United States Department of the Interior

FISH AND WILDLIFE SERVICE

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IN REPLY REFER TO:
ES/GJ-6-CO-13-F-003
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June 25, 2013

Memorandum

To: Field Manager, Kremmling Field Office, Bureau of Land Management, Kremmling, Colorado

From: Western Colorado Supervisor, Ecological Services, Fish and Wildlife Service, Grand Junction, Colorado

Subject: Final Biological Opinion for the Bureau of Land Management Kremmling Field Office Resource Management Plan revision

This responds to your request, received February 15, 2013, for formal consultation under section 7 of the Endangered Species Act (ESA) of 1973, as amended. We also received your updated biological assessment (BA) on April 25, 2013, regarding revisions made to mapped Canada lynx (*Lynx canadensis*) (lynx) habitat. In accordance with section 7 of the ESA of 1973, as amended (16 U.S.C. 1531 et seq.), and the Interagency Cooperation Regulations (50 CFR 402), the Fish and Wildlife Service (Service) transmits this final biological opinion (BO) for the Bureau of Land Management (BLM) Kremmling Field Office (KFO) Resource Management Plan (RMP) revision. The public lands and Federal mineral estate within the KFO (excluding U.S. Forest Service lands) are found within Grand, Jackson, Summit, Eagle, Routt, and Larimer Counties. The RMP revision addresses all program areas administered by the BLM.

Due to water depletions, you have requested formal consultation for the four endangered fish species in the upper Colorado River system: Colorado pikeminnow (*Ptychocheilus lucius*), razorback sucker (*Xyrauchen texanus*), humpback chub (*Gila cypha*), and bonytail (*Gila elegans*); five federally listed species downstream in the Plate River system: whooping crane *(Grus americana),* least tern *(Sterna antillarum),* piping plover *(Charadrius melodus),* pallid sturgeon *(Scaphirhynchus albus),* and the *Platanthera praeclara* (western prairie fringed orchid). You have also requested formal consultation on three plant species found within the KFO: *Phacelia formosula* (North Park phacelia), *Astragalus osterhoutii* (Osterhout milkvetch), and *Penstemon penlandii* (Penland beardtongue). In addition, you have requested our concurrence on your determination that the proposed RMP may affect, but is not likely to adversely affect the Canada lynx, Mexican spotted owl (*Strix occidentalis lucida*), and greenback cutthroat trout (*Oncorhynchus clarki stomias*).

The North American wolverine (*Gulo gulo luscus*) was recently proposed as threatened (currently one individual is known to be in Colorado). BLM policy is to confer on all discretionary actions that are likely to adversely affect a proposed species. Conversely, BLM policy is to not confer on actions unlikely to adversely affect a proposed species. None of the actions proposed in the Final RMP for the KFO are expected to adversely affect the wolverine. Therefore, conference was not requested on the North American wolverine.

CONSULTATION HISTORY

As a cooperating agency, we periodically reviewed and provided National Environmental Policy Act (NEPA) comments on the draft RMP beginning in 2006. We were provided a draft BA for the RMP (RMP BA) for review in July, 2012. Over the next several months, we provided comments on the draft RMP BA and worked with KFO staff to discuss outstanding information needs for the RMP BA. On February 15, 2013, we received the finalized BA and a request for initiation of formal consultation. On April 23 and June 7, 2013, KFO staff sent us updated information pertaining to a revision of mapped lynx habitat within the KFO. Additionally, on May 21, 2013, we requested and received from KFO staff clarification on the status of, and protections for, streams containing greenback cutthroat trout.

DESCRIPTION OF THE PROPOSED ACTION

The KFO, headquartered in Kremmling, manages approximately 378,884 surface acres of public lands and approximately 2,240,775 subsurface acres of mineral estate administered by the KFO in Eagle, Summit, Grand, Jackson, Larimer, and Routt Counties. The *decision area* for this RMP revision consists only of BLM lands (surface) and BLM-managed Federal mineral estate that may lie beneath state and private ownership. Leasing and development of Federal minerals involving surface lands administered by the Forest Service, the Service, and National Park Service are subject to leasing decisions made in their respective management plans.

Relevant details of the proposed RMP revision can be found in the RMP BA. Major issues contributing to the necessity of revising the current RMP include the following resources and management areas: recreation, special management areas/designations, energy development, vegetation, wildlife, sagebrush habitat, and surface/ground water resources. The RMP also addresses cultural, visual, and wilderness resource management, livestock grazing, mining, fire and fuels, lands and realty, travel management, etc. Fish and wildlife habitats consist of vegetation, soils, water, and air resources. Protections afforded to fish and wildlife habitats, including threatened and endangered species and migratory birds, are provided by special designations (Areas of Environmental Concern or ACECs and Wilderness Study Areas) and the stipulations found in Appendix B in the RMP BA. Additionally, Appendix D contains Conditions of Approval (COAs) applicable to surface disturbing activities and Appendix E contains protections categorized as best management practices and standard operating procedures.

REQUESTS FOR CONCURRENCE

Mexican spotted owl (MSO)

No Mexican spotted owls have ever been reported on or near BLM land within the KFO. The nearest known MSO territories are over 50 miles away in the Pike San-Isabel National Forest, south of Denver. Mexican spotted owls also occur to the west in Utah, in canyons along the Green River. According to the BA, very limited potential for MSO habitat exists within the KFO where BLM has surface jurisdiction. Two stipulations providing protection for MSO, should any be found, are included in the RMP. CO-NSO-14 would prohibit surface occupancy and use in Primary Activity Centers, should those be identified through surveys. CO-TL-14 would provide additional protection by prohibiting surface use during the nesting season in Primary Activity Centers. Additionally, species-specific conservation measures would be implemented to identify and protect MSO habitat, as outlined in the BA. For these reasons, we concur with your determination that the proposed RMP revision is not likely to adversely affect the MSO.

Canada lynx

Most suitable lynx habitat is found on National Forest lands in Colorado. However, there are areas of BLM and split estate land adjacent to National Forest lands supporting patches of lynx habitat. These areas are generally small portions of the Lynx Analysis Units (LAUs) to which they are adjacent. There are also three lynx linkages that cross BLM lands within the KFO that may serve as travel corridors for dispersing lynx. The primary potential threats to lynx habitat within the KFO are likely to be from vegetation and timber management, oil and gas development, and roads and trails. Potential threats could also arise from lands and realty actions, recreation, prescribed fire, etc. The RMP BA contains conservation measures specific to lynx protection to address and minimize the effects of these actions.

The KFO forestry program consists of commercial forest product sales and fuels reductions (including salvage logging). Harvest levels have averaged approximately 200 to 300 acres per year within the KFO. Conservation measures for the protection of lynx habitat would include: 1) manage vegetation to approximate natural succession and disturbance processes, 2) retain and improve recruitment of an understory of small conifers and shrubs preferred by hares, and 3) harvests within aspen stands would promote aspen regeneration. Salvage logging projects would be designed to avoid impacts to snowshoe hare *(Lepus americanus)* habitat while removing dead and dying trees. Since 2003, the KFO has completed 5 salvage logging projects; all were small enough and designed such that no adverse effects to lynx resulted. Similarly, adverse effects to lynx are not expected to result from future forestry projects.

The proposed RMP contains the stipulation KFO-CSU-10, which would constrain oil, gas, coal and other mineral development activities in lynx linkage corridors and lynx habitat within LAUs. The purpose of the Controlled Surface Use (CSU) stipulation would be to maintain the integrity and use of lynx habitat according to the Lynx Conservation Assessment Strategy guidelines. The CSU would be used to eliminate over-the-snow travel, limit surface use in denning habitat during the denning period, and site energy development away from primary lynx habitat. According to the RMP BA, no oil and gas activities have occurred in lynx linkages or LAUs within the KFO

to date. No lynx linkages or LAUs are located in areas of high oil and gas potential; thus, it is not likely that high-density, energy-related infrastructure would be contemplated within lynx habitat or lynx linkages.

Under the KFO RMP, transportation would be limited within lynx linkages and LAUs to designated roads and trails, eliminating off-road travel and user-created routes. Unpaved BLM roads rarely receive motorized use at levels that create impediments to lynx movement and present a very low risk to lynx from automobile collisions. According to the RMP BA, snow machine use within the KFO is of low intensity in mapped lynx habitat. On BLM lands within the KFO, snow compaction is not expected to reach the level where increased competition from lynx competitors in compacted areas has an adverse effect on lynx.

Given the protections discussed above, and further measures outlined in the RMP BA, we concur with your determination that the proposed RMP revision is not likely to adversely affect the Canada lynx.

Greenback cutthroat trout

Based on recent genetic work, cutthroat trout in Colorado have been assigned to different deoxyribonucleic acid (DNA) lineages, including the following: GB (greenback), CR (Colorado River), and RG (Rio Grande) (Metcalf et al. 2012). It is not known if the DNA lineages represent subspecies. Three populations of Lineage GB cutthroat trout reside on BLM lands or split estate lands within the KFO planning area: Spruce Creek, Antelope Creek, and Trail Creek. These populations may represent greenback cutthroat trout, a federally threatened species. Until more information is available, the Service has advised Federal agencies to conduct consultations for any actions that may affect cutthroat trout populations identified as Lineage GB in Colorado. Populations on split estate lands are included in this consultation because the BLM manages the subsurface Federal mineral rights and stipulations protecting cutthroat trout would be attached to Federal mineral leases when they are sold.

With regard to BLM-permitted activities, potential impacts to Lineage GB cutthroat trout would largely be from fluid mineral development, improper livestock grazing, wildland fire management, and to a limited extent water diversions. Competition and hybridization with non-native trout species a real concern, but Colorado Parks and Wildlife (CPW) is the manager of the state of Colorado's fishery rather than BLM.

The BLM manages the surface of approximately 1 mile of the two-mile occupied reach in Spruce Creek. The BLM holds a 0.5 cubic feet per second (cfs) instream flow right on Spruce Creek and there are no water diversions on the public lands portion of this reach. The stream habitat is fairly good, with a vigorous riparian community, and is meeting the Colorado Land Health Standards (LHS). Antelope Creek is also meeting the LHS and has a 1.5 cfs instream flow right decreed for BLM (a portion of the Creek flows across public land). Although BLM holds no instream flow right on Trail Creek (no portion flows across public land) and there are no water quality sampling data, there are no known impairments or water quality concerns. The BLM has committed to maintaining or enhancing habitat for all known genetically pure Lineage GB cutthroat trout populations in the KFO.

All three stream reaches occupied by Lineage GB cutthroat trout in the KFO occur in areas of low oil and gas potential. Nevertheless, stipulation CO-NSO-4 would protect perennial streams, including those mentioned above containing Lineage GB cutthroat trout, from oil and gas related surface occupancy and permanent surface disturbance out to 325 feet from the ordinary high water mark or to the edge of the riparian zone, whichever is greater. CO-CSU-3 would add additional protection by potentially requiring special minimization measures out to 500 feet from perennial streams or relocation of oil and gas activities more than 656 feet from perennial streams. CO-TL-1 adds another layer of protection; this stipulation prohibits surface disturbing activities within a stream channel occupied by cutthroat trout during their spawning period. This would apply, for example, to a culvert replacement project or maintenance of some other in-stream structure (weir, fish barrier, etc.).

Wildfire suppression and prescribed burning are governed by the 2002 KFO Fire Management Plan and the 2008 Northwest Colorado Fire Program Area Fire Management Plan. These plans contain measures necessary to protect native fish and stream habitats. Informal section 7 consultation was conducted on the KFO Fire Management Plan in November 2002.

Given the protections discussed above, and further measures outlined in the RMP BA, we concur with your determination that the proposed RMP revision is not likely to adversely affect the greenback cutthroat trout (Lineage GB cutthroat trout).

WATER DEPLETIONS

Colorado River endangered fish

The primary water-depleting activities that BLM undertakes or authorizes are spring developments, stock pond construction, campground wells, pipeline construction, and energy extraction. Water depletions from the upper Colorado River Basin associated with projects addressed in the proposed RMP would adversely affect the Colorado pikeminnow, razorback sucker, humpback chub, and bonytail, and their critical habitats. Water use for these projects would be estimated and reported at the project level. BLM-authorized water depletions have been addressed in the December 19, 2008 "Programmatic Biological Opinion (PBO) for Water Depletions Associated with BLM's Fluid Mineral Program within the Upper Colorado River Basin in Colorado" (ES/GJ-6-CO-08-F-0006) and the February 25, 2009 "PBO for Water Depletions Associated with BLM Projects (excluding Fluid Mineral Development) authorized by BLM within the Upper Colorado River Basin in Colorado" (ES/GJ-6-CO-08-F-0010). Regarding the fluid mineral PBO, as a means of offsetting the impacts associated with water use, the BLM secured a contribution from an industry representative group (**Independent Petroleum Association of Mountain States**) in the form of a monetary payment to the National Fish and Wildlife Foundation on behalf of the Upper Colorado River Endangered Fish Recovery Program. These funds are used to contribute to the recovery of endangered fish through habitat restoration, fish propagation, genetics management, instream flow protection, nonnative fish management, research and monitoring, public education, and similar recovery actions. Under the PBO these contributions to the Recovery Program are considered a conservation measure that helps to avoid jeopardizing the continued existence of the endangered fish in the upper Colorado River Basin.

All water depletions from the upper Colorado River Basin involved with fluid mineral extraction from BLM administered lands are compiled annually and reported to our Ecological Services Office in Grand Junction. Water depletions from non-fluid mineral related BLM-authorized actions are similarly reported on an annual basis.

All occupied habitats and critical habitats designated for these endangered fish are found downstream from the KFO. Other than through water depletions, endangered fish in the Colorado River would not be affected by the KFO RMP.

Platte River species

Water depletions in the North Platte and Laramie River Basins would adversely affect the whooping crane, least tern, piping plover, pallid sturgeon, western prairie fringed orchid and associated critical habitats found downstream along the Platte River in Nebraska. The BLM participates in the Platte River Recovery Implementation Program (PRRIP) to address water depletions associated with BLM actions in the North Platte River Basin. PRRIP was established in 2006 and is designed to assist in the conservation and recovery of the target species and their associated habitats along the central and lower Platte River in Nebraska. The PRRIP was signed by the states of Colorado, Nebraska, and Wyoming to provide a streamlined ESA-compliance mechanism for all historic and most new water-related activities in the Platte River basin. The PRRIP Final Environmental Impact Statement (FEIS) and the June 16, 2006 PBO serve as the description of the environmental baseline and consequences for the effects of the Federal actions on the listed target species in the central and lower Platte River addressed in the PBO.

In 2010, the BLM entered into a Memorandum of Agreement with the Service to provide a mechanism for offsetting new Federal depletions in the Platte River Basin of Colorado that is consistent with the PRRIP. Under the Agreement, the BLM will consult with the Service on proposed new and expanded water-related activities in the North Platte and Laramie River Basins in Colorado on a yearly basis. The BLM has committed to continue participation in the PRRIP and to abide by the June 16, 2006 PBO and the 2010 Memorandum of Agreement.

Water needs and quantities for projects authorized under the KFO RMP are not known at this time. All project-related water depletions will need to undergo further section 7 consultation at the project stage (i.e., during Tier 2 analysis). At that time, a request for initiation of formal section 7 consultation on water-related projects associated with depletions to the central Platte River should include a complete project description including water-related project elements, origin of water associated with the proposed project, and the nature and estimated amount of water use under build-out conditions.

All occupied habitats and critical habitats designated for the listed Platte River species are downstream from the KFO. Other than through water depletions, listed Platte River species would not be affected by the KFO RMP.

BIOLOGICAL OPINION FOR ENDANGERED PLANTS

CONSERVATION MEASURES

Conservation measures are actions that the action agency or applicant agrees to implement to further the recovery of the species under review. The beneficial effects of conservation measures were taken into consideration for determining jeopardy, or adverse modification of critical habitat. The following conservation measures are incorporated into the proposed action to conserve the federally listed plants.

- Several ACECs would be established or existing ACECs increased in size to protect listed plants and their habitats. The stipulation CO-NSO-25 would prohibit surface occupancy or use for fluid minerals within all ACECs and Natural Areas.

- The stipulation CO-NSO-7 would prohibit surface occupancy or use for fluid minerals within 200 m of all habitats occupied by federally listed species.

- Additional stipulations would provide further protection for listed plants (e.g., CO-NSO-1 protecting steep slopes and fragile soils, CO-LN-2 and CO-LN-3 addressing listed species and biological surveys, etc.)

- Species-specific conservation measures, as outlined in the RMP BA, would require further data collection, minimization, and avoidance measures to protect listed plants. These measures include direction to avoid and/or minimize effects to listed plants from grazing, ROW permitting, recreation, travel routes, etc.

For any project that may affect the North Park phacelia, Osterhout milkvetch, or Penland beardtongue, separate Section 7 consultation would be completed at the project level. Specific conservation measures would be developed during project design and the consultation process to protect the species and its habitat. Prior to project approval, surveys would be conducted in suitable habitat all listed plant species.

STATUS OF THE SPECIES AND ENVIRONMENTAL BASELINES

North Park phacelia (*Phacelia formosula*)

North Park phacelia is a biennial herb 1.52 - 2 dm high, with a single upright stem. Leaves are deeply divided (lanceolate or oblanceolate), 5-7 cm long pinnate with leaflets 5-10 mm long, and 3-5 mm wide. It bears violet-purple flowers in a coiled, scorpion tail-like cluster.

North Park phacelia grows on barren exposures where the Coalmont Formation forms outcrops of sandy soil or ledges. The species grows most abundantly on steep, sparsely vegetated, and erodible slopes, such as on the sides of deeply cut ravines. Relatively flat areas may support the species in low numbers if the soil is nearly pure sand and mostly devoid of vegetative cover. Precipitation comes as snow in winter and rain during summer convective storms. Since snow is often blown away in this area, summer storms are probably critical for the species. Soils are

Lithic Torriorthents. Slopes and aspects are variable and elevation ranges from 8000 to 8200 feet. Information on soil moisture and pH are lacking.

Germination occurs in spring, and leafing in late spring to early summer. Fruiting occurs from July to August and seed dispersal is from July to September. Pollen is dispersed by insects; seeds are dispersed by wind, water, and possibly ants. Since the species is a biennial the climate two years prior to any seed crop is the dependent variable. Two years after a year with good precipitation, assuming the intervening year is not harsh enough to kill vegetative rosettes, the species should produce a good seed crop. Seeds apparently remain viable for at least two years.

Known from Jackson and possibly Larimer Counties, Colorado. The species is found within about 60 square miles in North Park, from Michigan Creek west to the North Platte River in Jackson County, and potentially in an additional six square miles in the Laramie River Valley in Larimer County. Estimated potential range could be 285 square miles, calculated in GIS by drawing a minimum convex polygon around the known occurrences (NatureServe 2012).

There are 11 occurrences documented in the Colorado Natural Heritage Program (CNHP) database. Two of the 11 occurrences have not been observed in over 20 years (as of 2006). Three of the 11 (not the historical records) are tentatively identified as Phacelia formosula in the Laramie River Valley. The CNHP estimates the population size at about 4,100 individuals, however this number is substantially lower than numbers estimated by the BLM. In 2004, the BLM counted over 15,000 plants in only two occurrences. Although there are no data to indicate a specific trend, the species seems to be stable within its limited available habitat (NatureServe 2012).

Motorized recreation is considered to be the primary threat to the species at this time (CNHP Scorecard 2006). Habitat is susceptible to erosion. Other threats include livestock trampling/ trailing, grazing, and coal, oil and gas development. In the Laramie River Valley, off road vehicle (ORV) and livestock use occur but do not appear to be negatively affecting the plants (Doyle, personal observation, 2004, as cited in the RMP BA).

Penland beardtongue (= Kremmling beardtongue) (*Penstemon penlandii*)

Penland beardtongue was discovered and described in 1986 (Weber 1986). It is in the plantain family (Plantagineaceae) formerly the figwort family (Scrophulariaceae). The herbaceous (non-woody) perennial (living more than one year) plant is short (10 inches (in.), 25 centimeters (cm) tall) and with similar width. The plant's leaves are dark green, folded down the middle, and linear measuring 0.04 to 0.08 in. (0.1 to 0.2 cm) wide and up to 2 in. (5 cm) long with inrolled margins. The stems are hairy (pubescent) and leaves along the stem are somewhat smaller. Each flowering stem (inflorescence) has 5-15 bright bicolored flowers with blue lobes and a violet throat that are 0.5-0.6 in. (1.2-1.5 cm) long. The fruits are small brown capsules with numerous seeds per capsule (summarized from Weber 1986; Service 1992; Weber and Whittmann 2012). Roots are wide and spreading with short rhizomes (Weber 1986). Weber (1986) hypothesized that the short rhizomes were for stability on eroding slopes, however, the interconnectedness of these rhizomes between plants has not been studied and neither has the genetic relatedness of

individuals been investigated (Tepedino 2012). The species flowers in June and July and fruits thereafter into September.

Penland beardtongue is endemic to Grand County and is only known from two locations along Troublesome Creek, with estimates in 1992 at approximately 5,500 individuals (Service 1992). More recent survey efforts have estimated much higher densities: 1) in 2005, the CNHP reported 1,200 plants for a 1-acre area (CNHP 2012); 2) in 2008, a survey conducted by the Denver Botanic Gardens reported 12,829 plants across 2.47 acres (1 hectare) or 5,200 plants per acre (Denver Botanic Gardens 2008); 3) in 2009, consultants found an equivalent of 504 plants per acre (Hettinger and Murphy 2009) with subsequent counts at 6,776 plants per acre (Hettinger and Murphy 2010). Based on field studies in 2009 and 2010 and on aerial photography interpretation, 196 acres of suitable habitat occur within the contiguous population polygon east of Troublesome Creek (486 acres total delineated for the population) (Hettinger and Murphy 2010). As expected, densities of the plant are quite variable across the barrens and initial estimates of individuals were very low. Very roughly, there may be more than one million plants in the large Penland beardtongue population. We are unsure how many of these plants constitute individuals since the short rhizomes suggest that plants could be connected and therefore genetically identical. Therefore, we conclude at this time it is impossible to know how many genetic individuals of Penland beardtongue there may be. We do not believe that these new population estimates reflect an actual increase in the number of individuals, but are instead a change in our level of understanding of abundance. Although there are no data to indicate a specific trend, the species appears to be stable within its limited available habitat.

Penland beardtongue is partially self-compatible, but sets more fruit when cross-pollinated (Tepedino *et al.* 1999). There is no evidence that fruit set is limited by pollinators (Tepedino *et al.* 1999). The most important pollinators are small native bees from the genus *Osmia* (leafcutter bees), although other bees including *Anthocopa*, *Anthophora*, *Bombus* (bumblebees), and a wasp *Pseudomasaris* are also important for pollination (Tepedino *et al.* 1999). We have no information on seed dispersal although downslope dispersal through run-off events is expected (Weber 1986).

Penland beardtongue is most prominent on barren hillsides in soil conditions that restrict most other plant species. Penland beardtongue is an obligate (always associated) selenophile (selenium lover), restricted in this area to steep barren hillsides with sparse plant cover of the Troublesome Formation with seleniferous clay-shales (Weber 1986; Spackman *et al.* 1997). As the cover of sagebrush and mats of mat-forming beardtongue (*Penstemon caespitosus*) and Easter daisy (*Townsendia leptotes*) increases, the abundance of Penland beardtongue decreases (Weber 1986).

Threats to the species include roads and trails, adjacent land development (especially pasture lands), ORV use, and invasion by nonnative species. Well used roads and trails surround and bisect the Penland beardtongue population on three sides. An old system of roads creates a spider web of past disturbances on the northern end of the population. County Road 2 also runs through the main population, hence road widening and weed control are threats to nearby individuals.

The bottomlands along Troublesome Creek have been transformed from native plant communities to pasture lands. These pasture lands are generally dominated by grasses. Grasslands do not provide resources, either nectar or pollen, for the pollinators of Penland beardtongue. In addition, these pasture lands serve as a source of invasive nonnative species. Today, the habitat where Penland beardtongue is found is generally free of invasive nonnative species with only two co-occurring, non-native plant species in limited numbers and abundance (McGuire 2012): *Arabis glabra* (tower mustard) and *Dactylis glomerata* (orchard grass).

The BLM initiated monitoring for Penland beardtongue in 2010 at several sites across the main and only viable population of Penland beardtongue. The monitoring transects are designed to both track individuals through time to understand life history traits as well as to detect upward or downward trends in abundance for the species (McGuire 2012). We do not anticipate that abundance trends for Penland beardtongue from these monitoring efforts will be determinable for many more years given fluctuations associated with climactic conditions and the need for long-term monitoring to correctly assess trends.

Osterhout milkvetch (= Kremmling milkvetch) (*Astragalus osterhoutii*)

Osterhout milkvetch is a bright green herbaceous perennial plant in the pea family (Fabaceae). It is a tall, upright, slender milkvetch that grows up to 39 in. (1 meter (m)) tall. Leaves are between 2 and 4 in. (5 to 10 cm) long with 7 to 15 leaflets, each up to 0.2 in. (0.5 cm) long. The leaflets are very linear and oblong. Up to 25, 1-in. (2 cm) long white flowers are spread along several flowering racemes. The long dangling fruit pods are pea-like, laterally flattened, not grooved, and stalked measuring 0.8 to 5 in. (2 to 13 cm) in length and 1.2 to 1.6 in. (3 to 4 cm) in width (Western Resource Development 1990; Service 1992). In fall, these long green fruits often turn red. Flowering occurs in June through August (Spackman *et al.* 1997).

Osterhout milkvetch is endemic to the Muddy and Troublesome Creek drainages near the town of Kremmling in Grand County, Colorado. The estimated range of the species is approximately 65 square miles, although total occupied habitat is estimated at 800 acres. All known sites are within 10 miles of Kremmling, Colorado. A total of between 11,500 and 50,000 Osterhout milkvetch individuals are estimated in five populations (many populations are comprised of more than one site) (CNHP 2012). One of these populations overlaps with the main Penland beardtongue population.

The plant is found on highly seleniferous (high selenium content) grayish-brown clay soils derived from Niobrara, Pierre, and Troublesome Formation shales at approximately 7,500 ft. elevation (Service 1992). Most plants are found on Niobrara shale (Western Resource Development 1990). The species grows on relatively flat areas and barren knolls and on denuded clay hills, in gulches, at the foot of gullied bluffs, and in disturbed areas along roads and borrow sites (Western Resource Development 1990).

The species is often associated with and growing through *Artemisia tridentata* (sagebrush) (Western Resource Development 1990; Spackman *et al.* 1997). Three plant community types have been characterized: 1) subshrub habitat with a low shrub community and extensive surface

rock, 2) big sagebrush (*A. tridentata*) with dense stands of big sagebrush and few forbs, and 3) eroded shalelands with very sparse vegetation (Western Resource Development 1990).

Astragalus osterhoutii is visited by at least five different pollinator species: one species of *Anthophora*, two species of *Bombus* (bumblebees), one *Megachile*, and one *Psithyrus* (Karron 1987). A more common milkvetch species, *A. pattersoni*, was sampled from sites where the two *Astragali* co-occur and nine different pollinators were found visiting *A. pattersoni* (Karron 1987). All of the pollinators visiting *A. osterhoutii* are thought to be generalists (Karron 1987). *A. osterhoutii* is self-compatible, setting similar number of fruits in self-, cross-, and control-pollination treatments (Karron 1989). However, self-pollinated fruit had very low seed set (Karron 1989). In a comparison of rare and common *Astragali* species, *A. osterhoutii* had the lowest levels of genetic diversity (Karron *et al.* 1988). We have no information on seed dispersal for *A. osterhoutii*.

The primary threats to Osterhout milkvetch include ORV use, invasive nonnative species, private land development, roads and utility corridors (including weed control and road widening), and potential mineral extraction. In addition, the construction of the dam along Muddy Creek in 1995 destroyed Osterhout milkvetch sites resulting in a loss of habitat and that now acts to fragment the habitat.

EFFECTS OF THE ACTION

This section includes an analysis of the direct and indirect effects of the proposed action on the species and/or critical habitat and its interrelated and interdependent activities. Direct effects are contemporaneous with and occur in the immediate area of the action. Indirect effects are defined as those effects that are caused by or will result from the proposed action and are later in time, but are still reasonably certain to occur.

Trails and travel management is the program area most likely to result in adverse effects to the listed plants. OHV use, route maintenance, and building new routes could potentially affect occupied and potential habitat for these species. Impacts resulting from OHV use on listed plant species could involve habitat disturbance and mortality through increases in erosion, dust, compaction, and sedimentation. The increasing use of OHVs on BLM-managed public lands could also transport noxious and invasive weed seeds from infested areas to un-infested areas and increase susceptibility to weed establishment within occupied habitat. These impacts could decrease listed plant vigor and productivity, and alter community plant composition. The proposed plan also allows motorists to pull off designated routes as much as 300 feet on either side of the centerline (for camping) potentially resulting in adverse impacts to listed plant species. However, areas occupied by listed plants are generally unattractive for camping and annual monitoring by BLM has not indicated that this is an issue. If future monitoring indicates a problem with this action, measures could be taken to mitigate or eliminate impacts (e.g. signing areas or designating as "no camping").

In the proposed plan, all habitats occupied by listed species would be classified as limited to designated roads and trails. As compared to the existing plan, this would reduce and/or eliminate

user-created routes and reduce impacts within and adjacent to occupied habitats. The proposed plan also calls for decommissioning approximately six miles of routes in occupied habitat.

Threats and protections specific to one of the listed plant species are detailed below.

North Park phacelia

North Park phacelia may be affected by BLM programs other than travel management, although ACECs, stipulations on energy development, and species-specific conservation measures should make adverse effects from these programs unlikely.

In particular, the North Park Natural Area ACEC would provide special management attention to the protection of North Park phacelia. This ACEC contains most of the occurrences of North Park phacelia on BLM lands and North Park phacelia is listed as one of the relevant and important values of the ACEC. Protection of North Park phacelia would be emphasized over new routes, energy extraction, new right-of-ways (ROWs), and other BLM authorized or permitted actions. The Laramie River ACEC would similarly defend or guard against damage or loss to North Park phacelia in that area of the Laramie Basin, should that be determined to contain valid North Park phacelia plants and habitat.

Additionally, as mentioned above, stipulations CO-NSO-7 and -25 would prohibit surface occupancy for fluid minerals near habitats or ACECs occupied by North Park phacelia. Approximately one fifth of the North Park Natural Area ACEC has been leased for fluid minerals; CO-NSO-25 would be attached to any new leases sold within the rest of the ACEC. ACECs are also ROW avoidance areas for any new ROWs. Additionally, grazing would be managed to minimize impacts on North Park phacelia, including management of seasonal use to allow plants to bloom and set seed. Further conservation measures specific to North Park phacelia protection from various BLM programs are detailed in the RMP BA.

Penland beardtongue

The forestry program could potentially adversely affect the Penland beardtongue. This is due primarily to one access road (BLM 2757) that travels though the Penland Beardtongue population leading to higher areas of intensive forestry. Direct impacts may occur if a vehicle pulls off the road within the population or needs to move over to allow another vehicle to pass. If vehicles move off the road in the vicinity of the plant population, some plants may be crushed or damaged. Indirect effects could result if sufficient dust is generated whereby leaves of Penland beardtongue were to be coated to the extent that air exchange and photosynthesis are reduced and plant vitality is thereby reduced. However, conservation measures were developed to reduce speeds and prevent vehicles from pulling over in occupied habitat. If future forestry actions were to occur along this access route, section 7 consultation would be initiated at the project level.

New ROWs would avoid occupied habitat for all listed plant species to the extent possible. However, an existing ROW for a transmission line traverses the main Penland beardtongue population. Maintenance of, and access to, this transmission line could impact Penland

beardtongue plants. Specific conservation measures addressing these impacts would be incorporated as conditions of approval following section 7 consultation at the project stage for future authorizations of transmission line maintenance.

The Troublesome Creek ACEC includes all known Penland beardtongue plants on BLM land, including the majority of the primary population of Penland beardtongue. This ACEC and the associated stipulation CO-NSO-25 would offer protection for this population from fluid mineral development. None of the ACEC has yet been leased for fluid minerals; CO-NSO-25 would be attached to any new leases sold. The ACEC is also a ROW avoidance area for any new ROWs. Additionally, grazing would be managed to minimize impacts on Penland beardtongue, including management of seasonal use to allow plants to bloom and set seed. Further conservation measures specific to Penland beardtongue protection from various BLM programs are detailed in the RMP BA.

Osterhout milkvetch

Osterhout milkvetch may be affected by BLM programs other than travel management, although ACECs, stipulations on energy development, and species-specific conservation measures should make adverse effects from these programs unlikely.

The Kremmling Potential Conservation Area ACEC would provide special management attention to the protection of the Osterhout milkvetch. This ACEC contains a significant portion of the occurrences of Osterhout milkvetch on BLM lands and Osterhout milkvetch is listed as one of the relevant and important values of the ACEC. Protection of the Osterhout milkvetch within the ACEC would be emphasized over new routes, energy extraction, new ROWs, and other BLM authorized or permitted actions. A number of Osterhout milkvetch plants are also found within the Troublesome Creek ACEC and would similarly receive special management attention there.

Additionally, as mentioned above, stipulations CO-NSO-7 and -25 would prohibit surface occupancy for fluid minerals near habitats or ACECs occupied by Osterhout milkvetch. No portion of the Kremmling Potential Conservation Area or Troublesome Creek ACECs has yet been leased for fluid minerals; CO-NSO-25 would be attached to any new leases sold. ACECs are also ROW avoidance areas for any new ROWs. Additionally, grazing would be managed to minimize impacts on Osterhout milkvetch, including management of seasonal use to allow plants to bloom and set seed. Further conservation measures specific to Osterhout milkvetch protection from various BLM programs are detailed in the RMP BA.

CUMULATIVE EFFECTS

Cumulative effects are those impacts of future state and private actions that are reasonably certain to occur in the project area. Future Federal actions will be subject to the consultation requirements established in section 7 of the ESA and, therefore, are not considered cumulative to the proposed project.

The cumulative effects on listed plant species are largely unknown because of the lack of specific information on future state, local, or private actions in the KFO planning area. BLM-managed areas within the KFO are generally interspersed with parcels of state or privately owned land. As such, activities within these non-BLM managed lands have the potential to affect listed species on BLM-managed lands. This is particularly true on private lands where the impacts of land uses on listed species may not be ameliorated through conservation measures such as rotational grazing, NSO restrictions, riparian habitat protection, etc. Future land uses within state and private lands within or near the KFO planning area are likely to include energy and mineral development; livestock grazing; recreational use (e.g., OHV use, camping); residential, urban, industrial and agricultural development; and power line, water line, gas line, and communication line development. Quantified data on the future extent of these state and private land activities are difficult to obtain, but some level of these activities are reasonably certain to occur. Where these future activities on lands not managed by the BLM interface with listed species habitat they will cumulatively add to the existing and future impacts of activities authorized by the KFO RMP.

CONCLUSION

After reviewing the current status of North Park phacelia, Penland beardtongue, and Osterhout milkvetch, the effects of the proposed RMP revision, and the cumulative effects, it is our BO that the KFO RMP revision is not likely to jeopardize the continued existence of the North Park phacelia, Penland beardtongue, or Osterhout milkvetch. No critical habitat has been designated for these species; therefore, none will be affected. We have reached our conclusion because:

1) Three ACECs would be established to provide an increased level of protection for all three listed plant species. The majority of the habitats on BLM lands occupied by all three listed plant species are located within one of the ACECs. These ACECs would provide special management attention and emphasis for the protection of these listed plants.

2) Stipulations protecting listed plants would be attached to all new fluid mineral leases sold to extract oil and gas resources underlying habitats occupied by listed plants.

3) It is the intent of the BLM to strive toward actions that have no effect to listed species or effects that are insignificant, discountable, or beneficial. In addition to special designations and protective stipulations, species-specific conservation measures, conditions of approval, and best management practices would be employed to avoid and/or minimize effects to the three listed plants found within the KFO. Future projects planned within the KFO would undergo project-level section 7 consultations whenever listed species may be affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA does not address the incidental take of listed plant species. Consequently, this BO does not include an incidental take statement, reasonable and prudent measures, or terms and conditions. However, protection is provided to the extent that the ESA prohibits the removal

and reduction to possession of federally listed endangered plants and the malicious damage or destruction of such plants on areas under Federal jurisdiction. Furthermore, it is unlawful for any person to remove, cut, dig up, or damage or destroy an endangered plant species in knowing violation of any law or regulation of any state or in the course of any violation of a state criminal trespass law [section 9(a)(2)(B) of the ESA].

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations 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. We offer the following conservation recommendations:

1) We recommend continued surveys for listed plants to increase our collective knowledge on their distribution and to refine our knowledge of what constitutes suitable habitat for each species. We have modeled potential areas of suitable habitat and can provide this information, if needed, to focus survey efforts. We would also welcome any new information or assistance in refining habitat models for these plant species.

2) We are aware of one existing livestock exclosure on BLM land within habitat occupied by the North Park phacelia. We recommend creating a brief summary report on what has been learned over the years from this exclosure. We also recommend considering the careful, strategic placement of additional livestock exclosures within habitats occupied by all three listed plant species to aid in our collective understanding of the effects of grazing on plant vigor and abundance. We are willing to assist in the design of and placement of such exclosures.

3) We recommend consideration of closing to public access that portion of the Sulphur Gulch road that travels through the Troublesome Creek ACEC and habitat occupied by the Penland beardtongue. If the road were open only to administrative uses, the risk of unauthorized off-road travel through occupied habitat would be significantly reduced.

REINITIATION NOTICE

This concludes formal consultation under section 7 of the ESA for the KFO RMP revision. Reinitiation of formal consultation is required if: (1) new information reveals effects of the agency action that may adversely affect listed species or critical habitat in a manner or to an extent not considered in this BO; (2) the agency action is subsequently modified in a manner that causes an effect to a listed species or critical habitat that was not considered in this BO; and (3) a new species is listed or any new critical habitat is proposed or designated that may be affected by this action (50 CFR 402.16).

If you have any questions regarding this consultation or would like to discuss it in more detail, please contact Creed Clayton in our Grand Junction Ecological Services Office at (970) 243-2778, extension 28.

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