facilities, developing campgrounds, providing fishing and floating opportunities, installing and maintaining interpretive markers and sites, installing protective fencing, and constructing roads and trails for access to recreational sites. Other actions associated with recreation resource management includes placing boundary signs, identifying hazards on rivers and trails, limiting motorized vehicle and OHV use, updating facilities to blend with the natural environment, conducting field inventories, and patrolling high-use areas.

Anticipated Effects to Blowout Penstemon. The BLM has agreed that: (1) the BLM has committed to requiring surveys for this plant or assuming species-presence, and implementing applicable conservation measures, including potentially the modification of operational plans, protection requirements related to seasonal use or occupancy restriction, facility design, etc. (BLM 2013); (2) only three populations of this plant are currently known to exist in Wyoming; (3) the BLM has committed to prohibiting surface disturbing activities within 0.25 miles of

blowout penstemon populations; (4) no known populations of blowout penstemon occur near any developed or proposed recreation sites or special recreation management areas; (5) the BLM will limit the use of OHVs to designated roads and trails within 1.0 mile of known blowout penstemon populations. Given the reasons mentioned above, activities associated with the Recreation Program are not likely to adversely affect the blowout penstemon in the four Wyoming BLM RMP planning areas.

Special Designations and Management Areas.

Program Description. The BLM's objectives for management of special designations/management areas are to ensure continued public use and enjoyment of recreation activities while protecting and enhancing natural and cultural values, and improving opportunities for high-quality outdoor recreation and visitor services. There are a variety of designations and management areas under the Special Designations and Management Areas program including Wildlife Habitat Management Areas, Wilderness Study Areas, Areas of Critical Concern (ACECs), Wild and Scenic Rivers, National Natural Landmarks, National Back Country Byways, and other management areas that are determined to have unique resources, management objectives, and use restrictions.

Wildlife Habitat Management Areas are designated to protect important wildlife resources and habitat. Each Wildlife Habitat Management Area has its own set of management goals and objectives and associated management and use restrictions. Wildlife projects may include surveying, monitoring, or habitat improvement activities. The BLM develops stipulations and protective measures to enhance wildlife and fisheries habitat within Wildlife Habitat Management Areas that can include authorizing withdrawals of certain areas from minerals entry, limiting access of OHVs, snowmobiles, horses, and pedestrians, imposing road closures, acquiring critical habitat through exchanges or easements, and recording inventories and occurrences of potential habitat and special status species.

Wilderness Study Areas are managed as single use resources, and in Wyoming are managed under the Interim Management Policy until they retain their Congressional designation as wilderness. Wilderness Study Areas are managed to maintain and protect wilderness values such as naturalness, absence of roads, primitive recreation uses, and other significant ecological or educational values. Activities related to the Wilderness Study Area program may include inventories to identify wilderness areas, public involvement with wilderness study processes, authorization of mining claims under unique circumstances, or evaluations of proposed actions to determine potential impacts to known or potential wilderness values. The designation of Wilderness Study Area status is simply a designation, however BLM management of WSAs are in accordance with decisions issued by Congress, and in general these management directives are beneficial to wildlife and plant species.

Areas of Critical Environmental Concern are areas designated by the BLM where special management attention is needed to protect important and relevant resource values. Special management refers to management prescriptions that are included or amended to an RMP to protect the important resources in an area from potential effects of actions permitted by the RMP, including those actions considered to be in compliance with the terms, conditions and decisions approved in the RMP. These special management measures would not be necessary or prescribed if the critical or important resources or features were not present. Designating an area as an ACEC may lead to beneficial impacts to wildlife and plant species. In the Rawlins RMP (BLM 2008a), a blowout penstemon ACEC was designated for 17,050 acres of public surface

lands. This area includes restrictive management actions for surface disturbing activities. A management plan specific to the blowout penstemon ACEC is in the process of being drafted by BLM personnel.

Under the Wild and Scenic Rivers Act, the BLM studies segments of streams throughout the state to determine their suitability and eligibility for designation as Wild and Scenic Rivers in the National Wild and Scenic River System. Suitable designations are based on the uniqueness and diversity of the land and water resources as well as their regional and national significance. Management objectives associated with the WSR designation include protection of river resources and provision of river-related outdoor recreation opportunities in a primitive setting. These objectives are met in part through restrictions placed on management, recreation and resource exploration actions or activities that take place within the eligible segments of designated rivers. Plants and wildlife associated with designated Wild and Scenic River segments are likely to benefit from management actions and restrictions that maintain the primitive functions and characteristics of the area.

National Natural Landmarks are managed to protect the geological significance and integrity of sites with unique features. Management and public use restrictions will be applied on a case-by-case basis to ensure adequate resource protections.

Wyoming National Back Country Byways were created to provide opportunities for the public to view and enjoy unique scenic and historical features on public lands. Back Country Byways generally traverse through remote back country providing primitive landscape settings and access routes range from paved roads to unmaintained single track routes. The use of vehicles, ranging from cars to OHVs and the presence of humans are associated with the use of National Back County Byways in Wyoming.

Anticipated Effects to the Blowout Penstemon. Many of the actions related to management of Special Designations/Management Areas involve management and public use restrictions in order to prevent undue harm to cultural, environmental and natural resources and values. These management restrictions with objectives such as protecting ecosystem functions or plant and wildlife habitat may have positive effects to blowout penstemon by limiting public access to sites and restricting ground disturbing activities. Specifically, the blowout penstemon ACEC designated in the Rawlins RMP planning area (BLM 2008a), that encompasses the majority of occupied habitat for the plant, specifies management restrictions for resource programs such as minerals, lands and realty and OHV travel. The blowout penstemon is not likely to be adversely affected by activities under the BLM's Special Designations and Management Areas programs in the four RMP planning areas because the BLM has committed to requiring surveys for this plant or assuming species-presence, and implementing applicable conservation measures, including potentially the modification of operational plans, protection requirements related to seasonal use or occupancy restriction, facility design, etc. (BLM 2013).

Transportation and Access Management.

Program Description. The BLM's transportation and access resource management objectives include the maintenance or modification of the public land transportation system to provide for public health and safety and adequate access to public lands. Existing roads are maintained or expanded if necessary and those roads determined to be redundant or unnecessary are closed and reclaimed if possible. Transportation planning is conducted to manage access roads in a manner that ensures compatibility with resource values and management objectives.

The BLM's transportation and access management program and associated activities are generally in support of other resource management programs. The main activity related to transportation and access management includes the acquisition of access easements.

Anticipated Effects to Blowout Penstemon. The BLM is committed to requiring surveys for this plant or assuming species-presence, and implementing applicable conservation measures, including potentially the modification of operational plans, protection requirements related to seasonal use or occupancy restriction, facility design, etc. (BLM 2013). Furthermore, activities associated with the permitting of rights-of-way, easements, trails, or new roads are not expected to occur in habitat of this species given the fact that the species occupies steep, shifting sand dunes which are not generally feasible locations for rights-of-way, easements, trails, or new roads. Currently, there are no roads that give direct public access to known blowout penstemon populations. Conservation measures prohibit ground disturbing activities within 0.25 miles of occupied blowout penstemon habitat.

Vegetative Resources.

Program Description. The BLM's objectives for vegetation resource management are to: (1) maintain or improve the diversity of plant communities to achieve Desired Plant Communities to support timber production, livestock needs, wildlife habitat, watershed protection, and acceptable visual resources; (2) enhance essential and important habitats for special status plant species on BLM-administered public land surface and prevent the need for any special status plant species being listed as threatened and endangered; and (3) reduce the spread of noxious and invasive weeds.

Actions taken under this program are numerous and affect upland and wetland/riparian communities ranging from manipulation of species composition to increasing rangeland forage productivity, to developing a mixed-age stand of willows by altering the grazing system along a streambed to restore ecosystem functions. Objectives will be established by each BLM Field Office using site-specific activity and implementation planning and will be updated as ecological site inventories are conducted and data is analyzed. Use of heavy machinery, hand tools, mechanical tools, and OHVs are often used in inventories, monitoring, and restoration towards Desired Plant Communities. Additionally, seeding of native species with various techniques is used to initiate and restore native ecosystem functions.

Special status species are those officially listed, proposed for listing or candidates for listing as threatened or endangered under the provisions of the ESA, or those plant species designated by the Wyoming BLM state director as sensitive. The BLM manages public lands to conserve and/or improve habitats for Special Status Species. Management prescriptions for special status plant species are developed on a case-by-case basis in consultation with the Service so the continued existence of the species on public lands is not jeopardized (BLM 2008b). Management actions taken by the BLM to provide habitat and protect known populations include conducting surveys, closing known locations to surface-disturbing activities and mineral material sales, prohibiting or limiting OHV use, or delineating Special Designation/Management Areas in RMPs.

There are three types of control measures used by the BLM on public lands in order to minimize the spread and impact of noxious and invasive weeds including chemical, biological, and mechanical methods. Chemical controls include pesticides (herbicides and insecticides) that are

applied using ground, vehicle, or aircraft applications, depending on the size and adjacent resources of the area to be treated. Only federally approved chemicals are to be used and applied using the minimum toxicity level appropriate for the project. Buffer zones are maintained along streams, rivers, lakes, and riparian areas and areas with known special status plant species. Insect and fungal biological controls are generally applied by hand. Ungulate biological controls, such as goats or livestock, can be herded or fenced into treatment areas. Hand-pulling, digging, tractors, mowers, brush hogs, and prescribed fire are commonly used mechanical controls for noxious and invasive weeds. All biological and mechanical control treatments are prescribed in a way to achieve objectives and minimize impacts to sensitive plant species.

Anticipated Effects to Blowout Penstemon. This BLM program is not likely to adversely affect the blowout penstemon in the four RMP planning areas. The BLM has agreed that vegetation management activities statewide will include the following protective measures: (1) restoring, maintaining, or improving plant communities in grazing allotments to assist in the recovery of federal threatened and endangered species or the conservation of federally-listed species of concern and other state-designated special status species, (2) ensuring that straw or other livestock feed must be certified weed-free, (3) prohibiting biological control of noxious and invasive plant species in blowout penstemon habitat until the impact of the control agent has been fully evaluated, (4) prohibiting herbicide treatment within 0.5 miles of occupied blowout penstemon habitat, (5) prohibiting aerial insecticide treatments of malathion or carbaryl within 3.0 miles of occupied habitat, (6) only using carbaryl bran bait or diflubenzuron Reduced Agent Area Treatments within 3.0 miles of occupied habitat, (7) not applying carbaryl bran bait within 0.25 miles of occupied blowout penstemon habitat, and (8) not authorizing revegetation projects in known or potential blowout penstemon habitats without coordination with the Service.

Visual Resource Management.

Program Description. The BLM's objective of Visual Resource Management (VRM) is to minimize adverse effects to visual resources while maintaining the effectiveness of land-use allocations. A visual resource inventory and classification process is used by the BLM as a qualitative analysis of visual resources throughout the planning areas. There are four VRM classes (I, II, III, IV) that are used as (1) inventory tools to characterize the visual quality of the landscape; (2) management tools that outline visual protection standards to spatially restrict surface disturbing activities; (3) guidelines for rehabilitation of existing facilities and/or projects.

Class I areas are those areas where the existing character of the landscape is to be preserved, and where the only landscape changes allowed are those caused by natural or ecological processes. Surface disturbing activities are prohibited and very limited management actions are allowed. Any allowed artificial changes to the landscape are to be low and should not attract attention.

Management actions in Class II areas are restricted to maintain the existing characteristic of the landscape. Management activities may be seen but not attract attention to the casual observer and any changes that are allowed must repeat the basic elements of form, line, color and texture found in the predominant natural features of the landscape. If a project proposal cannot be mitigated to retain the character of the landscape, proposal modifications will be required.

In Class III areas, basic changes (form, line, color or texture) are allowed. However, accepted changes must remain subordinate to the visual strength of the existing landscape character.

Management activities may dominate the view in Class IV areas and can be the major focus to the casual observer. Changes to the landscape are allowed, but must be subordinate to the original composition and character of the landscape.

Anticipated Effects to the Blowout Penstemon. Management activities of this program within the BLM RMP planning areas are expected to maintain or may improve the conditions for blowout penstemon. Given that: (1) the BLM has committed to requiring surveys for this plant or assuming species-presence, and implementing applicable conservation measures, including potentially the modification of operational plans, protection requirements related to seasonal use or occupancy restriction, facility design, etc. (BLM 2013); (2) only three populations of this plant are currently known to exist in Wyoming; (3) the BLM has committed to prohibiting surface disturbing activities within 0.25 miles of blowout penstemon habitat; and (4) management actions associated with this program may impose additional restrictions on surface development and therefore may have beneficial effects to blowout penstemon populations and habitat (BLM 2013), activities associated with the Visual Resources Program are not likely to adversely affect the blowout penstemon in the four Wyoming BLM RMP planning areas.

Water and Soil Resources.

Program Description. BLM-administered public lands are to be managed to protect and conserve the quality of water and soil resources. Objectives of water resource management are to: (1) maintain or improve surface and groundwater quality consistent with existing and anticipated uses and applicable state and Federal water quality standards, (2) provide for availability of water to facilitate authorized uses, and (3) minimize harmful consequences of erosion and surface runoff from BLM-administered land. Activities authorized under water resources management may include implementing watershed plans, identifying heavy sediment loads, monitoring and treating soil erosion, evaluating and restricting surface development activities, and monitoring water quality.

Monitoring of streams and rivers for water quality tend to be short-term in nature (a few hours or less) and completed with small hand-held kits on site. Access for these activities would be primarily by vehicle and monitoring would be done by personnel walking into and along streams and rivers. Permanent instream flow monitoring and continuous water quality analysis gauging stations are small structures and would result in some disturbance to streams or rivers during construction and occasional maintenance activities. Planting of riparian plant species to reduce erosion and sediment movement along watercourses is generally done using hand held tools or motorized augers, backhoes, tree spades, etc.

Soil resources are affected by all surface disturbing activities. To protect soil resources, site-specific impact minimization measures and techniques are generally applied to surface disturbing actions (i.e. limiting surface activities when soils are wet, or in areas with steep slopes). These mitigation measures are designed to conserve topsoil, minimize erosion, reestablish vegetation in disturbed areas and maintain soil productivity.

Anticipated Effects to Blowout Penstemon. Water and Soil management activities within the BLM's RMP planning areas are expected to maintain or may improve or have no effect on the blowout penstemon. Given that: (1) the BLM has committed to requiring surveys for this plant or assuming species-presence, and implementing applicable conservation measures, including potentially the modification of operational plans, protection requirements related to seasonal use

or occupancy restriction, facility design, etc. (BLM 2013); (2) only three populations of this plant are currently known to exist on BLM-administered lands in Wyoming; (3) activities associated with this program are infrequent, localized, and small in scale and not likely to occur in the sandy substrate habitat of the blowout penstemon, (4) the BLM has committed to prohibiting surface disturbing activities within 0.25 miles of blowout penstemon habitat (BLM 2013); activities associated with soil management activities are not likely to adversely affect the blowout penstemon in the four BLM RMP planning areas.

Wild Horses.

Program Description. The BLM's objectives for wild horse management on public lands are to protect, maintain and control a viable herd of wild horses by providing adequate habitat, resources, and appropriate management levels (AMLs) within designated horse management areas (HMAs). There are approximately 3,000 wild horses managed within 16 HMAs on public lands in Wyoming. The AMLs for each HMA is set to maintain an ecological balance between horse populations and the rangeland ecosystem.

Herding, corralling, transporting, monitoring, and conducting round-ups are all actions related to the wild horse resource management program. Herds are typically monitored from airplanes and helicopters, while possibly employing OHVs and domestic horses during wild horse round-ups. Intensive localized ground disturbance can result in areas where permanent or temporary corrals and capture facilities are constructed, as horse hoof action can cause soil compaction and extreme vegetation disturbance. Wild horses and the areas managed for their protection are similar to other wildlife species, with the exception that when wild horse populations exceed AMLs, excess horses are removed.

Anticipated Effects to the Blowout Penstemon. There are currently no wild horse herds in areas known to be occupied by blowout penstemon in Wyoming. For this reason, the activities associated with management of the wild horses on BLM administered land in the Casper, Green River, and Lander RMP planning areas is anticipated to not likely adversely affect the blowout penstemon.

PROGRAMMATIC BIOLOGICAL OPINION

FOR THE

WYOMING BUREAU OF LAND MANAGEMENT'S

RESOURCE MANAGEMENT PLANS

WITH BLM-COMMITTED

CONSERVATION MEASURES

AND THE EFFECTS TO THE

BLOWOUT PENSTEMON
(*Penstemon haydenii*)

U.S. Fish and Wildlife Service
Wyoming Ecological Services Office
Cheyenne, Wyoming

July 2013

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PROGRAMMATIC BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The proposed action examined in this consultation is the continuation of management according to the existing Wyoming Resource Management Plans (RMPs) for the Rawlins, Casper, and Rock Springs Field Offices, and the current draft RMP for the Lander Field Office, as well as the U.S. Bureau of Land Management's (BLM's) commitment to conservation measures listed in the Statewide Programmatic Blowout Penstemon Biological Assessment (BA) (BLM 2013) (see Appendix). The RMPs are used by the BLM to guide and control future actions and set standards upon which future decisions on site-specific activities are based. The RMPs only establish general management policy on a broad scale. They are not used to make decisions that commit resources on a small scale such as on specific parcels of land. The RMPs also identify desired outcomes, also known as "desired future conditions". These outcomes are expressed in the RMPs as goals, standards, objectives, and allowable uses and actions needed to achieve desired outcomes. These are often referred to as RMP decisions or resource allocations. It is upon these RMP decisions or resource allocations and the BLM-committed conservation measures (see Appendix) that the effects determinations in this Biological Opinion are based.

Until revised, the Wyoming RMPs have been and will continue to be used by the BLM, in conjunction with the Blowout Penstemon Recovery Plan (USFWS 1992) and the 5-year Review: Summary and Evaluation (USFWS 2012) as referenced in the BA, to guide and control future actions and set standards upon which future decisions on site-specific activities will be based. This consultation only addresses the potential effects of the Wyoming RMPs as of the date of this BO.

The Wyoming BLM's RMPs incorporate current laws and regulations and public land resource management initiatives to guide long-range land management decisions for public lands and resources in all counties in Wyoming. The RMPs do not include land management decisions where land surfaces and minerals are both privately owned, or owned by the State of Wyoming, or local governments, or those lands that are managed by other federal agencies.

A description of activities of the Wyoming RMPs that may affect, and are likely to adversely affect, the blowout penstemon is contained in the Statewide Programmatic Blowout Penstemon BA (BLM 2013) and is described below.

Description of Activities Described under the Statewide Programmatic Blowout Penstemon BA that may affect and are likely to adversely affect the Blowout penstemon

The following discussion describes the Wyoming BLM's Livestock Grazing Management Program in the Rawlins RMP planning area that may have adverse effects to the blowout penstemon. A conservation strategy was included in the BLM's BA (BLM 2013) to address potential adverse effects. The BLM has committed to implementing the conservation measures listed in that conservation strategy as part of their proposed action (RMP) (see Appendix), therefore, the Service has evaluated the implementation of these conservation measures as part of the proposed action.

Livestock Grazing Management

The livestock management objective for the Rawlins RMP planning area is to maintain or improve forage production and range condition and to provide a sustainable resource base for livestock grazing on public lands while improving wildlife habitat and watershed conditions. Grazing is authorized on most of the BLM-administered lands in the Rawlins RMP planning area. Categories under this program include (1) livestock management activities, (2) range management, (3) fencing, (4) predator/pest management, (5) water management, (6) detrimental impacts management, and (7) permit/lease management.

Livestock Management. Most livestock operators use off-highway vehicles (OHVs) (pick-up trucks, 4-wheelers, motorcycles), ride horseback, or walk to access their allotments. "Herding" (moving) livestock by walking, horseback riding, and the use of dogs to distribute livestock on allotments or trailing (move them from one location to another - on or off of allotments), and the use of domestic sheep bed grounds (a temporary site to bed down flock(s) of sheep) and associated sheep herder camps are commonly employed methods of livestock operations. Another method that livestock producers can use to change the distribution of livestock is to provide salt or mineral supplements in specified areas.

A typical grazing allotment on BLM-administered land within the RMP area may be permitted on a yearlong use basis with the amount of allowable forage identified as Animal Unit Months of use (AUM's). The livestock operator may, with concurrence from the BLM, change the use pattern from year to year to compliment healthy rangelands, depending on the available forage, condition of the pasture and weather conditions, or to achieve pre-determined management goals. Livestock grazing patterns are found in Table 1. Permits are normally issued for a 10-year period. If BLM personnel identify a need for specific management or a change in the current pattern of use it can be stipulated on the permit when it is re-authorized. Cattle are the predominant kind of livestock grazed on BLM-administered lands in the Rawlins RMP planning area, however, sheep, horses and bison may also be authorized.

Table 1. Livestock Grazing Patterns

Pattern of Use	Description
Yearlong	When livestock are retained in a pasture throughout the plant growing season or the pasture or allotment is grazed in the same manner continuously throughout the year, each year.
Seasonal	Livestock are grazed in various seasons, i.e.; spring/summer/fall, spring/fall, winter, spring, summer, fall, or any combination, but not the entire year.
Rested	Stipulates that a pasture is not grazed at all in a given year, not even the mature forage is grazed. Usually the rested pasture is managed in conjunction with a rotational grazing system.
Rotational	Involves a multi-pasture system, where livestock are moved from one pasture to another on a scheduled basis. A sub-set of this system is to graze a pasture for short duration with a large number of livestock then rest the pasture (short-duration pattern, high intensity).
Deferred	Specifies that a pasture is not grazed until seed maturity is assured or a comparable growth stage has been reached and that grazing occurs after seed maturity.

Range Management. Range management activities include using prescribed fire, vegetation manipulation projects, changing composition of existing vegetation, using noxious weed control, using mechanical or biological vegetative treatments to improve forage production, using heavy equipment, and herbicide treatment of sagebrush. Rangeland restoration activities might also include aerial seeding, seeding by disking or drilling (using a tractor or other heavy equipment), fertilizing, or plowing.

Fencing. In some cases, cross-fencing (subdividing an allotment, pasture, or ranch with fence) is used to accomplish management needs or when an allotment is permitted/leased by more than one lessee. Temporary fencing, including electric fencing may be authorized to accomplish management goals. Fencing might be used to reduce grazing intensity or distribute grazing livestock away from important resources (streams, springs, riparian areas, wetlands, cottonwood galleries, etc.). When fencing is proposed, either permanent or temporary, fences are built to standards developed in the BLM's Fencing Handbook (BLM 1989). These standards are required to reduce the amount of restriction or hazards to wildlife. Fence construction and maintenance would likely require access to the site, possible removal of vegetation or uneven surface materials (rocks, trees, sand, etc.), stringing wire, digging postholes, building fence braces, building rock jacks, cutting or removing on or off site building materials (fence posts, rails, gathering rocks, etc.), weed management (spraying, cutting, pulling, etc.), or if the project is large enough, the possibility of camps for workers. The use of corrals for confinement of livestock for various purposes (sheep shearing, overnight holding of livestock, etc.) requires construction and maintenance activities including, hauling building materials, heavy equipment use, access to the corral site, etc. Fencing activities include fence construction and repair, design and implementation of grazing systems, and building livestock exclosures for important riparian habitat.

Predator/pest management. Predator/pest management includes controlling predators or pests of livestock operations. Activities may include Mormon cricket or grasshopper control using insecticides, or the control of prairie dogs or coyotes on allotments using various lethal and non-lethal means.

Water Management. Water management activities include the development of reservoirs, springs, pipelines, and wells, and providing access to these developments. Permittees may undertake water improvement projects such as stock water ponds, pits, or reservoirs; pipeline and trough systems; spring developments; storage tanks and troughs; wells; or temporary tanks and water hauling. These off-stream water improvements better distribute the use and intensity of use by livestock away from streams, rivers or wetlands and help protect important riparian areas and could require the use of hand tools, mechanical or heavy equipment, hauling/transporting of materials (gravel, dirt, tanks, etc.), and clearing of vegetation.

Detrimental Impacts Management. Managing detrimental impacts includes documenting, treating, and preventing resource damage. Potential detrimental impacts include the degradation of stream banks, the introduction of noxious weeds, soil erosion, and reduced cottonwood tree recruitment. The BLM has committed to meeting the range management standards in the *Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for Public Lands* (BLM 1997b) while managing their lands for livestock grazing. In extreme situations such as extended drought, permits/leases may be placed in a reduced use or non-use status until conditions improve. BLM-administered surface lands in the Wyoming BLM's RMP planning areas are managed to achieve the four fundamentals of rangeland health outlined in grazing

regulations (43 CFR 4180.1) which are (1) watersheds must function properly; (2) water, nutrients and energy must cycling properly; (3) water quality must meet State standards; and (4) habitat for special status species must be protected. A complete discussion can be found in the *Standards for Health Rangelands and Guidelines for Livestock Grazing Management for Public lands* administered by the BLM in Wyoming (BLM 1997b). Monitoring of riparian/wetland areas by interdisciplinary teams using the Proper Functioning Condition methodology is how the BLM determines whether a given watershed is functioning properly. This would entail the use of a team of interdisciplinary personnel (generally 2-5 personnel) to assess the condition of the riparian/wetland habitat within a given allotment.

GrazingPermit/ Lease Management. Grazing permit/lease management activities include conducting monitoring studies, performing project work to enhance and improve riparian zones, designating stock trails, managing leases, developing management plans and agreements, and canceling, or changing livestock driveways. Activities under this program include converting to new types of livestock; authorizing livestock grazing, and adjusting season of use, distribution, kind, class, and number of livestock. Grazing allotments are grouped into one of three categories: M (maintain), C (custodial), and I (improve). Recommendations are provided in each category for the intensity of grazing management, including multiple-use resource management objectives, needs for range improvement and monitoring, and actions needed to improve and maintain rangeland condition and productivity.

STATUS OF THE SPECIES

Species Description

The blowout penstemon (*Penstemon haydenii*), a member of the snapdragon family, is a hairless perennial that grows 1 to 2 feet high. The stems are often decumbent, simple, or branched, and very leafy. The stem leaves are linear to lanceolate, entire, 3 to 5 inches long by 1 to 3 inches wide, sessile and clasping. The inflorescence is a compactly crowded thyrse. A thyrse is composed of (1) a main axis of an inflorescence made up of flowers born on stalks of about equal length along an elongated axis that continues to grow during flowering and open in succession from below and (2) secondary and later axes of the inflorescence that terminate in single flowers. Floral bracts are ovate to lanceolate, nearly equaling the flowers. The corolla is milky blue to pale lavender (rarely pink or white) and 1.5 to 2 inches long. The sterile staminode is glabrous and/or hairy. Fruits are 0.5 to 0.6 inch long capsules, acute, with light brown, disc-shaped seeds having winged margins (Heidel 2005, USFWS 1987).

Life History

All known blowout penstemon sites are well-developed blowouts in dune complexes with active sand and accompanying environmental extremes in wind, temperature, evapotranspiration, and soil moisture stress. Blowout penstemon plants are most frequently in microsites that are, or recently have been, zones of sand accumulation. The plant apparently is successional and is a pioneer species that does not persist when a blowout becomes completely vegetated. The species survives burial in sand by sending off shoots at successively higher nodes. It withstands initial erosion and has a rhizomatous system with extensive lateral roots to survive erosion that may uncover much of its root length.

Blowout penstemon is generally found in sparsely vegetated, early successional, shifting dunes with crater-like blowout depressions created by wind erosion. In Wyoming, this plant is found primarily on the rim and lee slopes of blowouts or the rim and steep sides of sandy slopes situated at the bases of mountains or ridges. Associated vegetation includes blowout grass (*Redfieldia flexuosa* (Thurb.) Vasey), thickspike wheatgrass (*Elymus macrourus*), lemon scurfpea (*Psoralidium lanceolatum*), Indian ricegrass (*Achnatherum hymenoides*), and western wheatgrass (*Pascopyrum smithii*). Known populations in Wyoming are found between 5860-7440 feet (Fertig 2001, Heidel 2005).

The species flowers from mid-May to late June in Nebraska. The flowers have a strong, persistent fragrance that lures several kinds of bees and other pollinators (Tepedino *et al.* 2007). The fruit (capsule) matures and splits in early to mid-August and the seeds either fall near the base of the plant or are transported primarily by wind to other areas within the blowout or outside of the blowout. All healthy flowering plants are thought to produce seed (USFWS 1992). Most blowout penstemon plants begin to bloom at 2 to 3 years of age (Stubbendieck *et al.* 1993) and have been successfully cultivated in the greenhouse (Flessner and Stubbendieck 1989, 1992). Flowering in Wyoming occurs later than in Nebraska (late June to early July), probably in response to drier and cooler climatic conditions (Fertig 2001).

Each fruit of the blowout penstemon contains an average of 25-35 seeds with as many as 1500 seeds per plant. The seeds are winged presumably to aid in wind dispersal although, given the high degree of herbivory of this plant, some questions have been raised that animals might also be an important avenue of seed dispersal (Heidel 2005). Seeds are released from late August through September. The seeds, potentially remaining dormant in the sand for 20 years, have a thick outer coat and germination is enhanced after some degree of scarification. Axillary root branching may be an adaptation to survive burial by wind-blown sand rather than a common form of reproduction. By digging around individual blowout penstemon plants, Heidel (2005, 2012) did not find evidence of long-distance underground connectivity between adjacent plants.

There is reason to question whether the Wyoming populations and the Nebraska populations should be considered members of the same species. Blowout penstemon individuals in Wyoming have divergent flower traits that had not been previously reported in blowout penstemon (Heidel 2007). In addition, recent research has found significant genetic differences between three blowout penstemon subpopulations in Nebraska and two subpopulations in Wyoming (Buerkle and Jenkins, in prep.). The magnitude of these genetic differences is equal to or greater than differences between some other pairs of taxonomically recognized penstemon species (Buerkle and Jenkins, in prep.; USFWS 2012).

Status and Distribution

The blowout penstemon was listed as endangered on September 1, 1987 (USFWS 1987; 52 FR 32926-32929). At that time, the blowout penstemon was only known to exist in Nebraska and was considered endemic to that State. The blowout penstemon was discovered in Wyoming in 1996. Since that discovery, further surveys have revealed the presence of three populations in Wyoming.

The plant's current known range in Wyoming consists of the sand dunes in northwest Carbon County of the BLM's Rawlins RMP planning area where the plants are restricted to shifting sand dunes and wind-carved, crater-like depressions (blowouts) with sparse cover of blowout grass

and lemon scurfpea. The blowout penstemon populations in Wyoming are located at higher elevations, and have lower mean annual precipitation and cooler summer temperatures than the sites occupied by the species in Nebraska. Wyoming populations also differ from those of Nebraska in being restricted to sand dunes associated with mountain slopes, rather than broad valleys (Fertig 2001).

Rangewide, the blowout penstemon is currently known from 10 extant indigenous populations in Nebraska and 22 extant transplanted populations in Nebraska (Heidel 2012). In Wyoming, three indigenous populations are made up of at least 19 subpopulations. Each of the three Wyoming populations is part of a dune complex (Heidel 2012). For Wyoming populations, census information for years 2004-2011 indicates plant numbers ranging from approximately 11,000 to 21,000 individuals in any given year (Heidel 2012).

The Wyoming populations of blowout penstemon are in the Ferris Dunes of northwestern Carbon County. The Ferris Dunes cover an area less than 124,000 ha (50,000 acres). The Ferris Dunes are an irregularly shaped area of dune sand that blankets the downwind end of the Great Divide Basin. The three blowout penstemon populations occupy the downwind portions of the Ferris Dunes, including the flank of Bradley Peak (western Seminoe Mountains), on the south side of Bear Mountain and north side of Junk Hill (eastern end of the Ferris Mountains), and at the foothills of the Pedro Mountains where they extend to the west side of Pathfinder Reservoir.

Threats

In Wyoming, the three known populations of blowout penstemon are in remote, fairly unutilized and seldom accessed locations of the BLM's Rawlins RMP planning area. These areas have received little change in management in the past. Given the nature of the different habitats occupied by blowout penstemon plants in Nebraska as compared to those in Wyoming, the degree of threat to populations in these two states may differ. When the blowout penstemon was listed as endangered under the Act, only the Nebraska populations were known, therefore only the threats to populations in Nebraska were considered and used as the basis for this plant's determination of endangered status. The rangewide threats to the blowout penstemon currently include: (1) mining, (2) water development, (3) oil and gas leasing, (4) off-road vehicle use, (5) changes in habitat quality, (6) livestock trampling and grazing, (7) over-collection, (8) pesticide use, (9) construction activities including wind energy facilities, (10) vulnerability based on small population size, and (11) encroachment by other plants.

Mining. Sand mining is currently not occurring in close proximity to any blowout penstemon sites, however more accessible sand deposits in the Rawlins RMP planning area are currently being mined. The sand mined from those locations is used for golf courses and road maintenance. Presently, it seems impractical for sand mining to occur near blowout penstemon sites because of their relative isolation, rugged terrain, and limited access. Blowout penstemon populations in Wyoming are located over 7 miles from primary unpaved county roads to the north and east, and at least 15 miles from primary county roads to the west. Future changes in the accessibility to these habitats could affect the profitability and establishment of sand mines near blowout penstemon sites. Other valuable minerals located near the Seminoe Mountains to the south of the blowout penstemon populations include iron, copper, and gold (from Hausel 1989, in Heidel 2012).

Water Development. Near blowout penstemon habitat at Bradley Peak, Bear Mountain, and Junk Hill in Wyoming are excavated ponds, as well as natural ponds and springs used for sources of livestock water. It would not be feasible to develop these water sources as irrigation water for cultivated fields or central pivot irrigation as is done in Nebraska. Nevertheless, further livestock water sources developed near blowout penstemon populations could potentially concentrate livestock near these habitats causing increased grazing or trampling effects to the plants (Heidel 2005).

Oil and Gas Leasing. Oil and gas leasing occurs at the west end of the Bear – Mountain – Junk Hill – Ferris blowout penstemon population. This development includes pumps, pumping stations, and a pipeline corridor (Heidel 2012).

Off-Highway Vehicle Use. Off-highway vehicle (OHV) use has been observed within a blowout penstemon population in Nebraska, and many plants were damaged (USFWS 1992). Hill climbing and associated OHV recreation activities may ensure continued disturbance and erosion of the sand hills and dunes, but driving over and crushing plants may cause severe negative impacts to the plants (USFWS 1992).

At the newly-discovered Pathfinder subpopulation on lands managed by the Bureau of Reclamation, one or two sets of ORV tracks made tight circles up steep sand slopes. These particular tracks did not impact blowout penstemon plants. Repeated use, however, could accelerate erosion. Prior to 2011, three ORV incidents were noted (Heidel 2007) during blowout penstemon surveys in Wyoming. OHV tracks were observed in blowout penstemon habitat twice during surveys in 2004 and once in 2003 (Heidel 2005). One of these observations appeared to be an OHV rider riding directly through the dune. Another incident involved riding directly to the dune though there were no trail patterns that indicated recreational use. The third pattern involved OHV play in the bottom of a crater which did not contain blowout penstemon plants although the species was located on the rim above (Heidel 2005).

The BLM has committed to limiting the use of OHVs to designated roads and trails within 1.0 mile of known blowout penstemon populations (see Appendix). Any OHV use in the future near blowout penstemon plants would be a prohibited, unauthorized activity and subject to fines and penalties as determined by the BLM's enforcement personnel. If a private individual (for example, an OHV user) does perform a prohibited, unauthorized activity on the BLM's property, the BLM does not have discretionary authority over that person's actions (although BLM enforcement personnel can issue citations and fines). This section 7 consultation deals only with activities over which the BLM has discretionary authority as described in its RMP and committed conservation measures. This section 7 consultation does not analyze the effects of prohibited activities undertaken by private individuals, at their own discretion, contrary to BLM regulations.

Changes in Habitat Quality. Historically, fires removed the protective cover from the soil in the Nebraska Sandhills region resulting in shifting sand dunes and blowouts. Control of prairie fires followed the area's settlement period. Virtual elimination of fire from the Sandhills ecosystem allowed the vegetation to advance into the majority of the eroded areas and to stabilize the sand, resulting in a decline in suitable habitat for the species (USFWS 1992). However, continual summer grazing by cattle during the first half of this century caused enough disturbance to maintain many blowouts. More recently however, the increased use of planned grazing systems (rotational grazing) during the past 30 years has greatly reduced disturbance and has been

responsible for decreasing wind erosion. Other advanced range management practices in Nebraska, including techniques to more evenly distribute livestock on rangeland, have been responsible for decreasing blowout penstemon habitat, as well as the numbers of populations, and the numbers of individual plants (USFWS 1992).

Livestock Trampling and Grazing. Sheep previously grazed the allotments occupied by blowout penstemon in Wyoming. Cattle and horses are now commonly found on the rangelands of both Nebraska and Wyoming. The influence of horses on blowout penstemon has not been documented. Cattle, however, have frequently been observed near blowout penstemon plants. Many individual plants have been inspected during and after cattle grazing periods. When adequate other forage is available, cattle occasionally graze a portion of a plant but seldom does this cause major damage to the plant (BLM 2013, USFWS 1992). Under these normal range conditions, the use of high livestock stocking rates as a disturbance factor to maintain habitat for the blowout penstemon is considered beneficial (USFWS 1992). Advanced grazing methods, referred to as "holistic resource management", may further decrease blowout penstemon habitat by reducing active erosion. Techniques which more evenly distribute livestock on rangelands such as "planned grazing systems" or "management intensive grazing" may have been responsible for decreasing blowout penstemon habitat, numbers of populations, and numbers of individual plants in Nebraska (USFWS 1992).

The occasional removal of a terminal portion of a shoot of a blowout penstemon plant by a grazing herbivore may be desirable because growth of other shoots is stimulated (USFWS 1992). However, during years of low precipitation, livestock forage may be limited and blowout penstemon plants may be more intensively grazed during those times. In Nebraska during times of limited forage availability, cattle have been observed to closely graze nearly every available blowout penstemon plant. One occurrence of close grazing by cattle may or may not impact blowout penstemon plants, but repeated years of close grazing will severely weaken plants and may be the direct cause of plant death (USFWS 1992) or reduce population numbers. Cattle trampling of established plants has not been observed to be a problem. Infrequently, cattle will break a blowout penstemon shoot, which poses no threat to the plant (USFWS 1992).

Livestock trampling damage is typically not significant to blowout penstemon plants because the plants are sparsely distributed in shifting substrate areas which cattle do not normally frequent. For Wyoming populations, it has been hypothesized that wildlife are the primary source of blowout penstemon herbivory. Wild ungulates, such as deer, pronghorn, and elk, may have a larger grazing impact on blowout penstemon plants than cattle in Wyoming. Fertig (2001) observed stem damage from deer and elk trampling on 10 percent of the population at Bear Mountain and on 60 to 80 percent of the stems at Bradley Peak. The tracks of elk and pronghorn antelope were repeatedly observed near browsed plants during survey efforts in Wyoming (Heidel 2005).

Crushing from vehicles used to maintain livestock fences. In Wyoming, livestock fences do cross blowout penstemon populations in a few locations. Though damage to blowout penstemon plants from fence maintenance operations has never been documented, it could be reasonably expected that some crushing may occur to some individual plants as livestock permittees/lessees access their fences for routine maintenance. This threat is not expected to be significant because the plants are sparsely distributed across the landscape and fences are not normally placed in the steep, shifting sand habitat preferred by this plant. Furthermore, the BLM in Wyoming has

committed to educating all livestock permittees/lessees on the importance of avoidance of these plants while maintaining livestock fences (BLM 2013).

Over-collection. The blowout penstemon is attractive and has been cultivated. Horticultural collecting is a potential threat for this species (USFWS 1987). To date, private and commercial collectors have had little impact on blowout penstemon. It would be an attractive and desirable landscape plant, but most of the plants are in locations which are too remote or inaccessible (USFWS 1992).

Pesticide/Herbicide Use. No research has been conducted on the influence of herbicides on blowout penstemon. It is highly probable that broadleaf weed killers would negatively influence this plant. Fortunately, herbicides are seldom used on sand hills/dune regions. It is doubtful that ranchers would even inadvertently apply herbicide to blowout penstemon, because most ranchers try to encourage the growth of all vegetation in blowouts. Use of insecticides could negatively impact the pollinators of blowout penstemon. Numerous types of insects may be responsible for pollination; however, it is unlikely that localized insecticide use would completely eliminate insect pollination (Heidel 2005).

Non-native species in or adjoining blowout penstemon habitat in Wyoming included cheatgrass (*Bromus tectorum*) and Russian knapweed (*Centaurea repens*). Russian knapweed (*C. repens*) recently got introduced at the base of the Bradley Peak population site and could become a major infestation, possibly entering blowout penstemon habitat. Cheatgrass (*B. tectorum*) is one of the more common non-native species in the Pathfinder population and has been observed to be spreading in some of the Bear Mountain subpopulations (Heidel 2012). Weeds pose may pose threats as competitors. Any herbicides used to control the noxious weeds may pose a threat to the blowout penstemon.

Construction Activities. The area between the Ferris and Seminoe Mountains is an area of particularly high mean turbulent kinetic energy, responsible for sand deposition on steep slip-face slopes hundreds of feet high. In recent years, there have been wind energy permit applications that encompass blowout penstemon populations. Any alteration of on-site or upwind flow patterns, or related access development and construction, could affect the species and its habitat. There are four separate dead-end roads to occupied habitat, and if there were any road developments between them, it would provide more access to occupied habitat.

Vulnerability Based on Small Population Size. At the time of its listing, the blowout penstemon was known to comprise nine small populations in Nebraska that consisted of a total of approximately 2,100 individuals. The small populations known at the time were thought to make the species vulnerable to localized environmental changes. In addition, the species occupies a successional niche in the development and eventual revegetation of blowout habitats. As the vegetation in these areas increases, blowout penstemon undergoes local extirpation. At the time of listing, the species was not only rare, but did not appear vigorous at the known localities in Nebraska, possibly because these blowouts had reached a stage of revegetation that exceeded the optimum habitat conditions for the species. Furthermore, the number of new blowouts was decreasing (USFWS 1987). In Wyoming, the species is presently known from two small populations and one large population. The isolation of these populations from each other, as well as the isolation of these populations from other blowout penstemon populations in Nebraska, makes the Wyoming populations similarly vulnerable to the threat of random

stochastic events (such as prolonged drought, introduction of invasive species) that could lead to reduction or loss of these populations.

Damaging insects and periods of drought may be the greatest natural threats to the survival of this species (USFWS 1992). Prior to the drought of the 1930's, the blowout penstemon was listed as one of the most common species in sand blowouts. Following the drought of the 1930's which severely influenced the vegetation of the Great Plains, the blowout penstemon was thought extinct until it was rediscovered in Nebraska in 1959. At one time, it was thought that a localized drought of a few years duration could eliminate most of the remaining blowout penstemon plants in Nebraska (USFWS 1992).

Destructive insects may be a primary cause of decline in populations (USFWS 1992). Several insects (and arachnids) have been observed feeding on blowout penstemon plants, including spider mites, grasshoppers, and an insect larvae which burrows into the inflorescence. Populations of invertebrates are generally at low levels. However, large numbers of penstemon aphids (*Aphis pentstemonicola*) were observed on two individual transplanted blowout penstemon plants growing in a blowout near Alliance, Nebraska. Foliage of the infested plants appeared wilted, grayish-green, and stunted. Several seed predators have also been found active on blowout penstemon. The most serious insect threat appears to be the pyralid moth. Larvae of a pyralid moth did extensive damage to one population of blowout penstemon in 1990. Adult female pyralid moths deposit their eggs on blowout penstemon plants. After hatching, the larvae burrow into the stems and are active until reaching the pupal stage. These larvae damage or kill blowout penstemon plants by boring into the crown area below the plant's buds. Blowout penstemon plants are also quite susceptible to fungal root rots. Plants infected with these fungi wilt, rot, and usually die (USFWS 1992).

Encroachment by Other Plants. The blowout penstemon is well adapted to the rigorous environment of an actively eroding blowout, but it does not grow in close association with most other plants. It generally grows as widely spaced plants in nearly bare sand indicating that these plants may not have the ability to compete with each other or plants of other species for moisture. Its associate in Nebraska, blowout grass, does not use large amounts of soil moisture. Blowout penstemon populations in Nebraska have been known to rapidly decline as members of new species, primarily sand bluestem (*Adropogon hallii*) and prairie sandreed (*Calamovilfa longifolia*) increase and begin to use significant amounts of soil moisture following stabilization of the sand habitat (USFWS 1992).

ENVIRONMENTAL BASELINE

Regulations implementing the ESA (50 CFR 402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed State or Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation process.

The action area is defined at 50 CFR 402 to mean "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action". For the purposes of this consultation, the Service defines the action area to include all sand dune areas in the Wyoming BLM's Rawlins RMP planning area, where the habitat conditions are suitable and

may support blowout penstemon populations, and that could potentially be impacted by decisions made in the Wyoming BLM's Rawlins RMP (BLM 2008a).

The past and present impacts to blowout penstemon in the action area may have included increases or decreases in habitat suitability due to management of these sand dune habitats by the BLM. Livestock grazing does occur within the Rawlins RMP planning area and has occurred there for at least the last 100 years. Grazing activities on BLM-administered lands are authorized by the BLM through a permitting process. Many potential impacts to blowout penstemon plants from grazing activities managed according to the Rawlins RMP have been sufficiently minimized so that these activities will likely not affect many blowout penstemon plants in the Rawlins RMP planning area. For a complete list and discussion on these activities, see pages ix through x of the memorandum transmitting this BO.

Because of the remoteness of the blowout penstemon sites in Wyoming, these areas are not regularly accessed by BLM-employees or the public. Although individual plants could undergo significant effects from cattle grazing, only minor effects from cattle grazing on the blowout penstemon populations in Wyoming are currently known.

Status of the Blowout penstemon Within the Action Area

In Wyoming, blowout penstemon populations are known to occur on lands managed by the BLM as well as lands managed by the State of Wyoming, and Bureau of Reclamation within Carbon County. The habitat of surrounding areas makes the potential for occurrence in other locations possible. The BLM supports efforts to locate the plant on BLM-administered or other nearby lands (see Heidel 2005, 2007, 2012).

Within the Rawlins RMP planning area, potential habitat exists that may support additional blowout penstemon populations. In the future, new locations of blowout penstemon may be discovered in areas managed according to the Rawlins RMP.

Factors Affecting the Blowout Penstemon Within the Action Area

Livestock grazing activities as authorized under the Rawlins RMP may affect the blowout penstemon within the action area. Protective measures (see Appendix) included in the Rawlins RMP should minimize all threats from authorized BLM activities to the blowout penstemon except the threats of grazing cattle foraging on or trampling portions of the blowout penstemon plants and the inadvertent crushing of some plants as livestock permittees/lessees access their livestock fences to perform routine maintenance operations.

Other factors for which the BLM has no discretion or control over which could affect the blowout penstemon within the action area include: (1) drought, (2) illegal or unauthorized activities (such as OHV use in the sand dune habitat, collection of blowout penstemon by rare plant enthusiasts, etc.), (3) introduction of noxious weeds or disease (fungal root rot), (4) grazing or trampling by wild ungulates (deer, elk, antelope) or rodents, (5) burial of the plants in the windblown sand, (6) destruction or elimination of the pollination (insects) or seed dispersal (potentially grazing ungulates) mechanisms of the blowout penstemon or (6) rare stochastic events.

EFFECTS OF THE ACTION

The BLM's Statewide Programmatic BA for the blowout penstemon describes activities in the Livestock Grazing Management program that are likely to adversely affect the blowout penstemon over the life of the Rawlins RMP. These effects are the trampling or destruction of individual blowout penstemon plants due to foraging activities by livestock and the inadvertent crushing of individual plants as livestock permittees/lessees access their livestock fences to perform routine maintenance operations. The potential effects of these activities on the blowout penstemon are described here.

Direct and Indirect Effects

Direct effects are effects that result directly or immediately from the proposed action on the species. For example, actions that would immediately remove or destroy habitat or displace the species from its habitat or an area would be considered direct effects. Potential effects could result from direct damage to individual blowout penstemon plants from grazing or trampling of the flowering and vegetative parts of the plant. Indirect effects are effects that are caused by, or result from, the proposed action and occur later in time after the proposed action is completed. For example, grazing over the life of the RMP (10-15 years) may maintain habitat for blowout penstemon plants that may occupy the area 20 years from present.

The proposed action is the management according to the Rawlins RMP of the BLM-administered lands in the Rawlins RMP planning area for up to 15 years. Since (1) there is such a lengthy time period for the life of the proposed action and direct effects could occur under the proposed action for up to 15 years, and (2) the indirect effects resulting from the proposed action may be combined with direct effects or be sufficiently difficult to distinguish from direct effects, the two types of effects are not differentiated here but instead are discussed jointly in the following discussion.

Analysis for Effects of the Action

Livestock grazing is the primary land use found at blowout penstemon populations in Wyoming (BLM 2013). Livestock management activities may have variable effects on blowout penstemon plants (BLM 2013, Heidel 2005, 2012, USFWS 1992). The three known blowout penstemon populations occur within two grazing allotments of the Rawlins RMP planning area. Cattle currently graze both allotments, but up until 2002, the allotment that included the Bradley Peak populations was grazed by sheep (Heidel 2005).

Blowout penstemon is edible to cattle and horses, but is not their preferred forage if other vegetation is available (USFWS 1992). It was found that in Nebraska during grazing seasons of normal precipitation levels, grazing of blowout penstemon by cattle was minor and confined mostly to occasional shoots of the plant. This type of grazing could have beneficial effects because it breaks apical dominance (USFWS 1992). It was also observed that at other times in Nebraska, when other forage was severely limited because of drought conditions, severe grazing damage occurred with the entire above-ground portion of the blowout penstemon plants removed by grazing animals.

Observations by research personnel performing blowout penstemon surveys have shown that livestock grazing of blowout penstemon plants is very limited in Wyoming (Heidel 2005, 2012).

In Wyoming, livestock are distributed across large allotments and the blowout penstemon plants primarily occupy the rim or sides of very steep sandy slopes. Livestock grazing of blowout penstemon in Wyoming may be more likely to occur where relatively few plants are located--at the bases of sand dunes adjacent to water sources such as ponds, spring seeps, and wetlands (Heidel 2005, 2012). For the same reasons, livestock trampling damage in Wyoming is usually not significant because of the plant's sparse distribution and shifting substrate, although livestock could potentially step on and crush a few individual plants or consume them along with other plant species (BLM 2013). Though individual blowout penstemon plants may be damaged, and the fitness of the plants may be affected for the season, the plants usually recover and the overall population is minimally affected. Some herbivory has been noted on blowout penstemon plants in Wyoming since surveys were initiated in 2000. Wild ungulate tracks such as elk, deer, and antelope are abundant within the plants habitat, whereas the tracks of cattle are seen infrequently (Heidel 2007, 2012). Furthermore, herbivory was noted in 2004 from antelope as indicated by the presence of the animals themselves and their tracks in the sand, prior to cattle being released on the allotment. At the Pathfinder blowout penstemon population in Wyoming in 2004, 26 of the 29 plants (almost 90 percent) observed there were browsed by wild ungulates. It is uncertain whether prolonged browsing can indefinitely favor vegetative sprouting, or ultimately curb reproductive output levels (Heidel 2005, 2012).

Livestock currently permitted on grazing allotments within blowout penstemon habitat in Wyoming are not excluded from blowout penstemon plants with fences or other means. Therefore, livestock do have access to the plants. Fencing of blowout penstemon habitat, if undertaken, would be very difficult due to the shifting nature of the sand dunes that comprise the plant's habitat. It would be impractical to try to build and maintain a fence on a sand substrate because sand would blow over or out from under the fence, either covering it up or suspending it in mid-air. For this reason, it has been determined that fencing of blowout penstemon habitat would be an impracticable management tool.

In Wyoming, livestock fences do cross blowout penstemon populations in a few locations. Though damage to blowout penstemon plants from fence maintenance operations has never been documented, it could be reasonably expected that some crushing may occur to some individual plants as livestock permittees/lessees access their fences either on foot, by vehicle, or on horseback for routine maintenance. This threat is not expected to be significant because the plants are sparsely distributed across the landscape and fences are not normally placed in the steep, shifting sand habitat preferred by this plant.

It is plausible that grazing ungulates could ingest blowout penstemon seeds and act as seed dispersal mechanisms to introduce the seeds to unoccupied areas and actually improve the reproductive fitness of any given plant. Although some authors have speculated about the actions of animals acting as seed dispersers of blowout populations (Heidel 2005, USFWS 1992), no documentation has been found in the literature with evidence supporting this theory. Although not known to have occurred in blowout penstemon habit in Wyoming, grazing ungulates (including livestock) could also potentially introduce the seeds of noxious weeds or other invasive plant species to blowout penstemon habitats.

The BLM intends to continue current grazing activities but will implement a host of conservation measures designed to minimize impacts to the plants (see Appendix). If more blowout penstemon populations are discovered as a result of on-going BLM-authorized surveys, then grazing activities will be managed to maintain those blowout penstemon populations as well

(BLM 2013). The use of the conservation measures committed to by the BLM will reduce or eliminate many of the effects from livestock grazing to the plants. The BLM has committed to:

(1) requiring surveys for this plant or assuming species-presence, and implementing applicable conservation measures, including potentially the modification of operational plans, protection requirements related to seasonal use or occupancy restriction, facility design, etc. (BLM 2013);

(2) restoring, maintaining, or improving plant communities in grazing allotments to assist in the recovery of federal threatened and endangered species or the conservation of federally-listed species of concern and other state-designated special status species;

(3) placing mineral supplements, or new water sources (permanent or temporary), for livestock, wild horses, or wildlife at least 1.0 mile from known blowout penstemon populations;

(4) ensuring that straw or other livestock feed must be certified weed-free;

(5) not altering livestock grazing permits/leases in any allotment with pastures containing blowout penstemon populations, without coordinating adjustments with the Service;

(6) prohibiting biological control of noxious and invasive plant species in blowout penstemon habitat until the impact of the control agent has been fully evaluated;

(7) prohibiting herbicide treatment within 0.5 miles of occupied blowout penstemon habitat;

(8) prohibiting aerial insecticide treatments of malathion or carbaryl within 3.0 miles of occupied habitat;

(9) only using carbaryl bran bait or diflubenzuron Reduced Agent Area Treatments within 3.0 miles of occupied habitat;

(10) not applying carbaryl bran bait within 0.25 miles of occupied blowout penstemon habitat;

(11) not authorizing revegetation projects in known or potential blowout penstemon habitats without coordination with the Service;

(12) limiting the use of off-highway vehicles (OHVs) (with certain allowed exceptions for emergency situations, access to existing ROWs, and maintenance of livestock fences) to designated roads and trails within 1.0 mile of known blowout penstemon populations;

(13) reclaiming existing roads near blowout penstemon populations that are not required for operations or maintenance, or lead to abandoned projects;

(14) prohibiting BLM-authorized surface disturbing activities within 0.25 mile of known blowout penstemon populations; and

(15) providing educational materials to authorized permittees in blowout penstemon habitat (See Appendix).

Summary

The three Wyoming populations of blowout penstemon are at least partially located on BLM-managed lands. These populations are found in remotely-located, shifting sand dune habitats. In the past, these areas have typically not received a great deal of use. The management of these areas, accordingly, also has not been intensive in the past. To minimize or eliminate potential adverse effects to the blowout penstemon in Wyoming, the BLM has committed to the implementation of a number of conservation measures (see Appendix). These conservation measures will be adopted into all relevant Wyoming RMPs following the completion of this section 7 consultation.

The BLM has made a "may affect, likely to adversely affect determination" for the potential effect that BLM-authorized livestock grazing activities may have on blowout penstemon plants in the Rawlins RMP planning area. This determination is based on the potential for grazing or trampling by livestock of individual blowout penstemon plants or the inadvertent crushing of individual plants as livestock permittees/lessees access their fences for routine maintenance operations. However, livestock grazing could also benefit this species. Conservation measures to be implemented by the BLM will minimize the impacts of BLM activities to the blowout penstemon.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Of the roughly 11.2 million acres within the Wyoming BLM's Rawlins RMP planning area, 3.4 million acres are managed by the BLM with most of these acres available for livestock grazing. The remaining acres are either in private or State ownership or managed by other federal entities with livestock grazing occurring over the majority of this acreage as well.

Only three populations of blowout penstemon are known to occur in Wyoming. All of these are contained wholly or partially on BLM-administered lands. If other populations do occur in Wyoming on lands that are not federally owned, it is presumed that these populations would be susceptible to the same effects of livestock grazing as the three known populations. The nature of the impacts from livestock grazing are likely to be similar across all land ownership types. No other significant effects to the blowout penstemon in Wyoming are currently known to be occurring.

CONCLUSION

After reviewing the current status of the blowout penstemon; the environmental baseline for the action area; the effects of the Rawlins RMP and the BLM-committed conservation measures; and the cumulative effects, it is the Service's biological opinion that the implementation of the BLM's Rawlins RMP with commitment to conservation measures, as proposed, is not likely to

jeopardize the continued existence of the blowout penstemon. Critical habitat for the blowout penstemon has not been designated, therefore none will be affected.

The Service has reached this conclusion by considering the following.

1. It appears that this species is more widespread and numerous than was previously known. At the time of listing, the blowout penstemon was not known to occur in Wyoming. The blowout penstemon was considered endemic to Nebraska at the time of listing and total known blowout penstemon population numbered approximately 2,100 individuals. Extensive census efforts since the plant was discovered in Wyoming recently put the estimate of plant numbers in Wyoming at between 5000-8000 naturally-occurring individuals (USFWS 2012). It is expected that new populations will continue to be discovered in Wyoming as not all potential habitat has been surveyed. Furthermore, the populations in Nebraska were documented to number 23,876 individuals in 2008 (USFWS 2012), although the increase in number of individuals in Nebraska is largely the result of extensive introduction efforts.

2. The BLM is not proposing to implement any significant changes to the management of any blowout penstemon potential habitat that may cause detrimental impacts to any populations.

3. The BLM is committed to implementing protective measures (see Appendix) to minimize potential impacts to blowout penstemon.

4. The BLM is also committed to ensuring that continued existence of the blowout penstemon is not jeopardized by BLM-authorized activities.

5. Finally, although some individuals are likely to be adversely impacted by livestock grazing activities (trampling, ingestion, crushing related to fence maintenance operations, etc.), blowout penstemon plants in Wyoming normally occupy steep shifting sand dunes that are not regularly grazed by livestock or impacted by fence maintenance operations.

INCIDENTAL TAKE

Sections 7(b)(4) and 7(o)(2) of the ESA generally do not apply to listed plant species. However, limited protection of listed plants from take is provided to the extent that the ESA prohibits the removal and reduction to possession of federally listed plants.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations (CR) are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The recommendations provided here relate only to

the proposed action and do not necessarily represent complete fulfillment of the agency's section 7 responsibility for these species.

CR1. The Service recommends that the BLM monitor OHV activity near blowout penstemon sites.

CR2. The Service recommends that the BLM post signs near blowout penstemon sites informing the public of OHV use restrictions.

CR3. The Service recommends that the BLM diligently enforce OHV use restrictions if prohibited, unauthorized OHV use occurs near occupied blowout penstemon habitat.

RE-INITIATION NOTICE

This concludes formal consultation of the actions outlined in the request. As provided in 50 Section 402.16, re-initiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing take must cease pending re-initiation.

Thank you for your assistance in the conservation of this endangered species. In future communications regarding this Biological Opinion, please refer to consultation number WY12F0386. If we may be of further assistance, please contact Alex Schubert of my staff at (307) 772-2374, ext. 238.

cc: BLM, Endangered Species Coordinator, State Office, Cheyenne, WY (C. Keefe)
FWS, Endangered Species, Lakewood, CO (B. Fahey)
FWS, Nebraska ES Office, Grand Island, NE (M. George)
WGFD, Statewide Habitat Protection Coordinator, Cheyenne, WY (M. Flanderka)
WGFD, Non-Game Coordinator, Lander, WY (B. Oakleaf)

REFERENCES

Buerkle, C. A. and B. Jenkins. In prep. Two phylogeographic lineages exist within blowout penstemon (*Penstemon haydenii*), a plant species on the U.S. endangered species list.

Fertig, W. 2001. 2000 Survey for Blowout Penstemon (*Penstemon haydenii*) in Wyoming. Prepared for the Bureau of Land Management Wyoming State Office. 3 April 2001. Agreement #KAA990027. 40 pp.

Flessner, T. R., and J. Stubbendieck. 1989. Propagation of Blowout Penstemon (*Penstemon haydenii* S. Watson): Germination-enhancing Treatments. Transactions of the Nebraska Academy of Sciences XVII:65-70.

-------. 1992. Pollination Characteristics of Blowout Penstemon (*Penstemon haydenii* S. Watson). Transactions of the Nebraska Academy of Sciences XIX:63-66.

Heidel, B. 2005. Survey of *Penstemon haydenii* (Blowout Penstemon) in Wyoming -- 2004. Prepared for the Casper and Rawlins field office of the Bureau of Land Management, Agreement #KAA041037. Wyoming Natural Diversity Database, University of Wyoming, Laramie, Wyoming. 36 pp. + Appendices.

-------. 2007. *Penstemon haydenii* (Blowout penstemon) -- 2004 monitoring establishment report - Carbon County, Wyoming. Prepared for the Bureau of Land Management, Rawlins Field Office, Agreement #KAA041038.

-------. 2012. Status of Penstemon haydenii (*Blowout Penstemon*) in Wyoming – 2012. Prepared for the Bureau of Land Management Rawlins and Rock Springs Field Offices, and Wyoming State Office. Agreement #L10AC20123. Wyoming Natural Diversity Database, University of Wyoming, Laramie, Wyoming. 57 pp. + Appendices.

Stubbendieck, J., T. R. Flessner, C. H. Butterfield, and A. A. Steuter. 1993. Establishment and survival of the endangered blowout penstemon. Great Plains Research 3:3-19.

Tepedino, V. J., Toler, T. R., Bradley, B. A, Hawk, J. L., and Griswold T. L. 2007. Pollination biology of a disjunct population of the endangered sandhills endemic *Penstemon haydenii* S. Wats. (*Scrophulariaceae*) in Wyoming, USA. Plant Ecology 193:59-69.

United States Bureau of Land Management (BLM). 1989. BLM Manual H-1741-1-Fencing. Dated 12/6/89. 57 pp.

-------. 1997a. Record of Decision and Approved Resource Management Plan for the Green River Resource Area. Great Divide Resource Area. Rock Springs District. Rock Springs, Wyoming.

-------. 1997b. Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in the State of Wyoming. 16 pp.

-------. 2007. Record of Decision and Approved Casper Resource Management Plan. Casper Field Office. Casper, Wyoming.

-------. 2008a. Record of Decision and Approved Rawlins Resource Management Plan for Public Lands Administered by the Bureau of Land Management, Rawlins Field Office, Rawlins, Wyoming.

-------. 2008b. Bureau of Land Management Manual 6840, Special Status Species Management. 48 pp.

-------. 2011. Draft Resource Management Plan and Environmental Impact Statement for the Lander Field Office Planning Area. Lander Field Office. Lander, Wyoming.

-------. 2013. 2012 Statewide Programmatic Biological Assessment: Blowout Penstemon (*Penstemon haydenii*) Updated March 2013. U.S. Bureau of Land Management, Cheyenne, Wyoming. 53 pp.

United States Fish and Wildlife Service. 1987. Endangered and Threatened Wildlife and Plants; Final Rule to Determine *Penstemon haydenii* (Blowout Penstemon) To Be an Endangered Species. Federal Register 52(169):32926-32929.

-------. 1992. Blowout Penstemon (*Penstemon haydenii*) Recovery Plan. U.S. Fish and Wildlife Service, Denver, Colorado. 40 pp.

-------. 2012. Blowout Penstemon (*Penstemon haydenii*) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service Nebraska Ecological Services Field Office, Grand Island, Nebraska. June 2012. 41 pp.

APPENDIX – CONSERVATION STRATEGY TAKEN FROM THE STATEWIDE PROGRAMMATIC BLOWOUT PENSTEMON BIOLOGICAL ASSESSMENT

Implementation of the following conservation strategy is intended to minimize or eliminate adverse impacts that are likely to result from implementation of the management actions provided in the Wyoming U.S. Bureau of Land Management's (BLM's) Resource Management Plans (RMPs). In addition to the existing conservation measures in the RMPs (items 1 and 2), the BLM has committed to implement conservation measures 3 through 16. The BLM will also consider implementing best management practices (BMPs) (items 17 through 33) to further protect the blowout penstemon and its habitat (BLM 2013).

Existing Protections Common to all Field Offices

1. The *Wyoming BLM Mitigation Guidelines for Surface Disturbing and Disruptive Activities* are designed to protect resources such as soils, vegetation, wildlife habitat and other valuable resources. The purpose of the guidelines "...are (1) to reserve, for BLM, the right to modify the operations of all surface and other human presence disturbance activities as part of the statutory requirements for environmental protection, and (2) to inform a potential lessee, permittee, or operator of the requirements that must be meet when using BLM-administered public lands. These guidelines have been written in a format that will allow for (1) their direct use as stipulations, and (2) the addition of specific or specialized mitigation following the submission of a detailed plan of development or other project proposal, and an environmental analysis..." (BLM 2008a). For BLM-related projects within suitable blowout penstemon habitat, the BLM will require surveys to be conducted in accordance with BLM and USFWS protocols. In the absence of survey, species presence will be assumed and applicable conservation measures will be implemented, including potentially the modification of operational plans, protection requirements related to seasonal use or occupancy restriction, facility design, etc. These guidelines are included in all Wyoming FO RMPs.

2. The *Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for the Public Lands Administered by the State of Wyoming* were developed and are applied to achieve the four fundamentals of rangeland health including (1) watersheds are functioning properly; (2) water, nutrients, and energy are cycling properly; (3) water quality meets State standards; and (4) habitat for special status species is protected. These standards and guidelines maintain focus on both the health of the land and its natural and human dependent communities through adaptive and sustainable on-the-ground management of the public rangelands. The standards are meant to reflect minimal acceptable conditions for public rangelands and apply to all resource uses on public lands at a landscape level. If a standard is not being met then guidelines, which guide grazing management practices at the allotment or watershed level, will be altered to ensure that BLM management of public rangeland resources are on track to meet standards within a reasonable timeframe. Standards and guidelines specific to the protection of special status species are listed below:

Standard 1 – "Within the potential of the ecological site (soil type, landform, climate, and geology), soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff."

Standard 3 – "Upland vegetation on each ecological site consists of plant communities appropriate to the site which are resilient, diverse, and able to recover from natural and human disturbance."

Standard 4 – "Rangelands are capable of sustaining viable populations and a diversity of native plant and animal species appropriate to the habitat. Habitats that support or could support threatened, endangered, species of special concern, or sensitive species will be maintained or enhanced."

Guideline VII – "Grazing management practices will incorporate the kinds and amounts of use that will restore, maintain, or enhance habitats to assist in the recovery of Federal threatened and endangered species or the conservation of federally-listed species of concern and other State-designated special status species. Grazing management practices will maintain existing habitat or facilitate vegetation change toward desired habitats. Grazing management will consider threatened and endangered species and their habitats."

Conservation Measures

All conservation measures must be adhered to unless further consultation and coordination has occurred with the Service and an agreement has been reached.

3. Place mineral supplements, or new water sources (permanent or temporary), for livestock, wild horses, or wildlife at least 1.0 mile from known blowout penstemon populations. Do not place supplemental feed for livestock, wildlife, or wild horses within 1.0 mile of known blowout penstemon populations. Straw or other feed must be certified weed-free. These restrictions are intended to keep free-ranging livestock away from blowout penstemon populations and subsequent grazing on the blowout penstemon plants. Surveys for blowout penstemon will be conducted in potential blowout penstemon habitat prior to the authorization of range improvement projects.

4. The Bureau will not alter livestock grazing permits/leases in any allotment with pastures containing blowout penstemon populations, without coordinating adjustments with the Service.

Conservation measures 3 and 4 will be added to grazing permit/lease renewals or Allotment Management Plans in allotments with known blowout penstemon populations. All Allotment Management Plans are a required conformance measure within their respective grazing permit/lease.

5. Introduction of biological controls for noxious and invasive plant species will be prohibited in known and potential blowout penstemon habitat until the impact of the control agent has been fully evaluated and determined not to adversely affect the plant population. The Bureau will monitor biological control vectors.

6. Herbicide treatment (aerial, vehicle, and ground) will be prohibited within 0.5 miles of occupied blowout penstemon habitats (see Standard Operation Procedures from National Vegetation Treatment Record of Decision appendix B) as is consistent with conservation measures detailed in the National Programmatic Vegetation Treatment EIS (BLM 2007a,b). For insecticide treatments, no aerial application of malathion or carbaryl will occur within 3.0 miles of occupied habitats; only carbaryl bran bait or diflubenzuron combined with Reduced Agent Area Treatment (RAATs) methodology would be used within the 3-mile buffer; and no application of carbaryl bran bait would be applied within 0.25 mile buffer of occupied blowout penstemon habitats.

   a. Where pests (weeds, insects, fungal) have the potential to degrade area ecological health and threaten blowout penstemon population viability, through coordination with the Service ground applications of pesticides will be allowed within occupied habitat.

   b. The BLM will work with the Animal and Plant Health Inspection Service (APHIS), the Service, and county weed and pest agencies to select pesticides and methods of application that will most effectively manage the infestation and least affect the blowout penstemon.

7. Only through coordination with the Service will revegetation projects be authorized within 0.25 miles of occupied blowout penstemon habitat.

8. Limit the use of off-highway vehicles (OHVs) to designated roads and trails within 1.0 mile of known blowout penstemon populations, with the exception of authorized necessary tasks. No OHV competitive events will be allowed within 1.0 mile of known blowout penstemon populations. Roads near blowout penstemon plants that are not required for routine operations or maintenance of developed projects, or lead to abandoned projects will be reclaimed as directed by the BLM and in coordination with the Service.

   The BLM will limit the use of OHVs to existing roads and trails within 1.0 mile of known blowout penstemon populations, the only exceptions to this measure are for the performance of authorized necessary tasks specifically related to firefighting, hazardous material cleanup, existing ROW maintenance and inspection, and fence maintenance associated with livestock and grazing management activities.

9. The BLM will prohibit BLM-authorized surface disturbing activities on Federal oil and gas leases and/or BLM-managed surface estate with 0.25 mile of known blowout penstemon populations.

10. The disposal (sale and removal) of salable minerals, which includes sand, is a discretionary Bureau action and is prohibited within a 0.25 mile buffer area of known blowout penstemon populations.

11. Prior to any land tenure adjustments in known blowout penstemon habitat, the BLM will conduct surveys to assess habitat boundaries and those areas with occupied habitat will remain in Federal ownership. Further, the BLM will engage in opportunities for land acquisition to conserve ESA listed plant species through purchase, donation, land exchange, conservation easement or other means to prevent habitat loss (BLM 2008b). Only through coordination with the Service are BLM-administered public lands that contain occupied habitat for blowout penstemon to be exchanged or sold (BLM 2008b).

12. All new proposed ROW project locations (power lines, pipelines, roads, renewable energy, etc.) would not be allowed within 0.25 miles from any known occupied blowout penstemon habitat to minimize disturbances. If the avoidance of adverse effects is not possible, the BLM will re-initiate consultation with the Service.

    a. Wind energy developments will not be authorized within 1.0 mile of occupied blowout penstemon habitat to minimize potential impacts associated with wind turbines. If projects are proposed within 1.0 mile of occupied habitat the BLM will re-initiate consultation with the Service.

13. Proposed projects not addressed in other conservation measures will be prohibited within 0.25 miles from any known occupied blowout penstemon populations to minimize surface disturbance and adverse effects within occupied habitat. If the avoidance of adverse effects is not possible, the BLM will re-initiate consultation with the Service.

14. The BLM will conduct ongoing surveys to inventory and monitor existing blowout penstemon populations. Photointerpretation of aerial maps combined with on-the-ground surveys will be conducted in those FOs identified as having potential habitat. These actions will assist in determining the range of blowout penstemon in Wyoming and aid the Service in compiling species distribution lists.

15. A database of all surveyed, inventoried and/or monitored blowout penstemon sites will be maintained by the BLM in conjunction with WYNDD.

16. BLM will provide educational materials to authorized permittees in blowout penstemon habitat, including, but not limited to, ROW and livestock permittees (regarding practices for minimizing potential for impacts related to fence and ROW maintenance). BLM efforts (i.e., phone calls, or other direct communication) will be taken to ensure all authorized permittees (e.g., grazing permittees and/or ROW permittees) have received the educational materials and to ensure there are no questions regarding the importance of avoiding impacts to blowout penstemon habitats or individual plants.

Best Management Practices

17. When project proposals are received, BLM will initiate coordination with the Service at the earliest possible date so that both agencies can advise on project design. This should minimize the need to redesign projects at a later date to include blowout penstemon conservation measures, determined as appropriate by the Service.

18. Preserve the Rawlins FO blowout penstemon ACEC to ensure the continued existence of the species in Wyoming by restricting management actions within ACEC boundaries. As new populations are discovered or the species migrates with its preferred habitat, re-evaluate the ACEC boundaries. BLM FOs should coordinate efforts to maintain ACEC protection around occupied blowout penstemon habitat, should habitat eventually cross FO borders.

19. The BLM will participate in the development of a conservation agreement, assessment and strategy, and a species specific recovery plan for blowout penstemon in coordination with the Service and other agencies as appropriate. Once a recovery plan and conservation agreement are finalized for blowout penstemon in Wyoming, populations and habitat of the species on BLM-administered lands will be monitored to determine if conservation/recovery objectives are being met.

20. Limit the use of off highway vehicles (OHVs) to existing roads and trails within 1.0 mile of *potential* blowout penstemon habitat, with the exception of authorized necessary tasks. No OHV competitive events will be allowed within 1.0 mile of potential blowout penstemon populations.

21. Coordinate with the Service, the National Resource Conservation Service (NRCS), State of Wyoming and private landowners to work proactively to ensure adequate protection for blowout penstemon and its habitat when new activities are proposed.

22. In the event that a new population of blowout penstemon is found, the Service Wyoming Field Office (307-772-2374) will be notified within one week of discovery.

23. Initiate land tenure adjustments to acquire lands with populations of blowout penstemon or potential habitat to ensure a higher level of protection under the ESA on Federal lands for blowout penstemon.

24. Prior to any land tenure adjustments in potential blowout penstemon habitat, the BLM will survey to assess for the presence or suitability for colonization of the species. While it is difficult to assess whether blowout penstemon will potentially colonize a specific site, the BLM should try to retain in Federal ownership lands that serve as potential habitat as they "are part of a broader, logical public land ownership management unit" (BLM 2008b). Potential blowout penstemon habitat is important for reintroduction and recovery efforts for the species.

25. Form a steering committee to develop and prioritize management practices and assist BLM and the Service with research projects.

26. Monitor and analyze vegetation treatments (prescribed fire, mechanical, chemical, etc.) in known or potential blowout penstemon habitat for impacts to the species.

27. Monitor blowout penstemon sites for invasion by noxious and invasive plant species.

28. Establish monitoring, biological, ecological, and life history studies as funding and staffing allow, such as, monitoring current populations each year for trends, studies regarding identification of pollinators, genetics, life history, effects of pesticides and herbicides, seed viability and germination, and studies monitoring the success of reintroduction efforts. The Rawlins FO, in conjunction with various university collaborators, is conducting pollination, genetic and seed bank studies.

29. Collect and bank blowout penstemon seeds at local, regional, national, and international arboreta, seed banks, and botanical gardens as insurance against catastrophic events, for use in biological studies, and for possible introduction/reintroduction into potential habitat.

30. Train law enforcement personnel on protections for the plant and its habitat, its status, and current threats to its existence.

31. Educate resource specialists, rangers, and fire crews about blowout penstemon and its habitat to help with project design for the general area and for fire suppression actions occurring in potential habitat for the plant. Provide ongoing education on habitat characteristics and identification of the plant. A flyer summarizing the plant's description, life history and habitat was distributed in 2008 to BLM specialist staff and is made available to the public in BLM FOs and online.

32. The BLM will consider potential reintroduction sites in coordination with the Service to maintain the integrity of these sites for the survival of the blowout penstemon. The objective would be to reintroduce populations of blowout penstemon into areas of historic occurrence.

33. Utilizing the Service 5-year Review: Summary and Evaluation document (USFWS 2012) develop propagation techniques and use them to introduce or repopulate blowout penstemon populations in the event population reestablishment becomes necessary.

Reference

United States Bureau of Land Management (BLM). 2007a. Final Biological Assessment for Vegetation Treatments on Bureau of Land Management Lands in 17 Western States. 502 pp. + Appendix.

-------. 2007b. Record of Decision for Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic EIS. 32 pp. + Appendices.

------- 2008a. Record of Decision and Approved Rawlins Resource Management Plan for Public Lands Administered by the Bureau of Land Management, Rawlins Field Office, Rawlins, Wyoming.

-------. 2008b. Bureau of Land Management Manual 6840, Special Status Species Management. 48 pp.

-------. 2013. 2012 Statewide Programmatic Biological Assessment: Blowout Penstemon (*Penstemon haydenii*) Updated March 2013. U.S. Bureau of Land Management, Cheyenne, Wyoming. 53 pp.

United States Fish and Wildlife Service. 2012. Blowout Penstemon (*Penstemon haydenii*) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service Nebraska Ecological Services Field Office, Grand Island, Nebraska. June 2012. 41 pp.