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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R8–ES–2011–0103]

[4500030113]

Endangered and Threatened Wildlife and Plants; 90-Day Finding on a Petition to List Sierra Nevada Red Fox as Endangered or Threatened

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of 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 Sierra Nevada red fox (*Vulpes vulpes necator*) as endangered or threatened under the Endangered Species Act of 1973, as amended (Act), and to designate critical habitat. Based on our review, we find that the petition presents substantial scientific or commercial information indicating that listing this subspecies may be warranted. Therefore, with the publication of this notice, we are initiating a review of the status of the subspecies to determine if listing Sierra

Nevada red fox is warranted. To ensure that this status review is comprehensive, we are requesting scientific and commercial data and other information regarding this 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.

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 Sacramento Fish and Wildlife 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 Enter Keyword or ID box, enter Docket No. FWS–R8–ES–2011–0103, which is the docket number for this action. Then click on the Search button. You may submit a comment by clicking on "Send a Comment or Submission."

(2) *By hard copy*: Submit by U.S. mail or hand-delivery to: Public Comments Processing, Attn: FWS–R8–ES–2011–0103; 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: Karen Leyse, Sacramento Field Office Listing/Critical Habitat Coordinator , U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, 2800 Cottage Way, Room W-2605, Sacramento, CA 95825; by telephone at 916–414–6600; or by facsimile at 916–414–6712. 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 Sierra Nevada red fox from governmental agencies, Native American tribes, the scientific community, industry, and any other interested parties. We seek information on:

(1) The species' biology, range, and population trends, including:

(a) Habitat requirements for feeding, breeding, and sheltering;

(b) Genetics and taxonomy;

(c) Historical and current range, including distribution patterns;

(d) Historical and current population levels, and current and projected trends; and

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

(2) The factors that are the basis for making a listing determination for a species under section 4(a) of the Act (16 U.S.C. 1531 *et seq*.), which are:

(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; and

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

If, after the status review, we determine that listing Sierra Nevada red fox is warranted, we will propose critical habitat (see definition in section 3(5)(A) of the Act) under 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 for the species"; and

(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.

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."

You may submit your information concerning this status review by one of the methods listed in **ADDRESSES**. 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 finding is 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, Sacramento Fish and Wildlife 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 April 27, 2011, we received a petition dated April 27, 2011, from the Center for Biological Diversity, requesting that Sierra Nevada red fox be listed as endangered or threatened, and that critical habitat be designated under the Act. The petition clearly identified itself as such and included the requisite identification information for the petitioner, as required by 50 CFR 424.14(a). In a May 24, 2011, letter to the petitioner, we responded that we reviewed the information presented in the petition and determined that issuing an emergency regulation temporarily listing the species under section 4(b)(7) of the Act was not warranted. We also stated that we were required to complete a significant number of listing and critical habitat actions in Fiscal Year 2011 pursuant to court orders, judicially approved settlement agreements, and other statutory deadlines, but that we had secured funding for Fiscal Year 2011 to allow publication of a finding in the **Federal Register** in early Fiscal Year 2012. This finding addresses the petition.

Species Information

Sierra Nevada red fox is classified in the mammalian order Carnivora, family Canidae, and is one of 10 subspecies of red fox recognized in North America (Lariviére and Pashitschniak-Arts 1996, pp. 1–2; Aubry 1997, p. 55). The Sierra Nevada red fox can be distinguished from other red fox subspecies based on morphology, coloration, and habitat use (Roest 1977, p. 13). The Sierra Nevada red fox was first described by Merriam (1900, as cited in

Roest 1977, p. 1) as the species *Vulpes necator*, but was considered by Grinnell *et al*. (1937, p. 377) to be a subspecies of the red fox. The scientific community continues to recognize the Sierra Nevada red fox as a subspecies (Roest 1977, p. 1; Lariviére and Pashitschniak-Arts 1996, pp. 1–2; Aubry 1997, p. 55; Sachs *et al*. 2010, p. 1542). Therefore, we accept the classification of the Sierra Nevada red fox as a subspecies of the red fox.

The red fox is a relatively small canid with an elongated snout, large ears, slender legs and body, and a bushy tail with a white tip (Lariviére and Pashitschniak-Arts 1996, p. 2; Aubry 1997, p. 55). Sierra Nevada red fox is typically red, but can occur in black or silver phases (Grinnell *et al.* 1937, p. 377; Roest 1977, p.1), and is generally smaller than other red fox subspecies in North America (California Department of Fish and Game (CDFG) 1987, p. 3).

Historically, Sierra Nevada red fox occupied high-elevation areas of the Sierra Nevada and Cascade mountain ranges in California (Zielinski *et al.* 2005, p. 1389), ranging from Tulare County north to Sierra County, and from the vicinity of Lassen Peak and Mt. Shasta west to the Trinity Mountains in Trinity County (Grinnell *et al.* 1937, p. 381). However, a recent study by Sachs *et al.* (2010, p. 1536) indicates that the historical range of Sierra Nevada red fox includes the southern Cascade mountain range in Oregon, as far north as the Columbia River. The current distribution of Sierra Nevada red fox is believed to be restricted to two small populations: one in the vicinity of Lassen Peak (Perrine 2005, p. 105; California Natural Diversity Database (CNDDB) 2011, pp. 54–60) and the other in the vicinity of Sonora Pass (Perrine *et al.* 2010, notes in proof; CNDDB 2011, pp. 54–60). Although its entire historical range was not surveyed, systematic surveys by Zielinski *et al.* (2005, p.1389) failed to detect Sierra Nevada red fox. The

U.S. Forest Service recently conducted carnivore surveys on National Forest System lands throughout the Sierra Nevada using track plates and remotely triggered cameras, but Sierra Nevada red fox were detected only in the Lassen National Forest and Humboldt-Toiyabe National Forest (Perrine *et al.* 2010, notes in proof and p. 8). Current population levels of Sierra Nevada red fox are unknown, but the subspecies is believed to occur at very low density (Perrine *et al.* 2010, p. 9).

While the red fox is one of the most studied carnivores, little is known about Sierra Nevada red fox ecology (Perrine *et al.* 2010, p 14). Sierra Nevada red fox is one of three high-elevation montane subspecies referred to as mountain foxes (Aubry 1997, p. 55). It is found in alpine and subalpine habitats typically above 1,525 meters (m) (5,000 feet (ft)) elevation, including meadows, dense mature forests, talus (rocks accumulated at the base of a cliff, chute, or slope), and fell fields (treeless rock-strewn areas dominated by scattered plants or grasses) (Perrine *et al.* 2010, p. 18; CNDDB 2011, pp. 1–60). Radio telemetry data indicate that Sierra Nevada red fox are most active at dusk and at night (Perrine 2005, p. 114). Habitat use by Sierra Nevada red fox varies seasonally. During the summer (generally June to November (Perrine 2005, p. 160)), they prefer barren, high-elevation habitats (Perrine 2005, p. 137) and utilize high-elevation shrub and conifer communities in proportion to their availability (Perrine 2005, p. 161). During the winter (generally November to June (Perrine 2005, p. 160)), they are associated with mature closed-canopy forest (Perrine 2005, p. 163) and preferentially select forested areas for travel, possibly to avoid deep snow (Benson *et al.* 2005, p. 128). A study of Sierra Nevada red fox in the vicinity of Lassen Peak suggests that the subspecies requires large home ranges averaging 2,323 hectares (ha) (5,740 acres (ac)), with individual home ranges ranging from 262

ha (647 ac) to 6,981 ha (17, 250 ac) (Perrine 2005, p. 137). The Sierra Nevada red fox demonstrates seasonal elevation migration, moving to lower elevations during the winter months (Perrine *et al.* 2010, p. 21), presumably to areas where prey are more readily available due to lower snow depths (Perrine 2005, p. 146). Sierra Nevada red fox, like other red fox in North America, appear to be opportunistic predators and foragers, with a diet primarily composed of small rodents (Perrine *et al.* 2010, p. 24).

Little is known about Sierra Nevada red fox reproductive biology. Other red fox subspecies are predominately monogamous and mate over several weeks in the late winter and early spring (Aubry 1997, p. 57). The gestation period for red fox is 51 to 53 days, with birth occurring from March through May in sheltered dens. Sierra Nevada red fox have been documented to use natural openings in rock slides, talus, and riven (broken) granite as denning sites (Grinnell *et al.* 1937, p. 394), and it is likely that earthen dens are also used (Aubry 1997, p. 58). Grinnell *et al.* (1937, p. 394) reports that litter size averages six pups with a range of three to nine pups; however, recent evidence suggests that litter sizes of two to three is more typical (Perrine 2005, p. 152). The pups are weaned by 8 to 10 weeks of age, begin exploring their parents' home range by 12 weeks, and disperse in the early fall when fully grown (Perrine *et al.* 2010, pp. 14–15).

Evaluation of Information for this Finding

Section 4 of the Act (16 U.S.C. 1533) and its implementing regulations at 50 CFR 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 warrant listing as endangered or threatened as those terms are defined by 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 finding that listing may be warranted. 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 Sierra Nevada red fox, 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 petition asserts that Sierra Nevada red fox habitat is threatened by logging, fire suppression, domestic livestock grazing, and recreation, including over-snow vehicle (OSV) (such as snowmobile) and off-road vehicle (ORV) use. The petition also states that the structural changes associated with logging and fire suppression activities could facilitate invasion by coyotes and nonnative red fox, resulting in increased competition, predation, and possible interbreeding with nonnative red fox (Center for Biological Diversity 2011, pp. 18 and 22). Predation related to logging is discussed under Factor C, while competition and interbreeding is discussed under Factor E.

Logging—Information Provided in the Petition

The petition claims that logging has reduced the extent of old conifer forest by 82 percent within the southern Cascade mountains and by 79 percent within the eastern Cascade mountain forests, with similar reductions in the Sierra Nevada (Center for Biological Diversity 2011, p. 18). Perrine (2005, p. 137) found that Sierra Nevada red fox detections were positively

associated with dense, mature, mid-elevation forests exhibiting canopy cover greater than 40 percent and trees larger than 60 centimeters (cm) (23.6 inches (in)) diameter at breast height. Winter home ranges of Sierra Nevada red fox are dominated by Sierran mixed conifer, red and white fir communities in which fox use the cavities under logs and trees, and tree wells (area of loose or no snow around the trunk of a tree), as day rest sites (Perrine 2005, p. 146; Center for Biological Diversity 2011, p. 17). The petitioners state that the removal of the large trees that form tree wells or that fall and provide cavities that Sierra Nevada red fox use as day rests, as well as the structural changes of forest complexity associated with logging, render habitats less suitable for Sierra Nevada red fox (Center for Biological Diversity 2011, pp. 17–18).

Logging—Evaluation of Information Provided in the Petition and Available in Service Files

Approximately 80 percent of Sierra Nevada red fox's range occurs on National Forest System Lands (Center for Biological Diversity 2011, p. 11). Historical logging activities in the Sierra Nevada have resulted in the reduction of habitat that may be used by the Sierra Nevada red fox. Prior to logging in the Sierra Nevada, suitable forested habitat was projected to occur on 55 percent of National Forest lands, while logging reduced the suitable habitat to 13 percent of National Forest lands (SNEP 1996, p. 99). The largest extant population of Sierra Nevada red fox occurs in the vicinity of Lassen Peak within both Lassen National Park and Lassen National Forest. Lassen National Forest currently has planned fuels treatment projects that may affect approximately 19,584 ha (48,392 ac), including approximately 929 ha (2,296 ac) that contain habitat suitable for red fox (USDA Forest Service 2009, pp. 509–510). Although forested habitats utilized by Sierra Nevada red fox have historically undergone logging or fuels treatment

activities, and future treatment is planned in suitable habitat that may be occupied by the fox, neither the petition nor our files contain information about potential ongoing or future threats that may occur as a result of logging activities. Although the information does not support the petitioner's assertions on this subject, we will further consider effects that logging may have on the subspecies' habitat in our status review.

Fire Suppression—Information Provided in the Petition

The petition asserts that fire suppression activities impact the natural role of fire in developing the habitat components used by Sierra Nevada red fox (Center for Biological Diversity 2011, p. 22). The petition also states that forest openings, fell fields, and early-seral (period from disturbance to crown closure of conifer stands) post-fire habitats are important components for Sierra Nevada red fox as these areas provide habitat for a majority of the fox's prey base (Center for Biological Diversity 2011, p. 22). Finally, the petition claims that fire suppression activities may result in direct impacts to Sierra Nevada red fox, as well as alter and fragment the structure of the habitat. The potential for fire suppression activities to directly impact Sierra Nevada red fox individuals is addressed under Factor E below.

Fire Suppression—Evaluation of Information Provided in the Petition and Available in Service Files

We do not have any information in our files, nor does the petition provide specific information, on the reduction or fragmentation of foraging habitat for Sierra Nevada red fox due

to fire suppression. The petition also does not document that wildfire is necessary to create or maintain this foraging habitat. While the petition does provide general information about historical fire intervals in the Sierra Nevada, it does not provide any specific information about fire intervals or the likelihood of future fires within Sierra Nevada red fox's current range. Although the information does not support the petitioner's assertions on this subject, we will further consider effects that fire suppression activities may have on the subspecies' habitat in our status review.

Domestic Livestock Grazing

The petition states that domestic livestock grazing impacts Sierra Nevada red fox foraging habitat by removing the vegetative habitat components that support their prey (Center for Biological Diversity 2011, p. 20). Because the information presented in the petition is related more closely to prey availability than Sierra Nevada red fox habitat, the threat from domestic livestock grazing will be discussed below in Factor E.

Recreation—Information Provided in the Petition

The petition asserts that recreational activities (including OSV, ORV, dirt bike activity, hiking, and camping) can degrade Sierra Nevada red fox habitat, interfere with normal behavior, and cause shifts in habitat use. The petition did not include any information on the habitat alteration other than to state that habitat degradation occurs. All recreational impacts presented in the petition are related to direct impacts to the subspecies, such as death, injury, increased

competition, or behavioral changes, which are discussed under Factor E.

Recreation—Evaluation of Information Provided in the Petition and Available in Service Files

We do not have any information in our files, nor does the petition provide any information, on the degradation of Sierra Nevada red fox habitat due to recreation. Although the information does not support the petitioner's assertions on this subject, we will further consider effects that recreation may have on the subspecies' habitat in our status review.

Factor A Summary

The petitioner states that Sierra Nevada red fox habitat is threatened by logging, fire suppression, domestic livestock grazing, and recreation (including OSV and ORV use). While the petition provides information about historical impacts to habitat from logging and fire suppression, it does not provide any information about current or future threats due to logging and fire suppression practices within the subspecies' range. Our files contain some information about proposed fuels treatment projects on the Lassen National Forest that would be within the subspecies' range. However, we have no information available in the petition or our files to indicate that Sierra Nevada red fox individuals or populations respond negatively to habitat impacts resulting from logging and fire suppression, nor do we have information regarding potential ongoing or future threats that may occur as a result of these activities. Although the information does not support the petitioner's assertions about activities discussed above, we will further investigate whether the present or threatened destruction, modification, or curtailment of

its habitat or range is threatening the subspecies in our status review.

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

Information Provided in the Petition

The petition asserts that Sierra Nevada red fox is threatened by accidental capture or poaching in California, Oregon, and Nevada, and by legal trapping in Oregon and Nevada (Center for Biological Diversity 2011, pp. 24–25).

Evaluation of Information Provided in the Petition and Available in Service Files

Sierra Nevada red fox's current range is restricted to two areas of California (Perrine 2005, p. 105; CNDDB 2011, pp. 54–60), a State in which hunting for Sierra Nevada red fox is prohibited (Title 14 California Code of Regulations Section 460). California does allow hunting and trapping of other furbearing animals, and it is possible that Sierra Nevada red fox could be accidentally trapped (Center for Biological Diversity 2011, p. 25). However, neither the petition nor Service files present any evidence of incidental killing of Sierra Nevada red fox while trapping other furbearers. Trapping of Sierra Nevada red fox is allowed in the adjacent States of Oregon and Nevada; however, Sierra Nevada red fox is not known to occur in these States.

Factor B Summary

The information provided in the petition and in our files does not indicate that any impact from overutilization is occurring to Sierra Nevada red fox. However, we will further investigate overutilization for commercial, recreational, scientific, or educational purposes in our status review for this subspecies.

C. Disease or Predation.

The petition states that Sierra Nevada red fox is threatened by salmon poisoning disease, disease transmission by domestic dogs, and increased coyote predation due to recreation activities, logging, and fire suppression activities in logged forests (Center for Biological Diversity 2011, pp. 21–28).

Salmon Poisoning Disease (SPD)—Information Provided in the Petition

The petition states that Sierra Nevada red fox are threatened by salmon poisoning disease (SPD), which is found in wild populations of salmonid fish in northern California, Oregon, and Washington, but also could be spread to other areas through fish stocking, and is fatal to dogs, foxes, and other canids (Center for Biological Diversity 2011, p. 25). Salmon poisoning disease is caused by *Neorickettsia helminthoeca*, a bacteria that can be carried by trout and salmon. If an infected fish is ingested by a dog or other canid, the bacteria can result in fever, anorexia, vomiting, and bloody diarrhea, with a 90 percent mortality rate if untreated (Rikihisa *et al.* 1991, p. 1928). The disease has also been detected in at least three State hatcheries and four private farms in northern California (Perrine *et al.* 2010, p. 28).

If infected trout and salmon are present in waters within Sierra Nevada red fox's current range and Sierra Nevada red fox consume infected fish, the likelihood of red fox mortality is high (Perrine *et al.* 2010, p. 28). The petition provides a list of 47 water bodies within the subspecies' approximate current range that were stocked with trout or salmon by CDFG between 2002 and 2006 (Center for Biological Diversity 2011, Appendix B). The petitioner indicates that potential exposure of the Sierra Nevada red fox to infected fish is a threat to the subspecies.

The petition also claims that the risk of Sierra Nevada red fox exposure to SPD is increased by fire retardant use (Center for Biological Diversity 2011, p. 28). Fire retardants are used on National Forest lands to combat wildfires. Exposure of fish to these retardants is known to result in substantial fish kills (USFWS 2008, p. 30). While the risk is small, if fire retardants were used in an SPD-infected waterway within the current range of the subspecies, the threat of SPD to Sierra Nevada red fox would be increased by the fox foraging on dead fish.

Salmon Poisoning Disease (SPD)—Evaluation of Information Provided in the Petition and Available in Service Files

SPD has been documented in both hatchery and wild salmonids in northern California (Perrine *et al.* 2010, p. 28). In order to limit the spread of SPD beyond this area, CDFG does not allow salmonids from their northern California hatcheries to be stocked south of the Feather River (Beale 2011, pers. comm.). The Sierra Nevada red fox population in the Sonora Pass area is located far to the south of the Feather River, where the potential for stocking infected fish does

not exist. Therefore, only the fox population in the vicinity of Lassen Peak has the potential to be impacted by SPD. Because SPD has been documented in both hatchery and wild fish populations in the northern California (Perrine *et al.* 2010, p. 28), it is likely that this disease occurs within the range of the Sierra Nevada red fox. Within the area where the disease occurs, Sierra Nevada red fox may be exposed to infected fish as the result of scavenging for dead fish, misapplication of aerial fish stocking, or the use of dead salmonids as bait for camera stations (Perrine et al. 2010, p. 28).

Although salmonid mortality from the use of fire retardants could potentially increase exposure of Sierra Nevada red fox to SPD, current guidelines minimize exposure of salmonids to fire retardants. The aerial application of fire retardant by the U.S. Forest Service is governed by guidelines that provide for a 91-m (300-ft) buffer around all aquatic features (USDA Forest Service 2011a, p. 7). Additionally, based on calculations of misapplication over the past 3 years, there is a 0.42 percent chance of fire retardant being applied to aquatic features (USDA Forest Service 2011a, p. 104). Although mortality of salmonids due to fire retardant application may be high, the likelihood that fire retardant will cause the mortality of salmonids infected by SPD and that Sierra Nevada red fox will consume the dead infected fish is extremely low. Therefore, we do not anticipate that the use of fire retardants will appreciably contribute to the spread of the disease.

Given the high mortality associated with SPD disease in canids, and the potential pathways for exposure of Sierra Nevada red fox to SPD as the result of fish stocking in the Lassen National Forest area, we find that the information provided in the petition, as well as

other information in our files, presents substantial scientific or commercial information indicating that the petitioned action may be warranted due to transmission of SPD. We will review the possible effects of SPD to Sierra Nevada red fox more thoroughly in our 12-month status review.

Domestic Dog Predation and Disease—Information Provided in the Petition

The petition asserts that exposure of Sierra Nevada red fox to domestic dogs places them at risk of attack, death, or diseases such as rabies, sarcoptic mange, canine distemper, and parvovirus (Center for Biological Diversity 2011, p. 28).

The petition asserts that the risk of domestic dog predation and disease is associated with the presence of roads and recreational sites within the subspecies' range (Center for Biological Diversity 2011, p. 22). Pierre *et al.* (2010, p. 28) found that road development and recreational sites within the Sierra Nevada red fox's range increases the risk of interaction with domestic pets and exposure to diseases.

Domestic Dog Predation and Disease—Evaluation of Information Provided in the Petition and Available in Service Files

Diseases commonly associated with domestic dogs have been documented in other subspecies of red fox, and can be fatal (Little *et al.* 1998, p. 623). Both Lassen National Park and Lassen National Forest contain recreation areas that are within the Sierra Nevada red fox's

current range (Perrine 2005, p. 149; USDA Forest Service 2009, p. 510). A number of documented sightings have occurred in campgrounds, in parking areas, and along roads in Lassen National Park where Sierra Nevada red foxes have begged for food from humans (Perrine 2005, p. 28). The use of these areas by humans and their domestic dogs increases the risk of transmitting diseases such as canine distemper, rabies, and sarcoptic mange to Sierra Nevada red fox (Perrine *et al.* 2010, p. 28), leading to a decreased level of fitness and potential mortality. In a radiotelemetry study of Sierra Nevada red fox in the Lassen Peak area, Perrine (2005, p. 141) documented mortality of three collared individuals, attributing the death of one directly to a dog attack. Given that the Sierra Nevada red fox populations are believed to be small in number and restricted to two locations (Perrine 2005, p. 105; CNDDB 2011, pp. 54–60), an outbreak of canine distemper or other lethal disease, as well as predation by domestic dogs, could have a population-level impact. Therefore, we conclude that there is substantial information in the petition and in our files to indicate that attacks and transmission of disease from domestic dogs may be a threat to Sierra Nevada red fox.

Coyote Predation—Information Provided in the Petition

The petition claims that changes in forest structure resulting from logging, recreation, and fire suppression facilitate the movement of coyotes into the Sierra Nevada red fox's range (Center for Biological Diversity 2011, pp.18–22). The petition further claims that increased presence of coyotes could result in increased predation upon Sierra Nevada red fox, thus potentially reducing their population and reproductive success.

Coyote Predation—Evaluation of Information Provided in the Petition and Available in Service Files

The petition does not provide any information, nor do we have any in our files, to indicate that changes in forest structure resulting from logging, recreation, and fire suppression facilitate the movement of coyotes into the Sierra Nevada red fox's range. The abundance and distribution of coyotes has been demonstrated to affect the distribution of the red fox in North Dakota (Sargeant *et al.* 1987, p. 291), and, although no predation of red fox by coyotes was observed in this study, numerous accounts of coyotes predating upon red fox have been documented (Sargeant and Allen 1989, p. 631). In the Lassen Peak area, Perrine (2005, pp. 83–84) documented range overlap of Sierra Nevada red fox and coyotes, especially in summer habitat use. As coyotes are known to prey upon foxes and occur in areas occupied by the Sierra Nevada red fox, predation of the Sierra Nevada red fox by coyotes is likely. Because the subspecies is believed to occur at a very low density (Perrine *et al.* 2010, p. 9), predation by coyotes could significantly impact the population. Therefore, we conclude that there is substantial information in our files to indicate that coyote predation may be a threat to Sierra Nevada red fox. We will review the possible effects of coyote predation on Sierra Nevada red fox more thoroughly in our 12-month status review.

Factor C Summary

The petition states that Sierra Nevada red fox is threatened by SPD, disease transmission by domestic dogs, and increased coyote predation in logged forests. The information contained

in the petition and in our files indicates that SPD has been found in California and has the potential to be introduced to water bodies within the subspecies' range. In addition, diseases carried by domestic dogs are known to kill red fox, and the petition provides information about the presence of Sierra Nevada red fox at recreational sites where they could interact with humans and their pets. While the Perrine (2005, pp. 1–191) study did not document the predation of Sierra Nevada red fox by coyotes, coyotes are known to kill and prey upon red fox in other areas, and there is range overlap between Sierra Nevada red fox and coyotes. In summary, we find that the information presented in the petition and in our files presents substantial information indicating that the petitioned action may be warranted due to the threat of disease or predation.

D. The Inadequacy of Existing Regulatory Mechanisms.

Information Provided in the Petition

The petition asserts that Sierra Nevada red fox are threatened by inadequate regulatory mechanisms, such as the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 et seq.), the Sierra Nevada Forest Plan Amendment (SNFPA), the Northwest Forest Plan (NWFP), climate change initiatives, the California Endangered Species Act (CESA), as well as Oregon and California hunting regulations (Center for Biological Diversity 2011, pp. 28–32).

The petition states that NEPA requires a Federal agency to analyze the impacts of proposed activities on Sierra Nevada red fox, but does not require the agency to select an alternative with the least impacts to the subspecies, nor require the agency to mitigate project

impacts (Center for Biological Diversity 2011, p. 32). The petition asserts that the SNFPA provides an outline of discretionary measures that the U.S. Forest Service may implement for the protection of Sierra Nevada red fox; however, discretionary actions are not adequate to protect Sierra Nevada red fox because National Forests are managed for multiple resource objectives (Center for Biological Diversity 2011, p. 32). Further, the petition asserts that the NWFP does not specifically address the protection of Sierra Nevada red fox, but relies on the protection of other species that may incidentally provide protection to Sierra Nevada red fox (Center for Biological Diversity 2011, p. 32).

The petition asserts that the climate change initiatives are insufficient, including California's Global Warming Solutions Act of 2006, the Clean Air Act (42 U.S.C. 7401 et seq.), the Energy Policy and Conservation Act (42 U.S.C. 6201 et seq.), the Clean Water Act (33 U.S.C. 1251 et seq.), and the international United Nations Framework Convention on Climate Change. The petition claims that these initiatives are inadequate due to a lack of implementation (Center for Biological Diversity 2011, pp. 30–32).

The petition claims that the CESA is an inadequate regulatory mechanism because it does not provide adequate protections for Sierra Nevada red fox against logging, livestock grazing, recreation, and other human disturbance (Center for Biological Diversity 2011, p. 29). The threats of logging, livestock grazing, recreation, and other human disturbance are addressed under Factors A, C, and E. The petition also claims that the Oregon furbearer, trapping, and hunting regulations, and the California hunting regulations, provide inadequate regulatory mechanisms for Sierra Nevada red fox (Center for Biological Diversity 2011, p. 31). These State

hunting and trapping regulations address overutilization for commercial or recreational purposes, and were addressed under Factor B above.

Evaluation of Information Provided in the Petition and Available in Service Files

The petition provides basic information regarding a number of possible regulatory mechanisms, such as NEPA, SNFPA, NWFP and CESA. It is not clear from the information provided in the petition or available in our files that these possible regulatory mechanisms are inadequate to reduce the possible threats of disease and predation (see Factor C) or other natural or manmade factors affecting its continued existence (see Factor E).

Factor D Summary

The information provided in the petition and in our files does not indicate that any impact from the inadequacy of existing regulatory mechanisms is occurring to Sierra Nevada red fox. However, we will further investigate the inadequacy of existing regulatory mechanisms in our status review for this subspecies.

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

The petition asserts that the following Factor E impacts threaten Sierra Nevada red fox: Invasion of Sierra Nevada red fox habitat by coyotes and nonnative red foxes, competition with coyotes and nonnative red foxes, domestic livestock grazing, recreation, small population size,

and climate change (Center for Biological Diversity 2011, pp. 18, 22–32).

Invasion by and Competition with Coyote and Nonnative Red Foxes—Information Provided in the Petition

The petition asserts that Sierra Nevada red fox is threatened by competition for prey with coyotes and nonnative red foxes and increased interbreeding with nonnative red foxes, both of which are facilitated by logging, fire suppression activities, and recreation (Center for Biological Diversity 2011, pp. 18, 22–32). The petition also asserts that fire suppression activities may result in the direct mortality or injury of Sierra Nevada red fox (Center for Biological Diversity 2011, p. 22).

Invasion by and Competition with Coyote and Nonnative Red Foxes—Evaluation of Information Provided in the Petition and Available in Service Files

We do not have any information in our files, nor does the petition provide specific information, on how logging, fire suppression activities, or recreation has the potential to facilitate invasion by coyote and nonnative foxes, nor is there any evidence that this facilitation has occurred. Information contained within our files does not indicate that competition with nonnative red foxes or interbreeding is a concern for Sierra Nevada red fox, as there is no indication of range overlap with any other fox species. Neither the petition nor our files contain any evidence of fire suppression activities resulting in the direct mortality of individual Sierra Nevada red foxes.

Coyotes and Sierra Nevada red fox have been documented to have overlapping summer habitat ranges in the Lassen Peak area (Perrine 2005, pp. 83–84). Winter habitat use by the fox does not correlate closely with that of the coyote (Perrine 2005, p. 83), presumably because of snow depths and competition for prey (Perrine 2005, p. 40–41), resulting in decreased prey availability in winter months. Competition for prey between coyote and fox is potentially exacerbated by low prey availability in the area of Lassen Peak (USDA Forest Service 2009, p. 506). Sargeant *et al*. (1987, p. 291) determined that the distribution and abundance of red fox are affected by the distribution and abundance of coyote. Sargeant and Allen (1983, pp. 631–632) documented the interactions between coyotes and other subspecies of red fox, discovering that coyote will frequently chase foxes and kill them, often not utilizing them as prey. As there is substantial range overlap between coyotes and Sierra Nevada red fox, there is likely competition for prey items; additionally, because coyotes are known to kill red foxes, we find that the petition and information in our files present substantial information to indicate that interaction with coyotes may be a threat to Sierra Nevada red fox.

Domestic Livestock Grazing—Information Provided in the Petition

The petition states that domestic livestock grazing impacts the Sierra Nevada red fox's foraging habitat by removing the vegetative habitat components that support its prey (Center for Biological Diversity 2011, p. 20). For example, the petition cites a number of studies that found that high levels of livestock grazing can reduce the density and biomass of a number of prey species, such as rodents and birds (Center for Biological Diversity 2011, pp. 20–21). The

petition also claims that the use of rodenticides associated with domestic cattle grazing may also reduce the availability of small prey species in grazed areas (Center for Biological Diversity 2011, p. 21).

Domestic Livestock Grazing—Evaluation of Information Provided in the Petition and Available in Service Files

The petition provides some evidence that livestock grazing may alter the availability of some prey species for Sierra Nevada red fox. While grazing may result in a decrease in populations of some prey species, grazing has been demonstrated to increase populations of other potential prey species (Ratliff 1985, as cited in Perrin *et al.* 2010, p. 29). Therefore, there is evidence that grazing may not reduce prey availability overall, but rather cause a shift in prey species (Perrine *et al*. 2010, p. 29). While the petition asserts rodenticide use associated with cattle grazing causes a reduction in the availability of prey for Sierra Nevada red fox, the widespread use of rodenticides on public lands as it relates to grazing has been outlawed (Perrine *et al.* 2010, p. 29). Sierra Nevada red fox utilizes a wide variety of prey species (Perrine 2005, p. 40–41), and there is no information indicating that the use of rodenticides associated with grazing is responsible for a reduction in available prey. Therefore, the information presented in the petition and available in our files does not support the petitioner's claim that domestic livestock grazing as it relates to reduced prey may be a threat to the subspecies. However, we will further investigate the potential impacts of domestic livestock grazing in our status review for this subspecies.

Over-snow Vehicle (OSV) and Off-road Vehicle (ORV) Use—Information Provided in the Petition

The petition claims that OSV and ORV use have the potential to result in direct mortality to Sierra Nevada red fox through vehicle strikes (Center for Biological Diversity 2011, pp. 23–24). In addition, the petition asserts that noise and visual disturbance from the use of OSVs and ORVs in winter and spring disrupt mating and breeding behavior (Center for Biological Diversity 2011, pp. 23–24). The petition also claims that OSVs negatively impact the prey base of Sierra Nevada red fox by compacting subnivean (beneath the snow layer) spaces that small mammals use in the winter (Center for Biological Diversity 2011, p. 23).

Over-snow Vehicle (OSV) and Off-road Vehicle (ORV) Use—Evaluation of Information Provided in the Petition and Available in Service Files

Recreation areas for both OSVs and ORVs occur in the vicinity of known Sierra Nevada red fox populations in both the Lassen Peak and Sonora Pass areas (USDA Forest Service 2009, p. 510; 2011b, p. 29), and OSV and ORV use in these areas has the potential to interfere with reproduction and foraging behavior due to noise and visual disturbance (Center for Biological Diversity 2010, p. 23; USDA Forest Service 2009, p. 510; 2011b, p. 29). Additionally, according to the U.S. Department of Agriculture (USDA) Forest Service, the compaction of snow attributed to OSVs is likely to result in a decrease in subnivean species utilized as prey by the fox (USDA Forest Service 2011b, p. 29). While the response of Sierra Nevada red fox to OSVs and ORVs is largely undocumented, studies involving other mammalian species have

demonstrated noise disturbance attributed to OSVs and ORVs has resulted in elevated heart rates and glucocorticoid stress levels, increased energy expenditure, interference with reproduction and foraging behavior, and direct or indirect mortality (Baker and Buthmann 2005, pp. 15–16; Center for Biological Diversity 2011, pp. 23–24; Creel *et al*. 2002, pp. 811–812; Ouren *et al*. 2007, pp. 16, 19). Given that populations of the Sierra Nevada red fox overlap with OSV and ORV use areas, the negative responses of other mammal species to OSVs and ORVs, and the potential reduction in the fox's winter prey base, we find the petition presents substantial information that the petitioned action may be warranted due to OSV and ORV use.

Vulnerability of Small Isolated Populations—Information Provided in the Petition

The petition asserts that the small population size of Sierra Nevada red fox magnifies the potential for extinction of the subspecies due to the other threats impacting it (Center for Biological Diversity 2011, p. 33). The petition states that the population size of Sierra Nevada red fox in the vicinity of Lassen peak is believed to consist of fewer than 50 individuals, likely as few as 15 (Center for Biological Diversity 2011, p. 33). Inherent threats related to small population size include the chance of extinction due to stochastic (random, unpredictable) events (Center for Biological Diversity 2011, p. 33), such as genetic drift, demographic fluctuations related to mating and survival, environmental conditions, and local catastrophes (Lacey 1997, p. 329).

Vulnerability of Small Isolated Populations—Evaluation of Information Provided in the Petition and Available in Service Files

Perrine's (2005, pp. 1–195) radiotelemetry study that covered a portion of the Lassen Peak area was limited to a sample size of five individual Sierra Nevada red foxes, which likely represented the entire fox population within the 311.5-square-kilometer (120.3-square-mile) study area (Perrine 2005, p. 135). The recently detected Sierra Nevada red fox population in the Sonora Pass area includes only three confirmed individuals to date (CNDDB 2011, pp. 54–60); however, there are no current estimates of population size. Events (such as disease outbreaks, reproductive failure, or a combination of several events) could destroy a portion of either of the two populations or an entire population. The loss of individual Sierra Nevada red fox could further increase the risk of extirpation resulting from the genetic and demographic problems inherent to small populations (Lacey 1997, pp. 329, 331). Based on the information presented in the petition and our files indicating that few animals exist in only two populations, paired with the risk of catastrophic events (such as disease; see Factor C), we conclude that substantial information exists to indicate that Sierra Nevada red fox could be threatened by vulnerabilities of small populations.

Climate Change—Information Provided in the Petition

The petition claims that anthropogenic climate change poses a significant threat to Sierra Nevada red fox because it has already resulted in warmer and drier conditions in the Sierra Nevada and Cascade mountains (Center for Biological Diversity 2011, p. 34). The petition asserts that climate projections indicate that temperatures in the Sierra Nevada will continue to rise and there will be a decrease in snowpack (Center for Biological Diversity 2011, p. 37),

thereby magnifying the other threats to Sierra Nevada red fox.

Climate Change—Evaluation of Information Provided in the Petition and Available in Service Files

Climate change models conducted for the Sierra Nevada Ecoregion suggest that climate change may potentially have an impact on wildlife populations in the Sierra Nevada region due to changes in vegetation communities (PRBO Conservation Science 2011, p. 25). The petition presents information on projected climate change within the range of Sierra Nevada red fox, as well as speculation on the potential impact of climate change on the fox. However, the petitioner does not provide specific information regarding the impact of climate change on Sierra Nevada red fox populations. Therefore, the information presented by the petitioner and readily available in our files does not support the petitioner's claim that climate change poses a threat to Sierra Nevada red fox. However, we will further investigate the potential impacts of climate change in our status review for this subspecies.

Summary of Factor E

The petition states that Sierra Nevada red fox is threatened by domestic livestock grazing, competition, OSV or ORV use, the vulnerability of small isolated populations, and climate change. The information contained in the petition and in our files indicates that competition with the coyote may result in the direct mortality of Sierra Nevada red fox, limited availability of prey, and altered habitat use by Sierra Nevada red fox. OSV or ORV use may interfere with

essential behaviors, such as breeding and feeding, through disturbance and reduction in prey. Currently, the Sierra Nevada red fox is known from only two small isolated populations; therefore, small population size is a factor that may make the fox more vulnerable to other threats, such as competition, catastrophic events, or genetic or demographic problems. In summary, we find that the information presented in the petition and in our files presents substantial scientific or commercial information indicating the petitioned action may be warranted due to the threat of other natural or manmade factors affecting the subspecies' continued existence.

Finding

On the basis of our determination under section 4(b)(3)(A) of the Act, we determine that the petition presents substantial scientific or commercial information indicating that listing Sierra Nevada red fox throughout its range may be warranted. This finding is based on information provided under Factors C (disease or predation) and E (other natural or manmade factors affecting the subspecies' continued existence). Although information provided under Factors A (the present or threatened destruction, modification, or curtailment of its habitat or range), B (overutilization for commercial, recreational, scientific, or educational purposes), and D (inadequacy of existing regulatory mechanisms) does not support the petition's assertions, we will further consider information relating to these factors in the status review.

Because we have found that the petition presents substantial information indicating that listing Sierra Nevada red fox may be warranted, we are initiating a status review to determine

whether listing Sierra Nevada red fox under the Act is warranted.

The petition asserts that Sierra Nevada red fox occurs in two possible distinct population segments (DPS) and implies that, as a subspecies, Sierra Nevada red fox is also endangered or threatened throughout a significant portion of its range. We conclude that the petition presents substantial information that listing the entire subspecies may be warranted. Therefore, we have not specifically evaluated whether the petition provides substantial information with respect to the two potential DPSes outlined within the petition, or the extent to which Sierra Nevada red fox is endangered or threatened throughout a significant portion of its range. An analysis of these additional entities will occur during the status review if we determine that listing of the entire subspecies is not 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 species, 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 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 Sacramento Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

Authors

The primary authors of this notice are the staff members of the Sacramento Fish and Wildlife Office.

Authority

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

Date: December 21, 2011

Gregory E. Siekaniec

Acting Director, U.S. Fish and Wildlife Service

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