DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R6–ES–2012–0023]

[4500030114]

Endangered and Threatened Wildlife and Plants; 90-Day Finding on a Petition to List the Southern White-Tailed Ptarmigan and the Mt. Rainier White-Tailed Ptarmigan as Threatened with Critical Habitat

AGENCY: Fish and Wildlife Service, Interior.

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

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), announce a 90-day finding on a petition to list the southern white-tailed ptarmigan (*Lagopus leucura altipetens*) and the Mt. Rainier white-tailed ptarmigan (*L. l. rainierensis*) as threatened under the Endangered Species Act of 1973, as amended (Act), and designate critical habitat. Based on our review, we find that the petition presents substantial scientific or

commercial information indicating that listing the southern white-tailed ptarmigan and the Mt. Rainier white-tailed ptarmigan may be warranted. Therefore, with the publication of this notice, we are initiating a review of the status of the two subspecies to determine if listing is warranted. To ensure that this status review is comprehensive, we are requesting scientific and commercial data and other information regarding these subspecies. Based on the status review, we will issue a 12-month finding on the petition, which will address whether the petitioned action is warranted, as provided in section 4(b)(3)(B) of the Act. We will make a determination on critical habitat for these subspecies if and when we initiate a listing action.

DATES: To allow us adequate time to conduct this review, we request that we receive information on or before **[**INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER**].** The deadline for submitting an electronic comment using the Federal eRulemaking Portal (see **ADDRESSES** section, below) is 11:59 p.m. Eastern Time on this date. After **[**INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER**],** you must submit information directly to the Colorado Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT** section, below). Please note that we might not be able to address or incorporate information that we receive after the above requested date.

ADDRESSES: You may submit information by one of the following methods:

(1) *Electronically*: Go to the Federal eRulemaking Portal: *http://www.regulations.gov*. In the SEARCH field, enter Docket No. FWS**–R6–ES–**

2012–0023, which is the docket number for this action. **Then click on the Search button**. You may submit a comment by clicking on "Submit a Comment."

(2) *By hard copy*: Submit by U.S. mail or hand-delivery to: Public Comments Processing, Attn: FWS–**R6–ES–2012–0023**; Division of Policy and Directives Management; U.S. Fish and Wildlife Service; 4401 N. Fairfax Drive, MS 2042–PDM; Arlington, VA 22203.

We will not accept e-mail or faxes. We will post all information we receive on *http://www.regulations.gov*. This generally means that we will post any personal information you provide us (see the **Request for Information** section below for more details).

FOR FURTHER INFORMATION CONTACT: Susan Linner, Field Supervisor, U.S. Fish and Wildlife Service, Colorado Ecological Services Field Office, P.O. Box 25486, DFC Mail Stop 65412, Denver, CO 80225-0486; telephone (303) 236-4773; fax (303) 236-4005. If you use a telecommunications device for the deaf (TDD), please call the Federal Information Relay Service (FIRS) at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Request for Information

When we make a finding that a petition presents substantial information indicating that listing a species may be warranted, we are required to promptly review the status of the species (status review). For the status review to be complete and based on the best available scientific and commercial information, we request information on the southern white-tailed ptarmigan and the Mt. Rainier white-tailed ptarmigan from governmental agencies, Native American tribes, the scientific community, industry, and any other interested parties. We particularly seek the following information regarding the southern and Mt. Rainier white-tailed ptarmigans:

(1) Biology, range, and population trends, including:

(a) Taxonomy (especially the genetics of the species and subspecies);

(b) Historic and current range, including distribution patterns; and

(c) Historic and current population levels, and current and projected trends.

(2) Past and ongoing conservation measures and management programs for the species, its habitat, or both.

(3) The potential effects of climate change on habitats.

We also seek information on the following five threat factors used to determine if a species, as defined by the Act, is endangered or threatened under section 4(a) of the Act (16 U.S.C. 1531 *et seq.*):

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

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

(c) Disease or predation;

(d) The inadequacy of existing regulatory mechanisms; or

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

Of particular interest to us is information on the potential cumulative effects of the five threat factors listed above.

If, after the status review, we determine that listing the southern or Mt. Rainier white-tailed ptarmigan is warranted, we will propose critical habitat (see definition in section 3(5)(A) of the Act), in accordance with section 4 of the Act, to the maximum extent prudent and determinable at the time we propose to list the species. Therefore, we also request data and information on:

(1) What may constitute "physical or biological features essential to the conservation of the species," within the geographical range currently occupied by the species.

(2) Where these features are currently found.

(3) Whether any of these features may require special management considerations or protection.

(4) Specific areas outside the geographical area occupied by the species that are "essential for the conservation of the species."

(5) What, if any, critical habitat you think we should propose for designation if the species is proposed for listing, and why such habitat meets the requirements of section 4 of the Act.

We will base our 12-month finding on a review of the best scientific and

commercial information available, including all information we receive during this public comment period. Please include sufficient information with your submission (such as scientific journal articles or other publications) to allow us to verify any scientific or commercial information you include.

Submissions merely stating support for or opposition to the action under consideration without providing supporting information, although noted, will not be considered in making a determination. Section 4(b)(1)(A) of the Act directs that determinations as to whether any species is an endangered or threatened species must be made "solely on the basis of the best scientific and commercial data available." At the conclusion of the status review, we will issue a 12-month finding on the petition, as provided in section 4(b)(3)(B) of the Act.

You may submit your information concerning this status review by one of the methods listed in the **ADDRESSES** section. If you submit information via *http://www.regulations.gov*, your entire submission—including any personal identifying information—will be posted on the website. If your submission is made via a hardcopy that includes personal identifying information, you may request at the top of your document that we withhold this personal identifying information from public review. However, we cannot guarantee that we will be able to do so. We will post all hardcopy submissions on *http://www.regulations.gov*.

Information and supporting documentation that we received and used in preparing

this 90-day finding are available for you to review at *http://www.regulations.gov*, or by appointment, during normal business hours, at the U.S. Fish and Wildlife Service, Colorado Ecological Services Field Office **(**see **FOR FURTHER INFORMATION CONTACT)**.

Background

Section 4(b)(3)(A) of the Act requires that we make a finding on whether a petition to list, delist, or reclassify a species presents substantial scientific or commercial information indicating that the petitioned action may be warranted. We are to base this finding on information provided in the petition, supporting information submitted with the petition, and information otherwise available in our files. To the maximum extent practicable, we are to make this finding within 90 days of our receipt of the petition, and publish our notice of the finding promptly in the **Federal Register**.

Our standard for substantial scientific or commercial information within the Code of Federal Regulations (CFR) with regard to a 90-day petition finding is "that amount of information that would lead a reasonable person to believe that the measure proposed in the petition may be warranted" (50 CFR 424.14(b)). If we find that substantial scientific or commercial information was presented, we are required to promptly conduct a species status review, which we subsequently summarize in our 12-month finding.

Petition History

On August 24, 2010, we received a petition of the same date prepared by Noah Greenwald for the Center for Biological Diversity (petitioner) requesting that we list either the U.S. population or the Rocky Mountains population of the white-tailed ptarmigan (*Lagopus leucura*) as threatened and to designate critical habitat. The petition clearly identified itself as such and included the requisite identification information for the petitioner, as required by 50 CFR 424.14(a). The petition specifically requested that we list either the contiguous U.S. population of white-tailed ptarmigan as a distinct population segment or list only the Rocky Mountain population as a distinct population segment under the Act. On May 6, 2011, we notified the petitioner that we received the petition and requested copies of the references cited.

In a July 20, 2011, letter we informed the petitioner that we had reviewed the information presented in the petition and determined that each of the requested distinct population segments included multiple, recognized subspecies of white-tailed ptarmigan. Therefore, we could not accurately evaluate the discreetness and significance criteria for the two requested population segments according to our Policy Regarding the Recognition of Distinct Vertebrate Population Segments Under the Endangered Species Act (61 FR 4722; February 7, 1996). Our letter provided the petitioner with an opportunity to amend or revise the petition based on our acceptance of the subspecific taxonomic designations of white-tailed ptarmigan.

On September 1, 2011, the petitioner responded by email and indicated that they

intended to revise their petition based on the information that we provided in our July 20 letter. In a letter dated October 12, 2011, the petitioner revised their petition to request listing of the southern white-tailed ptarmigan and the Mt. Rainier white-tailed ptarmigan as threatened. We verified receipt of the revised petition by email on October 12, 2011. This finding addresses the revised petition.

Previous Federal Actions

There are no previous Federal actions involving the white-tailed ptarmigan or any of the subspecies.

Species Information

Taxonomy

The white-tailed ptarmigan is a small bird in the order Galliformes, family Phasianidae, and the subfamily Tetraoninae, which includes the grouse, or ground-feeding game birds (Hoffman 2006, p. 11; NatureServe 2011, p. 1). Likely descended from ancestral rock ptarmigan (*Lagopus muta*) isolated during the last ice age (Pleistocene Epoch, 2.6 million to 12,000 years before present), the white-tailed ptarmigan does not hybridize or compete for resources with either the rock or willow ptarmigan (*L. lagopus*) where ranges overlap in the northern part of the range (Short 1967, p. 17; Johnsgard 1973, p. 252; Gibbard and van Kolfschoten 2004, p. 441;

Hoffman 2006, pp. 11, 36). The blue grouse (*Dendragapus obscurus)* shares breeding habitats with the white-tailed ptarmigan, but hybridization or competition between the species has not been documented (Hoffman 2006, pp. 11, 36).

There are five recognized subspecies of white-tailed ptarmigan in North America (American Ornithologists' Union (AOU) 1957, p. 135). The southern white-tailed ptarmigan (*Lagopus leucura altipetens*) occupies the Rocky Mountains in Colorado, New Mexico, and historically in Wyoming. The Mt. Rainier white-tailed ptarmigan (*L. l. rainierensis*) occupies the Cascade Mountains of Washington. The Kenai white-tailed ptarmigan (*L. l. peninsularis*) extends from Canada into Alaska, and the Vancouver white-tailed ptarmigan (*L. l. saxatilis*) is restricted to Vancouver Island in Canada. The northern white-tailed ptarmigan (*L. l. leucurus*) extends from Canada into Montana (Aldrich 1963, p. 542).

Based on a lack of comparative work, Braun *et al.* (1993, p. 1) questioned the status and validity of the five subspecies of white-tailed ptarmigan. After examining museum specimens, Braun *et al.* suggested that the southern, Mt. Rainier, and Vancouver white-tailed ptarmigans are similar in size and color, whereas the northern and Kenai white-tailed ptarmigan are similar in size and color (1993, p. 1; Hoffman 2006, p. 11). Braun *et al.* observed a gradation in size and color from south to north, with larger, darker-colored birds in the south (1993, p. 1). However, Braun *et al.* never published their results, and, thus, their questioning of the subspecies designations has not been subjected to scientific peer review.

Multiple taxonomic authorities for birds recognize the validity of the five subspecies of white-tailed ptarmigan. The AOU recognized the five subspecies in their Checklist (1957, p. 135). Since 1957, the AOU has not conducted a review of its subspecific distinction and stopped listing subspecies as of the 6th edition in 1983. However, the AOU recommends the continued use of its 5th edition for taxonomy at the subspecific level (1997, p. xii). Based on their 1957 consideration of the taxon, the AOU still recognizes the southern and Mt. Rainier white-tailed ptarmigan as valid subspecies. Additionally, the Integrated Taxonomic Information System (ITIS) (2011) and Clements Checklist (2011, Version 6.6) also recognize the five subspecies of white-tailed ptarmigan. Hoffman (2006, p. 11) and Storch (2007, p. 39) also reference the five subspecies. No scientifically peer-reviewed studies exist that review or analyze the subspecific designations of white-tailed ptarmigan.

We recognize the lack of information, particularly morphological and genetic data, regarding the subspecific designations of white-tailed ptarmigan. We are aware of a proposed study by the U.S. Geological Survey that will use genetics to clarify the subspecific designations of white-tailed ptarmigan throughout its range. However, at the time of this evaluation, the best available scientific and commercial information suggests that the five subspecies identified by the AOU are valid. Therefore, we accept the taxonomic characterization of white-tailed ptarmigan as five subspecies occurring in North America.

The petitioner requests that we list two of the five recognized subspecies of white-tailed ptarmigan as threatened: the southern white-tailed ptarmigan and the Mt. Rainier white-tailed ptarmigan. Section 3(16) of the Act defines the term "species" as any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature. After a review of the available taxonomic information, we determine that the southern white-tailed ptarmigan and Mt. Rainier white-tailed ptarmigan are subspecies and are listable entities under the Act. During our status review, we will further evaluate the taxonomic classifications of the southern white-tailed ptarmigan and the Mt. Rainier white-tailed ptarmigan.

Physical Description

The southern and Mt. Rainier white-tailed ptarmigans are physically similar (Braun *et al.* 1993, p. 1; Hoffman 2006, p. 11). Both subspecies of white-tailed ptarmigan are white in winter and brown in summer, the feathers changing color with the seasons to camouflage the birds (Braun *et al.* 1993, p. 1). Although the body feathers change color, the white-tailed ptarmigan is named for its white tail feathers, which never change color. These perpetually white tail feathers distinguish the species from other ptarmigan species (Short 1967, p. 17; Braun *et al*. 1993, p. 1; Hoffman 2006, p. 12). Males and females share similar body size, shape, and winter plumage, with adult body lengths up to 13.4 inches (34 centimeters) and body masses up to 0.9 pounds (425 grams) (Braun *et al.* 1993, p. 1; Hoffman 2006, p. 12). During the winter, both males and

females are stark white and difficult to distinguish from each other and from the background of snow, except for black eyes, black toenails, and a black beak (Braun *et al.* 1993, p. 1; Hoffman 2006, p. 12). As the snow melts and the breeding season begins, males turn a lighter color of brown or gray than females, and have a dark band of feathers on the breast that resembles a necklace (Braun *et al.* 1993, p. 1). Both males and females have heavily feathered feet that act as snowshoes to support them as they walk across the snow (Braun *et al.* 1993, p. 1).

Life History

The southern and Mt. Rainier white-tailed ptarmigans share similar life histories. During the winter, the southern and Mt. Rainier white-tailed ptarmigans congregate in flocks and travel to the lowest elevations in their respective ranges, seeking areas with soft snow and willows (*Salix* spp.) (Hoffman and Braun 1977, p. 110). During the winter, the birds feed on willows that protrude through the snow, and dig burrows, or roosts, in the soft snow that provide shelter from winter storms (Braun *et al.* 1993, p. 1; Hoffman 2006, pp. 17, 27). As alpine winters transition to spring, the southern and Mt. Rainier white-tailed ptarmigans migrate upwards in elevation for breeding and nesting to areas that are free of snow and provide access to willows by mid-May (Hoffman and Braun 1975, p. 486). After breeding and nesting, the southern and Mt. Rainier white-tailed ptarmigans spend the summer at the highest elevations of their respective ranges, where temperatures are coolest and rocky areas provide protection from predators and storms. Summer forage includes willows and other plants (May and Braun 1972, p.

1184; Braun *et al.* 1993, p. 1; Hoffman 2006, p. 27). The first snowstorm of the season forces the southern and Mt. Rainier white-tailed ptarmigans back down to the lower elevations of their respective ranges.

The southern and Mt. Rainier white-tailed ptarmigans spend their entire lifecycles in alpine ecosystems and are well adapted to survive in cold, arid, and open alpine environments (Johnson 1968, p. 1011; Hoffman 2006, p. 12; Storch 2007, p. 4). The color-changing plumage effectively camouflages the southern and Mt. Rainier white-tailed ptarmigans against white snow in winter and alpine vegetation and rocks in the summer (Ligon 1961, p. 87; Braun *et al.* 1993, p. 1; Martin and Forbes 2004, p. 1). The color-changing plumage also alters the reflective and absorptive properties of the feathers according to season to help the birds regulate body temperature (Hoffman 2006, p. 31). Metabolic rates are low, allowing the southern and Mt. Rainier white-tailed ptarmigans to gain weight during the winter (Hoffman 2006, p. 31). Low evaporative efficiencies prevent the loss of body heat (Laisiewski *et al*. 1966, p. 15; Johnson 1968, p. 1010; Hoffman 2006, p. 31). Additionally, snowshoe-like, feathered feet allow the southern and Mt. Rainier ptarmigans to save energy by walking on top of snow rather than flying, which is energetically expensive (Storch 2007, p. 4).

Habitat

The southern and Mt. Rainier white-tailed ptarmigans inhabit alpine ecosystems at or above treeline, a transition zone defined as the upper elevational edge where wind,

cold, and harsh weather prevent the growth of trees (Wardle 1974, p. 371). Treeline occurs at elevations around 11,500 feet (ft) (3,500 meters (m)) above sea level in New Mexico and southern Colorado, and 9,500 ft (2,900 m) in Wyoming (Hoffman 2006, p. 23). Treeline is as low as 6,600 ft (2,000 m) in the North Cascades of Washington (Clarke and Johnson 1990, p. 652; Hoffman 2006, p. 23). These alpine habitats at or above treeline are characterized by high winds, cold temperatures, short vegetation growing seasons, low atmospheric oxygen concentrations, and intense solar radiation (Martin and Weibe 2004, p. 177; Sandercock *et al.* 2005, p. 13). The extreme topography and harsh climatic conditions of the alpine slows the growth of plants (Hoffman 2006, p. 22). Slow growth rates make alpine ecosystems sensitive to disturbance, and vegetation may take many years to recover from disturbance (Willard and Marr 1970, p. 257). Within these open and arid alpine habitats, the southern and Mt. Rainier white-tailed ptarmigans prefer rocky areas, dwarfed trees, and vegetation near snowfields and streams (Choate 1963, p. 686; Frederick and Gutiérrez 1992, p. 898; Hoffman 2006, p. 23). The southern and Mt. Rainier white-tailed ptarmigans make seasonal migrations between elevations. Factors affecting their distribution include cool temperatures and the presence of exposed rocky areas, soft snow, and willows (Hoffman 2006, p. 23).

Distribution, Abundance, and Trends

Specific population distribution, abundance, and demography information is lacking for the white-tailed ptarmigan or any of its subspecies, likely a reflection of the difficulty of surveying in often remote, high-elevation habitats. Although, at the species

level, the white-tailed ptarmigan still occupies most of its historical range, population estimates are mostly unknown, other than in localized areas of study (Braun *et al.* 1993, p. 2; Hoffman 2006, p. 16). Storch (2007, p. 40) estimated a rangewide, spring population of more than 200,000 birds (for all subspecies of white-tailed ptarmigan). The North American Landbird Conservation Plan estimates the global population at 2,000,000 birds (again, for all subspecies combined) (Rich *et al.* 2004; Hoffman 2006, p. 16); however, Hoffman (2006, p. 16) argues that this estimate is likely extremely inflated and may be a reporting error. Breeding densities fluctuate between years and locations, ranging from 5 to 36 birds per square mile (sq mi) (2 to 14 birds per square kilometer (sq km)) (Hoffman 2006, p. 16). Most populations are probably stable and secure; however, localized populations may be at risk (Storch 2007, p. 152). NatureServe ranks the white-tailed ptarmigan as "secure" rangewide (2011, p. 1). The International Union for Conservation of Nature (IUCN) ranks the white-tailed ptarmigan as a species of "least concern" (IUCN 2011, p. 1). Within the U.S. Forest Service (USFS) Rocky Mountain Region, Hoffman states that populations of white-tailed ptarmigan are stable, and are in no immediate jeopardy of declining (2006, p. 40). However, these rankings are for the species as a whole, and do not evaluate the status of the individual subspecies of the white-tailed ptarmigan.

The white-tailed ptarmigan is endemic to alpine habitats in western North America and is the only species of ptarmigan whose range extends south of Canada (Aldrich 1963, p. 543; AOU 1998, p. 120; Hoffman 2006, p. 12). The southern white-tailed ptarmigan inhabits alpine areas in the Rocky Mountains of Colorado and New

Mexico, but is likely not found in Wyoming (Hoffman 2006, p. 13). The Mt. Rainier white-tailed ptarmigan inhabits the northern Cascade Mountains of Washington, but there are no published accounts of the Mt. Rainier white-tailed ptarmigan in the Olympic Mountains in the northwestern part of the State (Hoffman 2006, p. 12). There are no verified records of white-tailed ptarmigan in Idaho, Oregon, California, or Utah (Gabrielson and Jewett 1940, p. 602; Aldrich 1963, pp. 541, 543; Braun *et al.* 1993, p. 1; Gilligan *et al*. 1994, p. 86; Hoffman 2006, p. 12). The historical absence of white-tailed ptarmigan from apparently suitable alpine habitats in Oregon, California, Utah, and the Olympic Mountains in Washington is due to long distances to the nearest occupied ranges (Hoffman 2006, p. 12). A lack of suitable alpine habitats explains the absence of ptarmigan in Idaho (Hoffman 2006, p. 12).

In Colorado, the southern white-tailed ptarmigan lives in all available alpine areas, except in the Spanish Peaks and Greenhorn Mountain in the southern part of the State (Braun *et al.* 1993, p. 1). Colorado supports the largest population of white-tailed ptarmigan in the United States outside of Alaska, with a statewide breeding population estimated at 34,800 birds (Hoffman 2006, pp. 15, 16). At Rocky Mountain National Park (RMNP) and Mt. Evans in Colorado, Braun *et al*. (1993, p. 1) reported breeding densities of 11.7 to 35.0 birds per sq mi (4.5 to 13.5 birds per sq km) and 5.2 to 26.7 birds per sq mi (2.0 to 10.3 birds per sq km), respectively (Hoffman 2006, p. 11).

In New Mexico, the southern white-tailed ptarmigan historically inhabited all the ridges and peaks above timberline within the Sangre de Cristo Mountains, but by the

mid-1900s, it was found only on the northernmost peaks (Ligon 1961, p. 87; New Mexico Department of Game and Fish (NMDGF) 2008, p. 87). Following declines in the southernmost peaks, the NMDGF listed the white-tailed ptarmigan as endangered in 1975 (NMGFD 2008, p. 87). Recent observations and reports suggest that the reintroduction of white-tailed ptarmigan into the southern peaks of the Sangre de Cristo Mountains was successful, and that populations have persisted on the northernmost peaks (NMDGF 2008, p. 87). Coordinated surveys of all suitable habitats within the Sangre de Cristo Mountains are needed to document the current distribution and abundance of white-tailed ptarmigan in New Mexico (NMDGF 2008, p. 88).

The southern white-tailed ptarmigan appears to be absent from most alpine habitats in Wyoming, except possibly for the Snowy Range in the southern part of the State (Hoffman 2006, p. 15). Anecdotal reports suggest the southern white-tailed ptarmigan persists in the Snowy Range, but there have been no confirmed sightings since the early 1970s and the available habitats are limited (Hoffman 2006, p. 15). The Medicine Bow National Forest in southern Wyoming considers the white-tailed ptarmigan to be present historically but currently extirpated from the Snowy Range (USFS 2003, pp. 3, 154; Hoffman 2006, p. 15).

There is little information available regarding the distribution, abundance, or trends of the Mt. Rainier white-tailed ptarmigan in the Cascade Mountains of Washington (Smith *et al.* 1997, p. 140). No studies have been conducted in Washington other than general monitoring and surveys to determine presence or absence (Hoffman 2006, p. 8).

There are no population estimates and no published accounts for the white-tailed ptarmigan in the Olympic Mountains of northwestern Washington (Hoffman 2006, p. 12). The Mt. Rainier white-tailed ptarmigan inhabits the North Cascades but not the South Cascades, primarily due to the lack of suitable alpine areas for dispersal and colonization in the south (Clark and Johnson 1990, p. 652).

Researchers successfully translocated white-tailed ptarmigan in the Sierra Nevada Mountains of California, the Uinta Mountains in Utah, Pike's Peak in Colorado, and the Pecos Wilderness in New Mexico (Braun *et al.* 1993, p. 1; Hoffman 2006, p. 13). Reports indicate that ptarmigans still exist in these translocation areas (Braun *et al.* 1978, p. 665; NMDGF 2006, p. 79; Hoffman 2006, p. 13). However, a translocation attempt in the Wallowa Mountains in northeastern Oregon was unsuccessful when the introduced population did not survive (Braun *et al.* 1993, p. 1; Marshall *et al.* 2003, p. 618; Hoffman 2006, p. 13).

Evaluation of Information for This Finding

Section 4 of the Act (16 U.S.C 1533) and its implementing regulations at 50 CFR part 424 set forth the procedures for adding a species to, or removing a species from, the Federal Lists of Endangered and Threatened Wildlife and Plants. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1) of the Act:

(A) The present or threatened destruction, modification, or curtailment of its

habitat or range;

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

(C) Disease or predation;

(D) The inadequacy of existing regulatory mechanisms; or

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

In considering what factors might constitute threats, we must look beyond the mere exposure of the species to the factor to determine whether the species responds to the factor in a way that causes actual impacts to the species. If there is exposure to a factor, but no response, or only a positive response, that factor is not a threat. If there is exposure and the species responds negatively, the factor may be a threat and we then attempt to determine how significant a threat it is. If the threat is significant, it may drive or contribute to the risk of extinction of the species such that the species may meet the definition of endangered or threatened under the Act. This does not necessarily require empirical proof of a threat. The combination of exposure and some corroborating evidence of how the species is likely impacted could suffice. The mere identification of factors that could impact a species negatively may not be sufficient to compel a substantial finding. The information shall contain evidence sufficient to suggest that these factors may be operative threats that act on the species to the point that the species may meet the definition of endangered or threatened under the Act.

In making this 90-day finding, we evaluated whether information regarding

threats to the southern white-tailed ptarmigan and the Mt. Rainier white-tailed ptarmigan, as presented in the petition and other information available in our files, is substantial, thereby indicating that the petitioned action may be warranted. Our evaluation of this information is presented below.

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

The petitioner asserts that threats causing the present or threatened destruction, modification, or curtailment of habitat or range for the southern and Mt. Rainier white-tailed ptarmigans include global climate change, recreation, livestock grazing, and mining. These assertions are described in more detail below.

Global Climate Change

Information Provided in the Petition—The petitioner asserts that global climate change is the greatest threat to the survival of the southern and Mt. Rainier white-tailed ptarmigans in the United States. The petitioner claims that the white-tailed ptarmigan depends on open alpine habitats, willow as its main food source, soft snow in which to burrow, and cool temperatures to which it is uniquely adapted. The petitioner also asserts that these subspecies are physiologically underequipped to cope with rising temperatures associated with global climate change. Because these are physiological effects rather than effects to habitat, we discuss these assertions under Factor E.

The petitioner asserts that the loss of alpine habitats to global climate change threatens the southern and Mt. Rainier white-tailed ptarmigans, and provides several citations to support these claims. Foremost amongst these are the various publications of the Intergovernmental Panel on Climate Change (IPCC), specifically the four-volume IPCC Fourth Assessment Report: Climate Change 2007 and the *Copenhagen Diagnosis, 2009: Updating the World on the Latest Climate Science* (IPCC 2007, p. iii; 2009, p. 1). The *Copenhagen Diagnosis* summarizes research regarding the accumulation of carbon dioxide in the atmosphere and the resulting greenhouse effect that contributes to global warming. The IPCC also summarized changes in the amount, intensity, frequency, and type of precipitation associated with warming global temperatures (Trenberth *et al*. 2007, p. 262).

The petitioner alleges that several of the effects of climate change threaten the white-tailed ptarmigan. The petition presents research indicating that mountaintops and their alpine ecosystems are especially sensitive to changes in climate (Hougton *et al.* 1995 and 1996; Pepin 2000, p. 135; Beniston *et al.* 1997, p. 233; Kullman 2002, p. 68). The petitioner presents research indicating that the greater photosynthetic efficiency of alpine plants coupled with more carbon dioxide in the atmosphere suggests that overall changes in vegetation will be especially dramatic in alpine habitats (Korner and Diemer 1994, p. 58; Hoffman 2006, p. 46). Additionally, warming temperatures will shift treelines upwards in elevation, reducing available alpine habitats (Markham *et al.* 1993, p. 65; Root *et al.* 2003, p. 57; Hoffman 2006, pp. 3, 46). Warmer winter temperatures

also suggest that a higher percentage of total precipitation will fall as rain rather than snow (Mote 2003, p. 1; Mote 2005, p. 39; Knowles *et al.* 2006, p. 4545; Karl *et al*. 2009, pp. 24, 135), which the petitioner argues may further reduce available alpine habitats for both subspecies.

After summarizing current research on global climate change, the petitioner provides research that forecasts the range of the white-tailed ptarmigan under several, predicted climate scenarios (Lawler *et al.* 2009, pp. 591–593). The petitioner predicts that the current northern range of the white-tailed ptarmigan will contract, and the species will be eliminated from the contiguous United States by year 2061, citing Lawler *et al*. (2009, appendix e) to support this claim.

Furthermore, the petitioner claims that climate change has already occurred and is predicted to continue within the range of the southern and Mt. Rainier white-tailed ptarmigans in the United States. The petitioner summarizes research indicating that temperatures in Colorado have increased significantly more than the average for the western United States (Ray *et al.* 2008, pp. 5, 10, 11, 21, 29). The references presented by the petitioner indicate that Colorado will experience few extreme cold months, more extreme warm months, with more consecutive warm winters (Ray *et al.* 2008, p. 29). The petitioner also presents evidence of ongoing climatic warming within the range of the Mt. Rainier white-tailed ptarmigan in the Cascade Mountains of Washington (Karl *et al.* 2009, pp. 135–136).

The petitioner presents research that global climate change, through increasing temperatures, also will affect the elevation of treeline, citing studies that document the advancement of treeline upslope (Wang *et al.* 2002b, p. 82; Grace *et al.* 2002, p. 540; Millar *et al.* 2004, p. 181; Stohlgren and Baron 2003, p. 1; Hoffman 2006, p. 45). The petitioner deduces that the upslope migration of trees and the expansion of forest will compress and fragment white-tailed ptarmigan habitats (Wang *et al.* 2002b, p. 82; Hoffman 2006, p. 45).

Finally, the petitioner presents research that changes will occur to the alpine plant communities bounded by the encroaching treeline because of global climate change (Hoffman 2006, p. 46; Cannone *et al.* 2007, p. 360). Although the exact changes to vegetation communities are uncertain, the petitioner reasons that the changes will be significant to the alpine habitats of the white-tailed ptarmigan. The petitioner also suggests that changed snowfall patterns will alter and reduce the availability of vegetation features important to the white-tailed ptarmigan, such as wet meadows below late-lying snowfields that are used by females to raise broods (Hoffman 2006, p. 46).

The petitioner concludes that global warming is the greatest threat to the survival of the white-tailed ptarmigan because of the loss and fragmentation of alpine habitats, the upslope advancement of treeline, and other changes to alpine plant communities.

Evaluation of Information in the Petition and Available in Service Files—Climatic and species models referenced by the petitioner suggest that the white-tailed

ptarmigan may be completely extirpated from its current range within the United States with more than a 90 percent model agreement under low and high carbon dioxide emission scenarios (Lawler *et al.* 2009, appendix e). Therefore, the petitioner concludes that global warming modifies and curtails the range of the white-tailed ptarmigan in the United States, restricting the species to any remaining alpine habitats in Alaska and Canada, resulting in local extirpations, and threatening both subspecies. Although the complexities of modeling often confound the predicted species distributions and loss of habitats attributed to global climate change, the information presented by the petition and available in our files indicates that global climate change may curtail the range of the southern or Mt. Rainier white-tailed ptarmigan, potentially resulting in the extirpation of both subspecies from the contiguous United States.

The petitioner cites information indicating that climatic warming has occurred within the range of the southern and Mt. Rainier white-tailed ptarmigans. Over the past 30 years, temperatures in Colorado increased by 1.9 °F (1.1 °C), twice the average increase for the entire western United States for the same time period (Ray *et al.* 2008, pp. 10, 21). Ray *et al.* expect Colorado to warm by 3.96 °F (2.2 °C) by 2050, with winter temperatures increasing by 3.06 °F (1.7 °C) (Ray *et al.* 2008, pp. 5, 11, 29). Summer temperatures also are expected to increase in Colorado, with predicted increases of 5.04 °F (2.8 °C) (Ray *et al.* 2008, p. 29). Climate models for Washington State project increases in annual average temperatures of 5.22 °F (2.9 °C) by 2080 (Littell *et al.* 2009, pp. 33, 199). This report also illustrated an increase of 1.44 °F (0.8 °C) for Washington since 1920 (Littell *et al.* 2009, pp. 39, 199). In the Pacific Northwest, spring snowpack

has declined by approximately 40 percent since the mid-20th century and is consistent with observed increases in global temperature (Mote 2003, p. 2). Payne *et al.* (2004, p. 243) predict further declines in the spring snowpack of the Cascade Mountains by as much as 40 percent by the year 2040. These studies indicate that temperatures are increasing, and may be a result of global climate change within the range of the southern and Mt. Rainier white-tailed ptarmigans.

Furthermore, we evaluated the claims and references provided by the petitioner regarding the response of treeline to warming temperatures and the potential impact on alpine environments. For certain areas of the RMNP in Colorado, krummholz (wind-trimmed, low-growing) trees are moving upslope at an average rate of 3.3 ft (1 m) per 27 years (Stohlgren and Baron 2003, p. 1). The researchers predicted that at certain sites, the krummholz could develop into forests in response to environmental factors, such as temperature and soil moisture. If unchecked, the researchers predicted that the developing forests would invade alpine ecosystems, thereby reducing the diversity of understory plants and habitat for alpine wildlife (Stohlgren and Baron 2003, p. 1). Based on predicted increases in temperature, Grace *et al.* (2002, p. 540) similarly predicted the advancement of treeline upwards and the subsequent invasion of trees into alpine meadows. Forest expansion has occurred to similar alpine habitats in the Arctic and Alaska (Millar *et al.* 2004, p. 181). Available studies also suggest that small increments of 1.8 to 3.6 °F (1 to 2 °C) of warming may result in changes to the dynamics of vegetation communities in the alpine (Korner and Diemer 1994, p. 58; Hoffman 2006, p. 46; Cannone *et al.* 2007, p. 360). The response of plants to increased levels of

atmospheric carbon dioxide and shifts in precipitation patterns may impact the distribution of willow and other important ptarmigan food plants (Hoffman 2006, p. 46).

Although it is unclear exactly how alpine vegetation communities will respond to a warming climate, the cited references indicate that the upslope migration of treeline, the expansion of subalpine forests, and changes to alpine plant communities may occur. Cumulatively, these changes may reduce the alpine habitats available to the southern and Mt. Rainier white-tailed ptarmigans; however, the magnitude of this loss is undeterminable based on our review of the information in the petition and in our files.

Based on the results of the empirical studies cited by the petitioner and information available in our files, along with predictions of increasing air temperatures, decreasing snow packs, and predicted changes to white-tailed ptarmigan habitats and distribution of food plants, we find that the ranges of the southern white-tailed ptarmigan and the Mt. Rainier white-tailed ptarmigans and the alpine habitats within these ranges may decrease as a result of global climate change. Therefore, we find that the petition and information in our files present substantial information to indicate that the predicted changes in habitat due to the effects of climate change may be a threat to the southern white-tailed ptarmigan and the Mt. Rainier white-tailed ptarmigan. We discuss potential physiological and behavioral effects of a warming climate under Factor E, below.

Recreation

Information Provided in the Petition—The petitioner asserts that recreational activities (specifically hiking, off-road vehicle (ORV) use, and skiing) destroy alpine habitats and directly disturb the southern and Mt. Rainier white-tailed ptarmigans. The petitioner provides citations indicating that various recreational activities occur within alpine habitats and that, in Colorado, these activities have increased in popularity over time (Hesse 2000, p. 68; Ebersole *et al.* 2002, p. 101). The petitioner asserts that these activities can adversely affect habitats of the southern and Mt. Rainier white-tailed ptarmigans via: (1) Hikers trampling alpine vegetation; (2) the erosion, slumping, soil compaction, snow compaction, and vegetation damage from ORV use, including snowmobiles; and (3) the compaction of snow and loss of willows by skiers and snowmaking machines at ski areas. The petitioner provides citations to several sources that describe the impacts of trampling and ORV use on slow-growing alpine vegetation (Willard and Marr 1971, p. 257; Lodico 1973, entire; Ebersole *et al.* 2002, p. 101; Hoffman 2006, p. 43). The petitioner also provides one reference that speaks generally to the historical impacts of recreation on alpine habitats (Brown *et al.* 1978b, pp. 23–44). The petitioner cites 27 biological evaluations (BEs) prepared by the USFS in the Rocky Mountain Region that concluded that recreational projects may affect individual white-tailed ptarmigan, but would not cause a trend towards Federal listing, a standard for BEs described by the USFS's operational manual regarding sensitive species (USFS 2011, p. 3, 5).

The petitioner suggests that hikers may wander off trails, trample alpine vegetation, and create new trails, with lasting damage to vegetation occurring (Hoffman

2006, p. 43). The petitioner also asserts that snowmobiles are especially dangerous to the white-tailed ptarmigan because they may occasionally collide with and kill the birds. Additionally, the petitioner stresses that noise and activity associated with snowmobiles may disturb the birds and cause them to leave their optimal feeding and roosting sites, exposing the birds to predation (Hoffman 2006, p. 44).

The petitioner cites Braun *et al.* (1976, p. 9) to report that white-tailed ptarmigan exist within ski areas, but to a lesser extent, because of development. However, the petitioner reasons that skiers repeatedly displace white-tailed ptarmigans and force them to unnecessarily expend extra energy. Additionally, the petitioner suggests that skiers and grooming machines may damage willows while snowmaking operations may cover any remaining willows, rendering them inaccessible to the white-tailed ptarmigan. The petitioner argues that skiers and grooming machines also may compact soft snow and make it unsuitable for roosting (Hoffman 2006, p. 44). Finally, the petitioner asserts that the development of ski areas results in habitat loss and may increase predation, which we discuss below under Factor C.

Evaluation of Information in the Petition and Available in Service Files—Recreational activities occur within the alpine habitats of the southern and Mt. Rainier white-tailed ptarmigans. However, the probability of humans interacting with either subspecies or their habitats remains relatively low, because the severe environment and low productivity of the alpine zone have deterred human use and habitation (Hoffman 2006, p. 41). When recreation occurs in alpine habitats, the effects of trampling, ORVs,

skiing, and other forms of recreation on slow-growing alpine vegetation are well documented (Willard and Marr 1971, p. 257; Billings 1973, p. 703; Lodico 1973, entire; Ebersole *et al.* 2002, p. 101). However, we are unaware of any information to indicate that recreational activities may be a threat to the habitats or the range of the southern or Mt. Rainier white-tailed ptarmigan.

Although hikers may trample vegetation, ORVs may erode soils, and skiers or grooming machines may compact snow or cover willows, the references cited by the petitioner and available in our files describe only anecdotal and isolated impacts from recreation to the habitats of the southern and Mt. Rainier white-tailed ptarmigans. While recreational use of the alpine habitat has increased over time in Colorado, the references cited by the petitioner and available in our files do not indicate recreation is occurring at levels that impact the habitats or range of the southern and Mt. Rainier white-tailed ptarmigans. We have no specific information, nor did the petitioner provide any information, regarding recreational use within the range of the Mt. Rainier white-tailed ptarmigan in Washington. Furthermore, the cited references provide no information, and we found no information, that winter recreational activities compact soft snow to an extent that impedes the construction of snow roosts or limits the availability of willows such that the southern or Mt. Rainier white-tailed ptarmigan is unable to seek shelter or feed during the winter. Similarly, the cited references provide no information to suggest that the development of ski areas has destroyed, modified, or curtailed the habitats or range of either of the petitioned subspecies. We have no information and the petitioner provided no information regarding ski area development in Washington and potential

impacts to the Mt. Rainier white-tailed ptarmigan.

Additionally, while recreationists in alpine areas may interact with and occasionally disturb ptarmigan, the cited references and information in our files provide only anecdotal evidence of this interaction or disturbance. The references do not suggest that the southern and Mt. Rainier white-tailed ptarmigans abandon habitats after being disturbed or that ORVs kill birds in any scope or scale that result in population-level impacts. We found no evidence that ptarmigans abandon sites frequented by motorized vehicles. However, ptarmigans may temporarily move away if disturbed and are occasionally killed by collisions (Hoffman 2006, p. 44). The petitioner cites USFS BEs that concluded that recreation projects may affect the white-tailed ptarmigan in the Rocky Mountain Region, although these BEs concluded that the activities would not contribute to loss of viability or lead to a trend towards Federal listing. There is also no evidence that these impacts actually occurred or represent a threat to the southern white-tailed ptarmigan. Therefore, we find that the petition and information in our files do not present substantial scientific or commercial information to indicate that habitat impacts due to recreational activities may be a threat to the southern or Mt. Rainier white-tailed ptarmigan.

Livestock and Native Ungulate Grazing

Information Provided in the Petition—The petitioner asserts that livestock grazing, as well as grazing by overabundant native ungulates, threatens the southern and

Mt. Rainier white-tailed ptarmigans by impacting habitats and reducing the availability of food. The petitioner asserts that livestock grazing is the dominant land use within the range of the southern and Mt. Rainier white-tailed ptarmigans in the United States and provides references demonstrating that grazing can affect natural communities by removing vegetation, adjusting the structure of plant communities, and trampling or compacting soils (Fleischner 1994, p. 629; Krueper *et al*. 2003, p. 608; Hoffman 2006, p. 42). The petitioner also asserts that livestock grazing changes the availability of water, alters the diversity of plant species, and disrupts nutrient cycling and community succession; the petitioner presents references in support of those assertions (Fleischner 1994, pp. 631–634; Fleischner 2010, p. 242). The petitioner provides references to indicate that cattle grazing may impact the breeding success of nesting birds in riparian and forested ecosystems below treeline (Ammon and Stacey 1997, pp. 7, 11, 12; Walsberg 2005, p. 715).

However, the petitioner recognizes that cattle are poorly adapted to the alpine habitats of the white-tailed ptarmigan and are not a major influence on alpine areas (Alexander and Jensen 1959, pp. 680–689; Thilenius 1975, pp. 15, 28). Where cattle cannot graze, the petitioner asserts that grazing by sheep has deleterious effects on alpine ecosystems, including the creation of trails, trampling of vegetation, and overgrazing, resulting in considerable damage to alpine habitats (Thilenius 1975, p. 28; Hoffman 2006, p. 42). Extended and concentrated grazing periods, coupled with the long recovery times of alpine ecosystems, have had a significant impact on the structure and function of many alpine areas (Thilenius 1975, p. 15; Hoffman 2006, p. 42). Additionally, sheep

feed on many of the same plants as the white-tailed ptarmigan (Hoffman 2006, p. 42). As a result, the petitioner concludes that sheep compete with the white-tailed ptarmigan for food where they overlap.

The petitioner cites 13 BEs prepared by the USFS in the Rocky Mountain Region that determined that grazing sheep may adversely affect the white-tailed ptarmigan, but would not lead to a trend towards Federal listing. Potential effects analyzed in the BEs included sheep crushing birds or eggs, disturbance or mortality caused by herds or working dogs, and the loss of habitat from overgrazing by sheep. The petitioner also reports that the southern white-tailed ptarmigan also may alter its movement behaviors in heavily grazed areas of the Rocky Mountains (Hoffman 2006, p. 26).

Native ungulates also graze in alpine areas, and the petitioner asserts that, like sheep, they too may impact the habitats of the southern and Mt. Rainier white-tailed ptarmigans. The petitioner indicates that populations of elk (*Cervus elaphus*) have grown dramatically in the contiguous United States as natural predators disappeared and States enforced game laws (Hoffman 2006, pp. 36, 42). Consequently, the petitioner states that elk graze in alpine ranges more frequently during all seasons of the year (Hoffman 2006, p. 42). The petitioner cites one study that determined that willow habitats found below treeline that are overgrazed by elk typically convert into shrub-steppe habitats (Anderson 2007, pp. 401, 406). Although this study focused on low-elevation, riparian habitats outside of the range of either white-tailed ptarmigan subspecies, the petitioner predicts that if alpine willow habitats above treeline are overgrazed by elk, they too will turn into

unfavorable shrub-steppe habitats.

The petitioner concludes that grazing by livestock and native ungulates impacts white-tailed ptarmigan habitats, reduces the availability of willows, and forces changes in migration patterns.

Evaluation of Information in the Petition and Available in Service Files—Although the effects of livestock grazing on natural ecosystems are well documented, the cited references and information in our files do not address the impacts of cattle grazing on the southern and Mt. Rainier white-tailed ptarmigans or their habitats. Cattle are not generally a major influence in alpine environments, and while grazing allotments for cattle may include alpine areas in the Rocky Mountains, cattle are poorly adapted to high-elevation, alpine environments and, therefore, are not likely to persist or overgraze in white-tailed ptarmigan habitats. Where cattle grazing occurs in the alpine, the references cited by the petitioner provide no evidence to conclude that cattle have negatively impacted either subspecies of white-tailed ptarmigan or their habitats. The petitioner provided no information and we have no information in our files regarding cattle grazing in Washington within the range of the Mt. Rainier white-tailed ptarmigan.

Sheep are more tolerant of alpine environments than cattle and can graze in white-tailed ptarmigan habitats. Although the petitioner cites USFS BEs identifying potential impacts to white-tailed ptarmigan and their habitats in the Rocky Mountains from sheep grazing, these BEs determined that grazing would not contribute to a loss of viability or

lead to a trend towards Federal listing. The petitioner provided no evidence and we have no information to indicate that the impacts evaluated by the BEs actually occurred or that they may threaten the subspecies. The petitioner provided no information and we have no information in our files regarding sheep grazing and the Mt. Rainier white-tailed ptarmigan in Washington. While sheep may feed on the same willows and other alpine plants as the white-tailed ptarmigan, we found no information to support that competition for food between sheep and ptarmigans negatively impacts either subspecies. Additionally, although the petitioner cites anecdotal observations that ptarmigans may move away from heavily grazed areas, the cited references and information in our files do not provide evidence that this movement or disruption may be a threat to either subspecies.

Finally, we found no evidence to conclude that elk overgraze on alpine vegetation at any time of the year such that either subspecies may show a negative response. The petitioner asserts that elk use of the alpine has increased during all seasons of the year, but elk generally move down to lower elevations during the winter (Fitzgerald *et al.* 1994, p. 385). At these lower wintering elevations, elk are more removed from ptarmigans and their alpine habitats when the birds are congregating in their snow-covered wintering areas and feeding on willow. Similarly, we have no information in our files nor does the petitioner provide information to indicate that alpine willow habitats that are overgrazed by elk change into shrub-steppe habitats that may be unfavorable to the southern or Mt. Rainier white-tailed ptarmigan, or grazed to the extent to which either population of the subspecies may be negatively impacted. Finally, the petitioner

provided no information and we have no information in our files regarding elk grazing in the alpine habitats of the Mt. Rainier white-tailed ptarmigan or any potential impacts to the subspecies. Therefore, we find that the petition and information in our files do not present substantial scientific or commercial information to indicate that habitat impacts attributed to grazing may be a threat to the southern or Mt. Rainier white-tailed ptarmigan.

Mining

Information Provided in the Petition—The petitioner asserts that mining has destroyed alpine habitats and that pollutants from abandoned mines threaten the southern and Mt. Rainier white-tailed ptarmigans. Compared to recreation and grazing, the petitioner considers mining the most destructive human activity in alpine habitats and provides evidence where mining historically degraded alpine ecosystems, damaged soils, destroyed vegetation, and polluted watersheds in the Rocky Mountains (Brown *et al.* 1978, p. 23; Chambers 1997, p. 161; Macyk 2000, p. 537; Clements *et al.* 2000, p. 626). The petitioner also presents research showing that white-tailed ptarmigans are susceptible to toxic pollutants leeching from abandoned mines that have not been properly reclaimed (Larison *et al.* 2000, p. 181). In southwestern Colorado, the southern white-tailed ptarmigan exhibited calcium deficiencies, skewed sex ratios, and other physiological effects after eating willows contaminated with cadmium, a toxic heavy metal found at abandoned mines (Larison *et al.* 2000, p. 181). The petitioner also cites two BEs prepared by the USFS in Colorado that determined that vehicles operated at mines could

drive over nests, crush eggs, and disturb the summer foraging habitats of the white-tailed ptarmigan.

Evaluation of Information in the Petition and Available in Service Files—In the Rocky Mountains, historic and current mining operations occurred within the range of the southern white-tailed ptarmigan and may have reduced available habitats. However, the available information cited by the petitioner and available in our files does not indicate that these mining operations significantly reduced or fragmented habitats to an extent that the southern white-tailed ptarmigan has shown a negative population response. Although the petitioner cites USFS BEs that determined impacts to the white-tailed ptarmigan would occur at mines in the Rocky Mountain Region, these evaluations also determined that the mining operations would not contribute to a loss of viability or lead to a trend towards Federal listing. We have no information to indicate that these impacts actually occurred or that the southern white-tailed ptarmigan exhibited a negative population response as a result. Additionally, cadmium poisoning in white-tailed ptarmigan has only been observed in improperly reclaimed mines within the ore-belt of southwestern Colorado; there is no evidence of cadmium poisoning elsewhere in the Rocky Mountains or Washington (Hoffman 2006, p. 47). While ptarmigan in the ore-belt of southwestern Colorado may be poisoned after eating contaminated willows, we found no information to conclude that this occurs at a level that impacts the subspecies. Finally, the petitioner provided no information and we have no information regarding mining or potential effects within the range of the Mt. Rainier white-tailed ptarmigan in Washington. Therefore, we find that the petition and information in our files do not present substantial

scientific or commercial information to indicate that habitat impacts due to mining activities may be a threat to the southern or Mt. Rainier white-tailed ptarmigan.

Summary of Factor A

Based on the information provided in the petition, as well as other information readily available in our files, we find that the petition presents substantial scientific or commercial information indicating that the southern white-tailed ptarmigan and Mt. Rainier white-tailed ptarmigan may warrant listing due to the present or threatened destruction, modification, or curtailment of the species' habitat or range as a result of the habitat changes brought about by the effects of global climate change. We find that the petition does not present substantial scientific or commercial information indicating that the southern or Mt. Rainier white-tailed ptarmigan may warrant listing due to the present or threatened destruction, modification, or curtailment of the species' habitat or range from recreation, livestock grazing, or mining. However, we will more fully evaluate these activities in our status review.

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

Information Provided in the Petition

The petitioner claims that hunting threatens the white-tailed ptarmigan and provides general background information on ptarmigan hunting regulations in the United

States. Hunting of white-tailed ptarmigan is legal in Alaska, Colorado, Utah, and California (Hoffman 2006, p. 47). The white-tailed ptarmigan is not hunted in New Mexico, Montana, Wyoming, or Washington. The petitioner reports that the current threat of hunting to white-tailed ptarmigan populations is localized, and, therefore, populations may be susceptible to overharvest based on a variety of factors. The petitioner indicates that white-tailed ptarmigans are unwary, congregate in large flocks, and return to habitats even after they are repeatedly disturbed. The petitioner asserts that this behavior may make the birds easy to hunt. The petitioner also explains that approximately 95 percent of the occupied range of the southern white-tailed ptarmigan in Colorado is publicly owned and open to hunting (Hoffman 2006, p. 9). Much of this occupied range is close to metropolitan areas and accessible to hunters. The petitioner also reports that declining populations of other grouse species are causing a renewed interest in the white-tailed ptarmigan among hunters. Additionally, where brood habitat is limited and occurs along rocky areas, female white-tailed ptarmigans may be easier to detect than males, easier to hunt, and more susceptible to hunting mortality (Sandercock *et al.* 2005, p. 22; Hoffman 2006, p. 47).

The petitioner cites a dissertation that estimated a 15 to 27 percent higher mortality rate in hunted white-tailed ptarmigan populations, which suggested that hunting results in additive mortality (Hoffman 2006, p. 47). However, the petitioner argues that population declines of white-tailed ptarmigan associated with hunting may not be readily apparent. The petitioner cites a study on willow grouse (*Lagopus lagopus lagopus*) in Sweden and a study on ruffed grouse (*Bonasa umbellus*) in Wisconsin to explain that

immigration from non-hunted or lightly hunted populations may sustain breeding densities of white-tailed ptarmigan in heavily hunted areas (Small *et al.* 1991, p. 512; Smith and Willebrand 1999, p. 722; Hoffman 2006, p. 47). The petitioner reasons that because breeding densities for other species of grouse remain stable with immigration, the effects of hunting on white-tailed ptarmigan populations may be difficult to detect.

Evaluation of Information in the Petition and Available in Service Files

Wyoming classifies the southern white-tailed ptarmigan as a game bird, but does not permit hunting due to its restricted distribution and small population size in the State (Braun *et al.* 1993, p. 1; Hoffman 2006, p. 10). New Mexico also does not permit hunting of the southern white-tailed ptarmigan. Similarly, Washington does not permit hunting of the Mt. Rainier white-tailed ptarmigan. In the States where hunting is not permitted, the petitioner provided no information and we have no information in our files to suggest that illegal hunting may be a threat to either the southern or Mt. Rainier white-tailed ptarmigan.

Colorado permits the legal hunting of the southern white-tailed ptarmigan. In Colorado, daily bag and possession limits are 3 and 6 birds, respectively, and the hunting season is 23 days long, commencing in mid-September when young ptarmigans have reached adulthood and can survive independently from the brood hen (Hoffman 2006, p. 10). The hunting season in Colorado ends before ptarmigans start congregating on wintering areas, when they are most susceptible to overharvest (Hoffman 2006, p. 10).

The short season and small bag limits of the hunting season in Colorado are designed to prevent overharvesting (Hoffman 2006, p. 10). While ptarmigans may be unwary of humans, relatively easy to hunt, and found primarily on public lands, there is no information to suggest that illegal harvest by hunters may be a threat to the southern white-tailed ptarmigan in Colorado. Although immigration may make it difficult to detect the effects of hunting on other species of grouse, we have no information to suggest that hunting has resulted in additive mortality to the southern or Mt. Rainier white-tailed ptarmigan such that populations are unable to sustain viable breeding densities. Similarly, we have no information to suggest that hunting the species is currently more popular such that overharvesting may be a threat to the southern white-tailed ptarmigan. Therefore, we find that the petition and information in our files do not present substantial scientific or commercial information to indicate that hunting may be a threat to the southern or Mt. Rainier white-tailed ptarmigan. However, we will more fully evaluate hunting in our status review.

C. Disease or Predation

Information Provided in the Petition

The petitioner asserts that the development of ski areas increases the presence of generalist predators that threaten the white-tailed ptarmigan in alpine habitats. As support, the petitioner cites a study on rock ptarmigan in Scotland that reported an increase in generalist predators, such as carrion crows (*Corvus corone*), feeding on birds

and eggs following the development of a ski area (Watson and Moss 2004, p. 267). In this study, the rock ptarmigans that nested closest to developed areas lost more nests to predation by crows or gulls and reared abnormally few broods compared to ptarmigans that nested farther away from development (Watson and Moss 2004, p. 267; Hoffman 2006, p. 44). The petitioner argues that this study on the rock ptarmigan in Scotland is applicable to white-tailed ptarmigan populations in the United States. Although the petitioner states that specific studies regarding post-development increases in generalist predators and the potential effects on the white-tailed ptarmigan are lacking, the petitioner stresses that any development that increases generalist predators can impact the number of juvenile white-tailed ptarmigans in the population (Storch 2007, pp. 12, 40).

Evaluation of Information in the Petition and Available in Service Files

In the presence of suitable habitats, predation is generally not a limiting factor for ptarmigans, as the birds have evolved closely with their predators and developed strategies to compensate for high predation rates (Hoffman 2006, p. 34). Although ski resorts or other human developments may attract predators, there is no information from the petition or our files to indicate that predation in any part of the range has exceeded any population-level compensation strategies to negatively impact southern and Mt. Rainier white-tailed ptarmigans. Although the petitioner provides evidence of predation of rock ptarmigan at ski resorts in Scotland, we have no information to conclude that there are more predators at ski resorts in the United States, that predation on white-tailed ptarmigan populations has increased, or that predation may be a threat to either

subspecies. The petitioner provides no specific information regarding ski areas and the Mt. Rainier white-tailed ptarmigan in Washington. Ski areas and other forms of human development, such as roads, may enable predators to access alpine habitats, but there is no information in the petition or our files to indicate that predation within any part of the range of the southern or Mt. Rainier white-tailed ptarmigan may be a threat, regardless of the proximity of occupied habitats to development.

The petitioner provides no information regarding any disease or pathogen that threatens the southern or Mt. Rainier white-tailed ptarmigans, and we found no evidence in our files that the subspecies may be at risk from any specific disease or pathogen. Therefore, we find that the petition and information in our files do not present substantial scientific or commercial information to indicate that disease or predation may be threats to the southern or Mt. Rainier white-tailed ptarmigans. However, we will more fully evaluate potential threats associated with disease and predation in our status review.

D. The Inadequacy of Existing Regulatory Mechanisms

Information Provided in the Petition

The petitioner claims that existing regulatory mechanisms are inadequate to prevent the decline of the white-tailed ptarmigan because global and national regulations are failing to reduce carbon emissions to levels that will slow global surface warming. They also assert that no legal mechanisms currently exist to regulate greenhouse gases on

a national level in the United States. The petitioner argues that stabilizing current climatic conditions through reductions in greenhouse gas emissions is necessary to preserve the remaining alpine habitats of the white-tailed ptarmigan, as discussed under Factor A, above. The petitioner also argues that other regulatory mechanisms inadequately protect the white-tailed ptarmigan from threats other than climate change. The petitioner argues that changes in climate caused by human activities must be mitigated through stronger regulatory mechanisms because the existing mechanisms are inadequate.

The petitioner stresses that legislative action is necessary to save the white-tailed ptarmigan because scientists warn that we are approaching emissions levels that would cause dangerous climate change (Hansen *et al.* 2008, pp. 217–218). The petitioner stresses that with current atmospheric carbon dioxide levels at approximately 390 parts per million (ppm), and worldwide emissions continuing to increase by more than 2 ppm each year, immediate reductions in greenhouse gas emissions are necessary to prevent the loss of species and ecosystems to climate change.

The petitioner reports that the United States produces approximately 20 percent of worldwide carbon dioxide emissions each year (U.S. Energy Information Administration 2010), yet lacks adequate regulations to reduce the greenhouse gas emissions. The petitioner cites the Service's 2008 listing of the polar bear (*Ursus maritimus*), which recognized that there are no regulatory mechanisms that address the anthropogenic causes of climate change (e.g., greenhouse gas emissions) and the impact of warming

temperatures and altered precipitation patterns on diminishing sea ice (73 FR 28288, May 15, 2008). The petition also states that existing domestic laws which grant authority to require greenhouse gas emissions reductions (e.g., Clean Air Act, Clean Water Act, Endangered Species Act, Energy Policy and Conservation Act) are not fully implemented. As an example, the petitioner references the U.S. Environmental Protection Agency's (EPA's) implementation of the Clean Air Act (42 U.S.C. 7401 *et seq*.) to lower emissions by requiring improved fuel economy and higher emission standards for light-duty vehicles (75 FR 25324, May 7, 2010), but states that the majority of other Clean Air Act programs are not fully implemented to address greenhouse gas emissions (75 FR 17004, April 2, 2010). The petitioner argues that full implementation of these environmental laws would provide an effective and comprehensive greenhouse gas reduction strategy, but does not explain how the majority of these laws could be applied to control emissions.

The petitioner also indicates that the international agreements that address greenhouse gas emissions (e.g., United Nations Framework Convention on Climate Change, Kyoto Protocol) rely on non-binding and ineffective controls (Pew 2010, p. 1; Rogelj *et al.* 2010, p. 464). Therefore, the petitioner considers international regulatory mechanisms inadequate to protect the white-tailed ptarmigan from climate change.

Furthermore, the petitioner contends that other State and Federal regulatory mechanisms in the United States do not adequately protect the white-tailed ptarmigan from threats other than climate change. The petitioner asserts that the National

Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq*.) does not prohibit Federal agencies from choosing project alternatives that may negatively affect individuals or populations of white-tailed ptarmigans. The USFS recognizes the white-tailed ptarmigan as a sensitive species in its Rocky Mountain (Region 2) and Southwest Region (Region 3), but the petitioner contends that because the NEPA does not require avoidance of harm, the sensitive species designation provides little regulatory protection. The petitioner cites 41 BEs prepared by the USFS in the Rocky Mountain Region within the last 10 years that evaluated activities that could harm ptarmigan. The petitioner also explains that the National Forest Management Act (16 U.S.C. 1600 *et seq*.) does not prohibit the USFS from carrying out actions that harm the white-tailed ptarmigan or its habitats.

Finally, the petitioner explains that the State of New Mexico added the white-tailed ptarmigan to its list of endangered species in 1975, and as a species of greatest conservation need in 2006. The petitioner argues that these designations in New Mexico confer no regulatory authority to protect white-tailed ptarmigan habitats. The petitioner provides no information or analysis regarding State regulations in either Colorado or Washington.

The petitioner concludes that, given the threat of climate change as discussed under Factor A, it is important to protect all existing alpine habitats in order to provide the species with the best possible chance to find suitable habitats in a warmer world. The petitioner argues that none of the existing regulatory mechanisms provide substantial

protection for the white-tailed ptarmigan from other threats discussed under Factor A, such as livestock grazing, recreation, or mining.

Evaluation of Information in the Petition and Available in Service Files

According to the IPCC, anthropogenic emissions of long-lived greenhouse gases, especially carbon dioxide, are currently contributing the largest positive radiative forcings (leading to warming of climate) of any climate factor (Forster *et al.* 2007, pp. 136–137). After providing scientific references in support of global climatic warming as discussed under Factor A, the petitioner refers to the limited application of the Clean Air Act by the EPA to effectively regulate greenhouse gas emissions. Information in our files indicates that on December 15, 2009, the EPA announced that current and projected concentration of six greenhouse gases in the atmosphere threaten the public health and welfare of current and future generations (74 FR 66496). In effect, the EPA concluded that the greenhouse gases linked to climate change are pollutants whose emissions can be subject to the Clean Air Act (42 U.S.C. 7401 *et seq.*).

The EPA proposed specific regulations to limit greenhouse gas emissions under the Clean Air Act in 2010. However, specific regulations to limit greenhouse gas emissions were only proposed in 2010, and have not yet been finalized. Therefore, the Clean Air Act cannot, at present, be considered an existing regulatory mechanism that addresses greenhouse gas emissions. Nor do we have any basis to conclude that implementation of the Clean Air Act in the foreseeable future (40 years, based on global

climate projections) may substantially reduce the current rate of global climate change through regulation of greenhouse gas emissions. Thus, we conclude that the Clean Air Act is not designed to specifically address the primary threats to the southern and Mt. Rainier white-tailed ptarmigans, including the loss of alpine habitats and other environmental changes associated with climate change, as discussed under Factor A.

Given that the petition, as revised, is specifically for the southern and Mt. Rainier white-tailed ptarmigan, we do not consider the adequacy of existing international regulations, treaties, or agreements that do not directly apply to the United States, and to the subspecies, when evaluating possible threats under Factor D. There is no information in the petition or in our files regarding applicable international regulations or treaties that might alleviate threats to the southern and Mt. Rainier white-tailed ptarmigans in the United States. Also, concerning the petitioner's assertion that NEPA does not provide adequate regulatory protection, NEPA is a disclosure law which does not require subsequent minimization or mitigation measures by the Federal agency involved. Although Federal agencies may include conservation measures for sensitive species as a result of the NEPA process, any such measures are voluntary in nature and not required by the statute. Thus it is outside the scope of NEPA to provide regulatory protections to species. As with the Clean Air Act, NEPA is not designed to specifically address the specific threats to the southern and Mt. Rainier white-tailed ptarmigans.

In the Rocky Mountains, approximately 95 percent of occupied ptarmigan habitats are on public lands, 85 percent of which are administered by the USFS (Hoffman

2006, p. 9). The petitioner did not provide information, and we found no information in our files, regarding the land ownership and corresponding management regulations for alpine habitats in Washington. Because the ptarmigan is a USFS sensitive species in the Rocky Mountains, the USFS actively manages it to avoid trends toward Federal listing and to maintain population viability across its range in Regions 2 and 3. The petitioner argues that according to BEs, 41 projects administered by the USFS within the last 10 years in the Rocky Mountain Region harmed the white-tailed ptarmigan. The petitioner previously indicated that 8 of these projects were associated with sheep grazing, 2 were associated with mining, and 27 were associated with recreation. However, the USFS determined that these activities would not contribute to a loss of viability or lead to a trend towards Federal listing, and the petitioner does not provide evidence these projects actually occurred or contributed to a trend towards listing contrary to the USFS' determination. The petitioner also does not provide evidence that State regulations in New Mexico are ineffective and may threaten the southern white-tailed ptarmigan. The petitioner provides no information, and we have no information in our files, regarding regulations or laws specific to the Mt. Rainier white-tailed ptarmigan in Washington.

Summary of Factor D

We are not aware of any existing regulatory mechanisms that are designed to address the changes described in Factor A in the southern and Mt. Rainier white-tailed ptarmigan habitats that are occurring or likely to occur in the future.

As discussed above, there are no applicable international regulations or treaties that might alleviate threats to the southern and Mt. Rainier white-tailed ptarmigans in the United States. Similarly, it is beyond the scope of NEPA to provide specific protections to the subspecies.

Approximately 95 percent of the occupied range of the southern white-tailed ptarmigan in the Rocky Mountains occurs on public lands, at least 85 percent of which is federally managed (Hoffman 2006, p. 9). Public lands are subject to several Federal laws and regulations that protect habitats from direct destruction or modification. There is no information in the petition nor readily available in our files regarding laws or regulations in the State of Washington and the effectiveness of regulations in other States, and it is uncertain whether Federal or State laws and regulations adequately address the potential threats to habitats of the white-tailed ptarmigan associated with climate change as discussed under Factor A. Existing regulatory mechanisms are not designed to, nor do they, ameliorate the threats to the southern or Mt. Rainier white-tailed ptarmigan. Therefore, we find that the petition and information in our files do not present substantial scientific or commercial information to indicate that the inadequacy of existing regulatory mechanisms may be a threat to the southern or Mt. Rainier white-tailed ptarmigans. We will more fully evaluate existing regulatory mechanisms in our status review.

E. Other Natural or Manmade Factors Affecting Its Continued Existence

In their petition, the petitioner presented information regarding potential physiological effects of a warming climate on the southern and Mt. Rainier white-tailed ptarmigans under Factor A. Because these are physiological effects, we discuss these assertions below. The petitioner also claims that population isolation and limited dispersal distances threaten the white-tailed ptarmigan.

Physiological Response to Climate Warming

Information Provided in the Petition—The petitioner cites a study conducted in the RMNP, Colorado, as evidence that warming temperatures have had a negative effect on the population dynamics of white-tailed ptarmigan (Wang *et al.* 2002, pp. 81–86). The petitioner also explains that increased temperatures may not only decrease population growth rates of the white-tailed ptarmigan, but also may directly impact individual ptarmigans because of their inability to cope with the stress caused by warming temperatures. The petitioner explains that the southern and Mt. Rainier white-tailed ptarmigans are well adapted to their seasonally cold alpine habitats, but are not physiologically adapted to high ambient air temperatures (Hoffman 2006, p. 24). To support this claim, the petitioner cites several studies that determined that the white-tailed ptarmigan has low mean body temperatures, a wide temperature-tolerance zone, excellent insulation to trap body heat, and low evaporative efficiencies (Veghte and Herreid 1965, p. 267; Lasiewski *et al.* 1966, p. 445; Johnson 1968, p. 1003; Hoffman 2006, pp. 24, 45). The petitioner argues that southern and Mt. Rainier white-tailed ptarmigans are

susceptible to heat stress and underequipped to adapt to the warming temperatures associated with climate change.

The petitioner explains that white-tailed ptarmigans modify their behaviors to avoid overheating, but this may not be sufficient to compensate for a warming climate. While nesting, female white-tailed ptarmigans take incubation breaks to forage, but they may take fewer breaks if temperatures are high. With less food, as a result of fewer foraging breaks, the health of nesting females may deteriorate, and they may abandon the nest (Hoffman 2006, p. 46). Additionally, the petitioner suggests that warming temperatures may force females to nest in shaded, denser vegetation, where they may be more susceptible to predation (Hoffman 2006, p. 46). Therefore, the petitioner concludes that behavioral adaptations that ptarmigans employ to avoid overheating may be ineffective with a warming climate.

Evaluation of Information in the Petition and Available in Service Files—Empirical studies show that warm ambient temperatures negatively affected the population dynamics of the southern white-tailed ptarmigan in Colorado by depressing population growth rates and skewing hatch dates (Wang *et al.* 2002, p. 81). This study reported that increases in April and May temperatures between years 1975 through 1999 at RMNP significantly advanced the median hatch dates of ptarmigan eggs and depressed the population growth rate of ptarmigans in RMNP (Wang *et al.* 2002, p. 85). Additionally, a population model anticipated that warming resulted in population decreases from 30 to 40 birds to 2 to 3 birds in RMNP (Wang *et al.* 2002, p. 84–85).

This study concluded that there is a clear population-level response in white-tailed ptarmigans to climate change, and that predicted temperature increases in RMNP may accelerate population declines and increase the probability of local extinction (Wang *et al.* 2002, p. 86).

As discussed under Factor A, global climate change may result in an increase in temperatures within the habitats of the southern and Mt. Rainier white-tailed ptarmigans; and the effect of increasing temperatures may decrease population growth rates. Additionally, the southern and Mt. Rainier white-tailed ptarmigans are physiologically well adapted to conserve heat and tolerate the cold temperatures of their alpine environments. However, available information suggests that these adaptations are detrimental to the white-tailed ptarmigan in warm temperatures, with heat stress developing quickly when the birds are unable to cool off (Johnson 1968, p. 1012; Hoffman 2006, pp. 24, 31). Although the birds seek cooler microclimates with shade and cover to escape warm temperatures, climatic warming may reduce the number of these cooler microclimates available, and the southern and Mt. Rainier white-tailed ptarmigans may be incapable of avoiding heat stress. If physiologically unable to cool body temperatures through evaporation, guttural fluttering, bathing in snow, or relocating to cooler microclimates, heat stress aggravated by climate change may be a threat to the southern or Mt. Rainier white-tailed ptarmigan. However, the petitioner did not provide information, and we found no evidence in our files to indicate, that the birds are more susceptible to predation in cooler microclimate areas or that females will take fewer foraging breaks so that malnutrition eventually reduces breeding success eventually

resulting in a negative population response. But, as discussed above, we still find that warming temperatures associated with climate change may be a threat by depressing population growth rates and aggravating heat stress. Therefore, we find that the information presented in the petition and information in our files presents substantial scientific or commercial evidence to indicate the physiological response of the southern or Mt. Rainier white-tailed ptarmigan to climate warming may be a threat.

Population Isolation and Limited Dispersal Distances

Information Presented in the Petition—The petitioner claims that isolation, small populations, low densities, and limited dispersal distances render the southern and Mt. Rainier white-tailed ptarmigans particularly vulnerable to extinction. To support this claim, the petitioner cites a species account for the Vancouver Island white-tailed ptarmigan, the subspecies endemic to Vancouver Island, which indicates that this subspecies exists in low densities with stochastic population dynamics and environmental conditions (Martin and Forbes 2004, pp. 4–5). The petitioner also provides the USFS sensitive species designation for the white-tailed ptarmigan in the Rocky Mountain Region as evidence that population isolation and limited dispersal distances are a threat (USFS 2005, p. 1). The petitioner also explains that alpine habitats are isolated and geographically separated by expanses of unsuitable habitats, and that distances between habitats exceed the maximum recorded travel distances for the white-tailed ptarmigan (Martin *et al*. 2000, p. 514). Therefore, the petitioner concludes that as climate change

modifies and reduces available habitats, distances between suitable habitats will increase, further isolating populations and threatening the subspecies.

Evaluation of Information in the Petition and Available in Service Files —While the Vancouver Island white-tailed ptarmigan may be susceptible to population extirpations because of their low densities, patchy habitats, and stochastic environment, we found no information in the petition nor available in our files that these variables may be threats to either the southern or the Mt. Rainier white-tailed ptarmigan. Contrary to the Vancouver Island white-tailed ptarmigan study, a study in the Rocky Mountains suggested that small population sizes, low densities, relatively low fecundity, and high annual variation in most population parameters did not appear to threaten the white-tailed ptarmigan population (Martin *et al.* 2000, p. 512). Additional information suggests that a well-developed system of population exchange and recruitment allows ptarmigans to persist in isolated, small populations, even during regional stochastic events in Colorado (Martin *et al.* 2000, pp. 512, 514). The petitioner provided no information regarding maximum distances between alpine habitats that may hinder population exchange or recruitment, and we have no information indicating that the current distances between alpine habitats may impede interchange for the southern or Mt. Rainier white-tailed ptarmigans. While climate change may increase the distance between alpine habitats, the petitioner did not provide information, and we have no information in our files, that distances between alpine habitats may threaten either subspecies. Additionally, the USFS sensitive species recommendation and evaluation for white-tailed ptarmigan summarizes potential threats, but provides no supporting information regarding population isolation

or dispersal distances. Therefore, we find that the petition and information in our files do not present substantial scientific or commercial information to indicate that isolated populations or limited dispersal distances may be threats to the southern and Mt. Rainier white-tailed ptarmigans.

Summary of Factor E

We find that the information presented in the petition regarding population growth rates and physiological response to a warming climate presents substantial scientific or commercial evidence to indicate that the petitioned action may be warranted. We find that the petition does not present substantial scientific or commercial information to indicate that population isolation or limited dispersal distances may be threats to the southern and Mt. Rainier white-tailed ptarmigans. We will evaluate population isolation and limited dispersal distances more fully during our status reviews.

Finding

On the basis of our determination under section 4(b)(3)(A) of the Act, we have determined that the petition presents substantial scientific or commercial information indicating that listing the southern and Mt. Rainier white-tailed ptarmigans throughout the entire ranges of both subspecies may be warranted. This finding is based on information provided under factors A and E. The information provided in the petition and available in our files under factors B, C, and D is not substantial. During the status

review, we will fully address the cumulative effects of threats discussed under each factor.

Because we have found that the petition presents substantial information indicating that listing the southern and Mt. Rainier white-tailed ptarmigans may be warranted, we are initiating a status review to determine whether listing these subspecies under the Act is warranted.

The "substantial information" standard for a 90-day finding differs from the Act's "best scientific and commercial data" standard that applies to a status review to determine whether a petitioned action is warranted. A 90-day finding does not constitute a status review under the Act. In a 12-month finding, we will determine whether a petitioned action is warranted after we have completed a thorough status review of the subspecies, which is conducted following a substantial 90-day finding. Because the Act's standards for 90-day and 12-month findings are different, as described above, a substantial 90-day finding does not necessarily mean that the 12-month finding will result in a warranted finding.

References Cited

A complete list of references cited is available on the Internet at *http://www.regulations.gov* and upon request from the Colorado Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Authors

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

Authority

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

Dated: 21 May 2012

Gregory E. Siekaniec

Deputy Director, U.S. Fish and Wildlife Service

Billing Code 4310-55-P

[FR Doc. 2012-13320 Filed 06/04/2012 at 8:45 am; Publication Date: 06/05/2012]