

U.S. Fish and Wildlife Service



Small Subset of Sierra Nevada Red Fox Warranted for ESA Listing: Service finds subspecies not in danger of extinction across its entire range *Questions and Answers*

The Sierra Nevada red fox is one of 10 subspecies of red fox in North America. It can be distinguished from other red fox subspecies based on morphology (form and structure), coloration, and habitat use.

The Sierra Nevada red fox is typically red, but can occur in black or silver phases. The subspecies is generally smaller than other red foxes in North America and has an elongated snout, large ears, slender legs and body, and a bushy tail with a white tip.



*Sierra Nevada Red Fox in Cross Phase
Photo Credit: USFS*

Q: What is the history of this issue?

A: In April, 2011, the U.S. Fish and Wildlife Service (Service) received a petition 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 Endangered Species Act (ESA). We were also petitioned to evaluate two portions of the subspecies' range as potential Distinct Population Segments (DPS): Southern Cascades (south of the Columbia River) and Sierra Nevada Mountains.

In January, 2012, the Service published a 90-day finding that the petition presented substantial information indicating that listing may be warranted and initiated a comprehensive status review of the subspecies.

We have now completed that review and find that the subspecies does not warrant listing range wide. In addition, we find that both the Southern Cascades and Sierra Nevada population segments of the Sierra Nevada red fox meet the Service's DPS policy criteria, but only the Sierra Nevada DPS of the Sierra Nevada red fox is warranted for listing.

Currently, however, listing the Sierra Nevada DPS is precluded by higher priority actions. We will add the Sierra Nevada DPS to our candidate species list and develop a proposed rule to list the Sierra Nevada DPS as our priorities allow.

Q. Where can the subspecies be found and how many are there left?

A: The Sierra Nevada red fox is capable of moving within large geographic areas. Prior to 2010, two small populations of under 40 adults were known to exist around Mt. Lassen Peak in the Southern Cascades and Sonora Pass (north of Yosemite National Park) in the Sierra Nevada.

Since that time the Sierra Nevada red fox’s range has been confirmed (via a combination of genetics and photographic evidence) to extend throughout the Southern Cascades into Oregon as far north as Mt. Hood (to include montane red fox formerly thought to be the Cascades subspecies), significantly extending the Sierra Nevada subspecies’ range beyond its historically known range in California.

The table below shows the current known sighting areas of Sierra Nevada red fox in Oregon and California.

Location ¹	State	County	Primary Land Owners ²	Estimated Population Size
Mt. Hood	OR	Clackamas and Hood River	Mt Hood National Forest	Unknown
Mt. Washington	OR	Linn, Jefferson, and Deschutes	Willamette and Deschutes National Forests	Unknown
Dutchman Flat	OR	Deschutes	Deschutes National Forest	Unknown
Willamette Pass	OR	Lane	Willamette National Forest	Unknown
Crater Lake	OR	Klamath and Douglas	Crater Lake National Park, Rogue River-Siskiyou National Forest, Fremont-Winema National Forest	Unknown
Lassen	CA	Lassen, Plumas, and Tehama	Lassen National Forest and Lassen Volcanic National Park	42 adults (21 breeding, 21 nonbreeding ³)
Sonora Pass	CA	Tuolumne, Mono, and Alpine	Toiyabe portion of the Humboldt-Toiyabe National Forest, Stanislaus National Forest, and Yosemite National Park	29 adults (14 breeding, 15 nonbreeding ⁴)

Q: What threats to the subspecies were considered in the Service’s analysis?

A: The activities evaluated that could pose a potential threat to the Sierra Nevada red fox included: wildfire and fire suppression; climate change; hunting and trapping; disease, to include Salmon Poisoning Disease, Elokomin Fluke Fever, and potentially mange, distemper, or rabies; competition and predation by coyotes, which could be exacerbated in the future by climate change impacts to habitat; predation by domestic dogs; hybridization with non-native red fox; vehicles; and small population size and isolation,

specifically for the Lassen and Sonora Pass sighting areas. We also evaluated the potential impacts associated with logging/vegetation management and grazing.

Q: What was the U.S. Fish and Wildlife Service’s determination regarding the threats to the Sierra Nevada red fox across its entire range?

A: The best available data does not suggest that the cumulative effects, including predation from increased coyote numbers and snowpack shifts from climate change, rise to the level of a threat to the Sierra Nevada red fox range wide.

Potential impacts from hunting and trapping, diseases, and vehicles are negligible or nonexistent, and increases in non-native red foxes or coyotes are not likely to result in population-level or range wide impacts, nor would they significantly contribute to cumulative effects to the Sierra Nevada red fox.

Impacts associated with logging/vegetation management and grazing were found to result in a negligible or no impacts, overall, across the subspecies range.

While there are no reports of direct mortality to Sierra Nevada red foxes from wildfires, wildfires can improve habitat for red foxes by removing competing vegetation and encouraging production of grasses and shrubs favored by small mammals which the subspecies depends upon for food. Additionally, fire is not considered a large threat, as the subspecies is known to spend significant time in snow-packed areas and above the tree line.

Although the Sierra Nevada red fox is not experiencing range wide threats, a small distinct population segment in the Sierra Nevadas (Sierra Nevada DPS), faces significant threats and warrants listing under the ESA. Those significant threats include hybridization with nonnative red fox and negative effects associated with small population size, including reduced genetic diversity, inbreeding, and reproduction deficiency.

Q. Why did the Service determine that portions of the Sierra Nevada red fox’s range qualify as Distinct Population Segments (DPS)?

A. To qualify as a DPS under the ESA, a species population must be shown to be both markedly separated from other populations of the same species (discrete) and have markedly different genetic characteristics important to the survival of the rest of the species (significant). Both discreteness and significance are listing factors that can be met in several different ways.

The Southern Cascades and the Sierra Nevada populations are separated from the rest of the subspecies found in Oregon by great distances and are genetically distinct from each other. The distance separating the two areas is approximately 93 miles, which is greater than the dispersal distance known from one study of red fox in the Midwest. Additionally, genetic research shows that the populations are genetically distinct from

each other. The best available data currently indicate that this distinction shows the two populations are not coming into contact or interbreeding.

Q: What was the determination regarding the threats to the Southern Cascades DPS and Sierra Nevada DPS?

A. The Southern Cascades DPS threats are not of sufficient imminence, intensity, or magnitude to indicate that it is in danger of extinction now (endangered), or likely to become endangered within the foreseeable future (threatened), throughout all of its range. Therefore, we find that listing the Southern Cascades DPS under the Act is not warranted at this time.

The Sierra Nevada DPS, however is facing significant threats both currently and into the future, including hybridization with nonnative red fox and the negative effects of reduced genetic diversity, inbreeding, and reproduction deficiency. Therefore, we find that listing the Sierra Nevada DPS of Sierra Nevada red fox as an endangered or threatened species under the Act is warranted-but-precluded at this time.

Q. What does a warranted but precluded finding mean?

A. A warranted but precluded finding, as in the case of the Sierra Nevada red fox, means that the species is facing significant threats and warrants ESA protections but that the Service does not have the resources to list it at this time. It will be added to a list of candidate species.

Candidate species are plants and animals for which the Service has sufficient information on their biological status and threats to propose them for listing as endangered or threatened under the ESA, but for which development of a proposed listing regulation is precluded by higher priority listing actions to address species in greater need. Candidate species receive no statutory protection under the ESA. The Service encourages voluntary cooperative conservation efforts for these species because they are, by definition, species that warrant future protection under the ESA.

Q. What federal and state protections does the subspecies currently have?

A. Since 1980, the Sierra Nevada red fox has been listed as a threatened species under the California Endangered Species Act. California classifies red foxes as a furbearing mammal that is protected from commercial harvest and provides protection to Sierra Nevada red foxes in the form of fines between \$300 and \$2,000, and up to a year in jail for illegal trapping.

Additionally, Forest Service and National Park Service lands, which encompass all known Sierra Nevada red fox observations, are already being managed in ways that benefit the subspecies. Below are some of the regulations governing Federal lands that benefit the subspecies:

- The Northwest Forest Plan, which guides the management of over 24 million

acres of Forest Service lands, is important for the Sierra Nevada red fox because it creates a network of late-successional and old-growth forests that help meet the subspecies' habitat needs.

- The Omnibus Public Land Management Act of 2009 establishes the Bridgeport Winter Recreation Area for control of winter vehicles on Forest Service land, consisting of about 7,000 acres in the northern part of the Sonora Pass sighting area. The Forest Service's management plan calls for monitoring of impacts to wildlife, including the Sierra Nevada red fox.
- National Park Service Organic Act of 1916 and the National Park Service General Authorities Act help ensure natural resources are managed to "preserve fundamental physical and biological processes, as well as individual species, features, and plant and animal communities." Additionally, hunting and trapping are prohibited at Crater Lake, Lassen Volcanic, and Yosemite national parks where Sierra Nevada red foxes are found.

Q. What conservation actions are currently underway to learn more about and improve the subspecies chances of survival?

A. Because the Sierra Nevada red fox has only been documented to date to occur on Forest Service and National Park Service lands in California and Oregon, primary conservation actions currently fall to those land management agencies, as well as the States. Various conservation and management efforts have been occurring since approximately 1974, including:

- Significant subspecies-specific protections in California from hunting and trapping as a California-stated listed species in 1980;
- Minimized impacts from various stressors by the Forest Service as a result of its sensitive species designation in California (since 1998) and Oregon (since 2015), and;
- National Park Service protections at the Crater Lake, Lassen, and Sonora Pass sighting areas associated with their requirement to "preserve fundamental physical and biological processes, as well as individual species, features, and plant and animal communities."

All beneficial conservation or management actions are described in the Species Report and Federal Register Notice.

Q. Where can I find more information about the Sierra Nevada red fox and the 90-Day Finding?

A. Visit www.fws.gov/sacramento to download a copy of the 12-month Finding, the Species Report it was based on, the news release and FAQs.

Q. What happens next?

A. We will add the Sierra Nevada DPS of the Sierra Nevada red fox DPS to our candidate

species list and develop a proposed rule to list the Sierra Nevada DPS as our priorities allow. We will make a determination on the status of the Sierra Nevada DPS as endangered or threatened when we do a proposed listing determination.

In the meantime, we will continue to evaluate this DPS as new information becomes available. Continuing review will determine if a change in status is warranted, including the need to make prompt use of emergency listing procedures. Any new information that becomes available will help monitor the Sierra Nevada red fox and encourage its conservation.