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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R8–ES–2014–0041]

[4500030113]

RIN 1018–BA05

Endangered and Threatened Wildlife and Plants; Withdrawal of the Proposed Rule To List the West Coast Distinct Population Segment of Fisher

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule; withdrawal.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), withdraw the proposed rule to list the West Coast Distinct Population Segment of fisher (*Pekania pennanti*), a mustelid species from California, Oregon, and Washington, as a threatened species under the Endangered Species Act of 1973, as amended (Act). This withdrawal is based on our evaluation of the best scientific and commercial information available. Our evaluation took into consideration an extensive amount of information and comments regarding the proposed West Coast DPS of fisher received during multiple comment periods. Our evaluation of all this information leads us to conclude that the stressors acting upon the proposed West Coast DPS of fisher are not of sufficient imminence, intensity, or magnitude to indicate that they are singly or cumulatively resulting in significant impacts at either the population or rangewide scales. We find the best scientific and commercial data available indicate that the proposed West Coast DPS of fisher does not meet the

statutory definition of an endangered or threatened species because the stressors potentially impacting the proposed DPS and its habitat are not of sufficient magnitude, scope, or imminence to indicate that the DPS is in danger of extinction, or likely to become so within the foreseeable future. Consequently, we are withdrawing our proposal to list the West Coast DPS of fisher as a threatened species.

ADDRESSES: The withdrawal of our proposed rule, comments, and supplementary documents are available on the Internet at *http://www.regulations.gov* at Docket No. FWS–R8–ES–2014–0041. Comments and materials received, as well as supporting documentation used in the preparation of this withdrawal, are also available for public inspection, by appointment, during normal business hours at: U.S. Fish and Wildlife Service, Yreka Fish and Wildlife Office, 1829 South Oregon Street, Yreka, CA 96097; telephone 530–842–5763; or facsimile 530–842–4517.

DATES: The October 7, 2014, proposed rule (79 FR 60419) to list the West Coast DPS of fisher as a threatened species is withdrawn as of (INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER).

FOR FURTHER INFORMATION CONTACT: Jenny Ericson, Deputy Field Supervisor, Yreka Fish and Wildlife Office (see **ADDRESSES**). If you use a telecommunications device for the deaf (TDD), call the Federal Information Relay Service (FIRS) at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Executive Summary

Why we need to publish this document. Under the Endangered Species Act, a species may warrant protection through listing if it is endangered or threatened

throughout all or a significant portion of its range. Listing a species as an endangered or threatened species can only be completed by issuing a rule. We issued a proposed rule to list a distinct population segment (DPS) of fisher in California, Oregon, and Washington (identified herein as the "proposed West Coast DPS of fisher," "proposed DPS," or "fishers in the west coast States") in 2014. This document withdraws that proposed rule because we now determine that the threats identified in the proposed rule are not as significant as previously thought based on our evaluation of the best scientific and commercial information available at this time. Our evaluation took into consideration an extensive amount of information and comments submitted during the two public comment periods regarding the proposed West Coast DPS of fisher. At this time, we do not find any indication that fishers or their habitat in the west coast States are responding negatively to the stressors to which they are exposed to a significant degree at either the population or rangewide scales, nor are they likely to do so in the foreseeable future. The best available scientific and commercial data lead us to conclude that the proposed West Coast DPS of fishers is not in danger of extinction now or in the foreseeable future. Therefore, we cannot conclude that the proposed DPS meets the definition of an endangered or threatened species under the Act, and we are withdrawing the proposed rule.

The basis for our action. Under the Endangered Species Act, we can determine that a species is an endangered or threatened species based on any of five factors: (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. We now determine that although stressors to one or more populations of fishers in the west coast States exist, they are not causing significant impacts at either the population or rangewide scales that would indicate that the magnitude, imminence, or severity of these threats are such that the proposed West Coast fisher DPS is in danger of extinction, or likely to become so within the foreseeable future.

Peer review and public comment. We sought comments from independent specialists to ensure that our consideration of the status of the species is based on scientifically sound data, assumptions, and analyses. We invited these peer reviewers to comment on our listing proposal and our draft Species Report. We also considered all comments and information received during the comment periods. Public comments and peer reviewer comments are addressed at the end of this **Federal Register** document.

Acronyms and Abbreviations Used in This Document

We use many acronyms and abbreviations throughout this document. To assist the reader, we provide a list of these here for easy reference:

Act = Endangered Species Act of 1973, as amended

AR = anticoagulant rodenticides

BLM = Bureau of Land Management

CAL FIRE = California Department of Forestry and Fire Protection

CCAA = Candidate Conservation Agreement with Assurances

CDFG = California Department of Fish and Game (see below)

CDFW = California Department of Fish and Wildlife (formerly CDFG)

CEQA = California Environmental Quality Act

CESA = California Endangered Species Act

CFR = Code of Federal Regulations

DPS = Distinct Population Segment

EIS = Environmental Impact Statement

EPA = U.S. Environmental Protection Agency

ESU = evolutionarily significant unit

FIFRA = Federal Insecticide, Fungicide, and Rodenticide Act

FPA = Forest Practices Act

FPR = Forest Practice Rules

FR = Federal Register

GNN = gradient nearest neighbor data/maps

KFRA = Klamath Falls Resource Area

LRMP = Land Resource Management Plan

LSR = late-successional and old-growth forest reserve (under the NWFP)

MDL = Multi-District Litigation

MOU = Memorandum of Understanding

MTBS = Monitoring Trends in Burn Severity (mapping data)

NCSO = northern California–southern Oregon native population of fishers

NEPA = National Environmental Policy Act

NFMA = National Forest Management Act

NSN = northern Sierra Nevada reintroduced population of fishers

NWFP = Northwest Forest Plan

OAR = Oregon Administrative Rules

ODF = Oregon Department of Forestry

ODFW = Oregon Department of Fish and Wildlife

OGSI–80 = old-growth structural index of 80 or more, per Davis *et al.* (20XX, entire)

ONP = Olympic Peninsula reintroduced population of fishers (Olympic National Park)

RCW = the Forest Practices Act, Revised Code of Washington

RMP = Resource Management Plan

Service = U.S. Fish and Wildlife Service

SNFPA = Sierra Nevada Forest Plan Amendment

SOC = southern Oregon Cascades (Crater Lake) reintroduced population of fishers

SPI = Sierra Pacific Industries

SPR = Significant Portion of its [species] Range

SSN = southern Sierra Nevada native population of fishers

THP = timber harvest plan

USDA = U.S. Department of Agriculture

USDI = U.S. Department of the Interior

WDFW = Washington Department of Fish and Wildlife

WDNR = Washington Department of Natural Resources

Previous Federal Actions

Please refer to the proposed listing rule for the West Coast DPS (79 FR 60419; October 7, 2014) of fisher for a detailed description of the Federal actions concerning this proposed DPS that occurred prior to publication of the proposed listing rule. The proposed listing rule established a 90-day comment period, during which we held one public hearing and seven public information meetings. We received requests to extend

this comment period on the proposed rule beyond the January 5, 2015, due date. In order to ensure that the public had an adequate opportunity to review and comment on the proposed rule, we extended the comment period for an additional 30 days to February 4, 2015 (79 FR 76950; December 23, 2014).

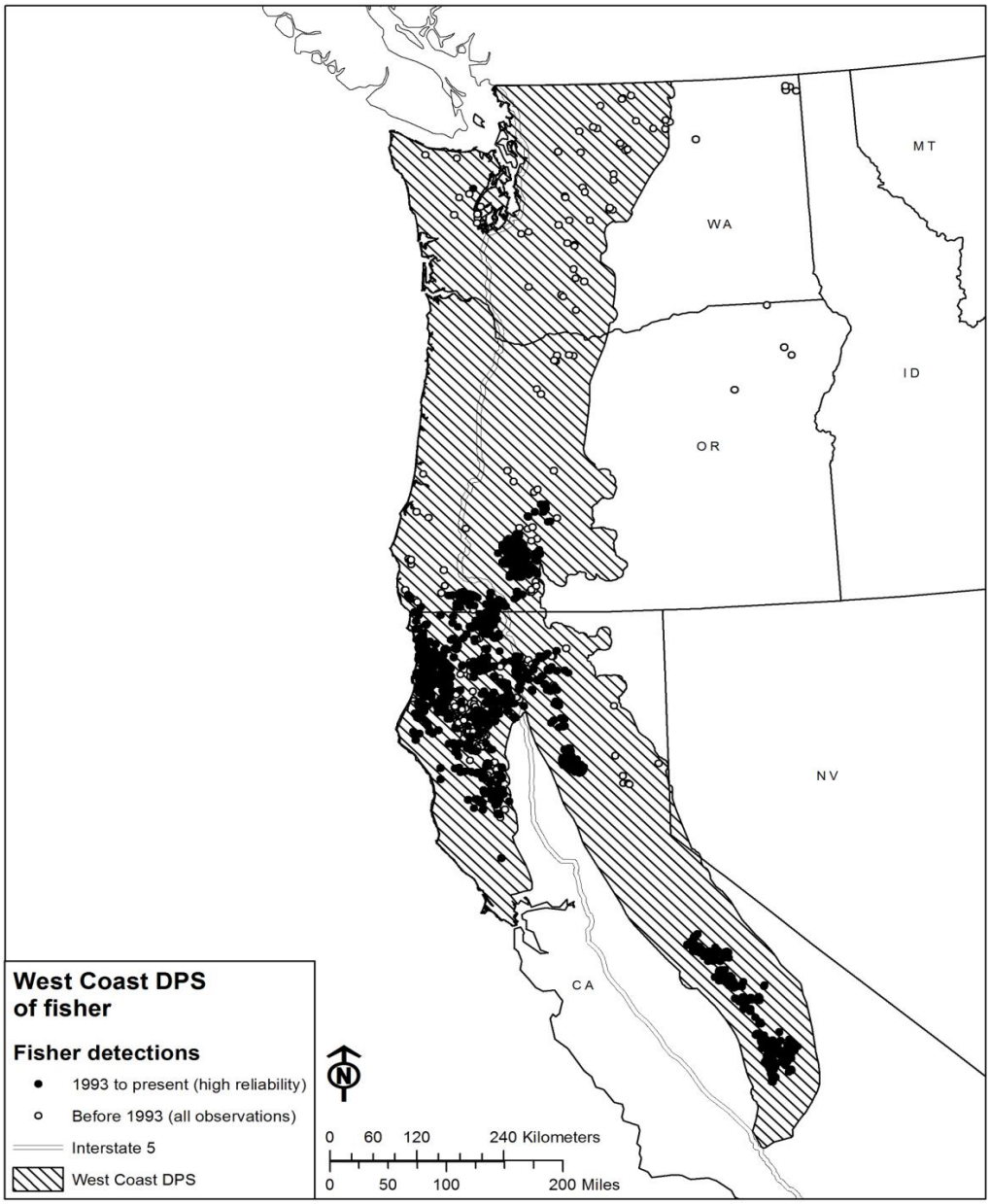
On April 14, 2015, we reopened the comment period on our October 7, 2014, proposed rule to list the West Coast DPS of fisher for another 30 days (80 FR 19953). We also announced a 6-month extension of the final listing determination for the proposed West Coast DPS of fisher as a threatened species to acquire new information and comments regarding toxicants and rodenticides and survey information in order to help assess distribution and population trends, due to disagreement regarding the sufficiency or accuracy of the available data related to those issues. The comment period was reopened until May 14, 2015, and we announced that we would publish a listing determination on or before April 7, 2016.

Background

In our October 7, 2014, proposed rule (79 FR 60419), we proposed to list the West Coast DPS of fisher; this DPS included both extant populations of fisher and much of the fisher's historical range from the southern Sierra Nevada of California north through the States of Oregon and Washington. In that proposed rule, we also presented two possible alternative DPS configurations for consideration and comment, and solicited additional possible DPS alternatives from both peer reviewers and the public. Although this presentation of alternative DPS delineations is unusual, it reflects, in part, the high level of uncertainty and wide range of opinions within the Service regarding the appropriate status of the DPS. In our proposed rule, we specifically referenced the

complexity of the issues under review in our request for public comment, and throughout the document we noted the tremendous regional variability in the degree to which stressors may be affecting fishers or their habitat. Following thorough consideration of all information available to us, our decision is that the original DPS configuration as presented in the proposed listing rule is most appropriate to serve as the focus of our analysis here (see Figure 1). Thus throughout this document, when we refer to the "analysis area," we are referring to the area within that DPS boundary.

Figure 1—West Coast DPS of fisher[1] (historical range and boundary as outlined in the 2004 finding and 2014 proposed listing rule).



1 – This figure has not been updated from the 2014 proposed listing rule. We received many new fisher detection data, and this information is currently being reviewed for redundancy against the survey records we had obtained previously. This new information does not include new locations beyond the current population boundaries with the exception of detections in the southern Oregon Cascades and the southern Cascades of California. We are currently reviewing information for redundancy and will make an updated map available when we have completed this quality control process.

Although much of the proposed West Coast DPS of fisher is a genetically unique (i.e., native NCSO and SSN populations, and reintroduced NSN population) and markedly separate population segment from the rest of the fisher's range in North America, fishers in the west coast States have similar life-history and habitat requirements across their entire range. In the proposed rule and this document, we use information specific to fishers in the west coast States where available. Where fisher-specific data and studies from the west coast States were not available, we used information from fisher studies from elsewhere in North America. This approach follows the scientific management principles and practices followed by the wildlife and land management agencies that have responsibility for management of both fishers and their habitat within the west coast States.

A detailed discussion of the proposed West Coast DPS of fisher's description, taxonomy, habitat, life-history characteristics (e.g., reproduction), habitat description, habitat use (e.g., dispersal and food habits), and distribution and abundance is available in the final Species Report (Service 2016, entire), prepared by a team of Service biologists. The team included biologists from the Service's Yreka, Sacramento, Arcata, and Klamath Falls Fish and Wildlife Offices within the Pacific Southwest Region, the Western Washington and Oregon Fish and Wildlife Offices within the Pacific Region, staff from both the Pacific Southwest and Pacific Regions of the Fish and Wildlife Service, and staff from our national Headquarters Office. The final Species Report (Service 2016, entire) represents a compilation of the best scientific and commercial data available concerning the biological status of the proposed West Coast DPS of fisher, including present and potential future stressors to fishers in this DPS.

We consider a stressor to be any activity or process that may have some negative effect on fishers or their habitat—for example, timber harvest activities or wildfire that results in the removal of denning structures required by fishers for successful reproduction, or mortality of individuals from vehicle collisions, disease, or predation. Stressors are primarily related to human activities, but can be natural events and act on fishers at various scales and intensities throughout the analysis area. All species experience stressors; however, we consider a stressor to rise to the level of a threat to the species (or in this case the proposed West Coast DPS of fishers) if the magnitude of the stressor is such that it is resulting in significant impacts at either the population or rangewide scales to fishers or their habitat. As described in our proposed rule (79 FR 60419, p. 60427), in considering what stressors might constitute threats, we must look beyond the mere exposure of the DPS to the stressor to determine whether the DPS responds to the stressor in a way that causes actual negative impacts to the DPS. In our draft Species Report, we attempted to evaluate the magnitude of the effects of identified stressors to the proposed West Coast DPS of fisher and its habitat by quantifying the severity and scope of those stressors. That analysis required us to make assumptions or extrapolate impacts in an effort to quantify stressors in areas where stressor-specific information was not available. Our presentation of the scope and severity of stressors in quantitative terms may have created a false sense of precision with regard to the level of scientific accuracy underlying these estimates. To avoid this perception, in our final Species Report we use a qualitative approach to describe stressors (i.e., stressors are categorized as low, moderate, or high, as defined in that Report). We use quantitative data wherever available, but if specific data are lacking, we rely on

qualitative evidence to derive a qualitative descriptor of each stressor, based on the best scientific and commercial information available, rather than extrapolating. The quantitative measures from the draft Species Report are preserved and provided in Appendix C in the final Species Report. A key point for our determination regarding the proposed West Coast DPS of fisher, however, is that our ultimate conclusion regarding the status of the DPS remains the same regardless of whether we consider the stressors to the DPS in quantitative or qualitative form: Fishers within the west coast States have been exposed to multiple stressors, in some cases over many decades, and per surveys over the past decade or more, the best available data do not indicate significant impacts at either the population or rangewide scales. In other words, stressors may be impacting some individual fishers or habitat in one or more populations, but the best available information does not show that the stressors are functioning as operative threats on the fisher's habitat, populations, or the proposed DPS as a whole to the degree we considered to be the case at the time of the proposed listing. Thus, we no longer find that the stressors are functioning as operative threats on the proposed DPS to the extent that listing is warranted (see *Summary of Basis For This Withdrawal*, below).

The final Species Report and other materials relating to this final agency action can be found at *http://www.regulations.gov* under Docket No. FWS–R8–ES–2014–0041. [Note: In the draft Species Report and the proposed listing rule we identified "threats" to the proposed DPS. However, in this withdrawal and based on our evaluation of the best scientific and commercial information available, as described above, we now refer to the threats identified in the proposed rule as "stressors," because the best available data do

not indicate significant impacts across the proposed DPS at either the population or rangewide scales, as described above].

Summary of Basis For This Withdrawal

At the time of our October 7, 2014, proposed rule, we had concluded that fishers are still absent from much of their historical range (the two original extant populations have not expanded), threats at the time of the 2004 finding are still in place, and some threats since the time of the 2004 Finding have increased or are new. We additionally concluded that it is too early to determine if the reintroduced populations will persist (79 FR 60419, p. 60436). Threats identified in the 2014 proposed rule included habitat loss from wildfire and vegetation management, toxicants, and the cumulative impact and synergistic effects of these and other stressors in small populations.

We have reviewed and considered the best scientific and commercial data available to us, including public comments, Federal and State agency comments, peer review comments, issues articulated at the public hearing and public meetings, and all new information brought to our attention during the public comment periods, relevant to the conservation status of the proposed West Coast DPS of fisher. There was a significant amount of varied scientific, Service, other agency, and public opinion regarding the status of fisher both prior to, and following, the October 7, 2014 (79 FR 60419), proposed listing of the West Coast DPS of fisher. The equivocal nature of the information regarding potential threats and status of the proposed West Coast DPS of fisher at the time of our proposed rule led us to ask the public for input on many questions we posed in the proposed listing rule to help us better understand the degree of threats faced by the proposed DPS and its status. By reconsidering the information

available to us prior to the proposed listing as well as all new information received after the proposed rule was published, we have considered all best scientific and commercial information available at this time.

Upon careful consideration and evaluation of all of the information before us, we have arrived at a different conclusion regarding the status of the proposed West Coast DPS of fishers. In our proposed determination, we identified stressors that could impact the fishers in the west coast States negatively and identified some of those stressors (wildfire and fire suppression, vegetation management, and small population size and isolation) as threats. We also identified exposure to toxicants (specifically ARs) and cumulative effects from multiple stressors as threats, although there were uncertainties at that time. We applied the standards we had laid out in our proposed rule: "This determination 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 stressors that could impact a species negatively is not sufficient to compel a finding that listing is appropriate; we require evidence that these stressors are operative threats that act on the species to the point that the species meets the definition of an endangered or threatened species under the Act." (October 7, 2014; 79 FR 60419, p. 60427).

We now conclude that the threats we identified are not of such imminence, intensity, or magnitude that they are manifesting in terms of significant impacts at either the population or rangewide scales. Further, we conclude that in the foreseeable future it is likely that fishers in the west coast States will continue to maintain their populations in the face of these stressors just as they have demonstrated the capacity to do so in recent

times. We relied on an evaluation of the foreseeability of those stressors and the foreseeability of the effect of the stressors on the proposed DPS, extending this time period out only so far as we can rely on the data to formulate reliable predictions about the status of the proposed DPS, and not extending so far as to venture into the realm of speculation. In this case, many of the stressors fell into a foreseeable future timeframe within which we concluded the effects of stressors on the proposed DPS could be reliably projected out over a time period of approximately 40 years.

Therefore, we conclude that the stressors acting on the proposed West Coast DPS are not so great that fishers in the DPS are currently in danger of extinction (endangered), or likely to become so within the foreseeable future (threatened). We acknowledge that fishers no longer occur in areas of their historical range in Washington, Oregon, and California, and fishers in the west coast States are not actively expanding their occupied range. However, to meet the statutory standard for listing, we must determine that the proposed DPS is currently in danger of extinction throughout all or a significant portion of its range, or is likely to become so within the foreseeable future. Our evaluation of all of the best scientific and commercial data available does not allow us to draw this conclusion at this time. As we cannot conclude that the proposed West Coast DPS of fisher meets the definition of an endangered or threatened species under the Act, we must withdraw our proposed rule. Our complete rationale for withdrawing our proposal is outlined in the **Summary of Factors Affecting the Species** and **Determination** sections of this document.

Species Information

A thorough review of the taxonomy, life history, and ecology of the fishers in the west coast States is presented in the final Species Report (Service 2016, entire; Docket No. FWS–R8–ES–2014–0041). The fisher is a medium-sized, light-brown to dark blackish-brown mammal, with the face, neck, and shoulders sometimes being slightly gray; the chest and underside often has irregular white patches. The fisher is classified in the order Carnivora, family Mustelidae, a family that also includes weasels, mink, martens, and otters (Service 2016, p. 8). The occurrence of fishers at regional scales is consistently associated with low- to mid-elevation coniferous and mixed conifer and hardwood forests with characteristics of late-successional forests (large-diameter trees, coarse downed wood, and singular features of large snags, tree cavities, or deformed trees). Historically, fishers were well-distributed throughout the analysis area in the habitats described above. In Washington and Oregon, outside of the existing known reintroduced populations, fishers are considered likely extirpated (although on occasion individual fishers may be detected; specific to the Oregon Cascades, ODFW commented that the absence of fishers cannot be determined without dedicated surveys following a peer-reviewed protocol, and it is possible that fishers occur at low population levels). In California, recent survey efforts have not detected fishers in the northern Sierra Nevada, outside of the reintroduced population. Key fisher habitat includes forests with diverse successional stages containing a high proportion of mid- and late-successional characteristics. Throughout their range, fishers are obligate users of tree or snag cavities for denning, and they select resting sites with characteristics of late-successional forests. Late-successional forest characteristics are maintained and recruited in the forest through

ecological processes such as fire, insect-related tree mortality, disease, and decay (e.g., Service 2016, pp. 64, 123–124).

Fishers are found only in North America. Fishers on the west coast are found in British Columbia, Washington, Oregon, and California. The proposed West Coast DPS of fishers encompasses the area where fishers historically occurred throughout western Washington, western Oregon, and California to the Sierra Nevada (Service 2016, pp. 25–29). Currently, the fishers in the west coast States include two original native fisher populations (Northern California–Southwestern Oregon Population (NCSO) and the Southern Sierra Nevada Population (SSN)). There are three reintroduced populations—Olympic Peninsula Reintroduced Population (ONP) in Washington, Southern Oregon Cascades (SOC) Reintroduced Population in Oregon, and the Northern Sierra Nevada Reintroduced Population (NSN) in California. Based on survey data and genetic information submitted during the two public comment periods, the SOC and NSN reintroduced populations are now considered to be within the boundary of the NCSO population area (Service 2016, pp. 38–41). An additional reintroduction site in the South Washington Cascades was established in December 2015. Following are brief accounts of the populations and the new reintroduction site in the South Washington Cascades. Primary stressors and conservation activities are introduced in these summaries and described in more detail in the **Summary of Factors Affecting the Species** section below, and fully evaluated and described in the "Review of Stressors" section of the final Species Report (Service 2016, pp. 53–162). Conservation efforts resulting from the plans and strategies being implemented within each of the population areas are described in detail in the final Species Report in either the "Conservation measures to reduce the

stressors related to habitat or range of the species" section (Service 2016, pp. 115–122), or, when applicable, within specific stressor discussions of the final Species Report.

Here we describe (from north to south) the known native and reintroduced populations of fisher within the west coast States, as well as one recent reintroduction:

(1) Reintroduced Population—Olympic Peninsula (ONP)

The Washington Department of Fish and Wildlife (WDFW), in cooperation with Olympic National Park, United States Geological Survey, and others, began to reintroduce fishers onto Park Service lands on the Olympic Peninsula in Washington in January 2008 (Lewis and Happe 2008, p. 7). These reintroductions were complete at the end of 2010 with a total of 90 fishers (40 males and 50 females) relocated from British Columbia to Olympic National Park (Lewis *et al.* 2011, p. 4). WDFW monitored translocated fishers for several years with radio-telemetry and were able to evaluate post-release survival, home-range establishment, reproduction, and resource selection of founding individuals. Initial findings indicate that survival was highly variable among release years (Lewis *et al.* 2012, pp. 5–8), but project researchers confirmed reproduction seven times from 2009 to 2011 (Lewis *et al.* 2012, pp. 9–10). A second monitoring phase consisting of noninvasive surveys of fisher distribution and relative abundance started during summer 2013, which was designed to determine whether a self-sustaining population of fishers has been established in the Olympic Peninsula. In 2013 and 2014 the monitoring team detected fishers in 14 of the 132 areas sampled, including 6 of the founding fishers and 7 new recruits to the population (Happe *et al.* 2014; Happe *et al.* 2015). Sixteen fishers were also detected with non-project cameras, trapping, and as carcasses (Happe *et al.* 2014; Happe *et al.* 2015). Monitoring of fishers on the Olympic

Peninsula will continue for a number of years to determine both the extent of their distribution and success in establishing a population. Current indications (wide distribution and documentation of reproduction) are encouraging, but the success of this reintroduced Olympic Peninsula population will not be known for several years.

The Olympic Peninsula population is not physically or demographically connected to any other populations of fishers. Population size and trend information are not known at this time. The most significant stressors on this reintroduced population are predation and collisions with vehicles. Conservation efforts being implemented for this population are associated with the State of Washington Fisher Recovery Plan (Hayes and Lewis 2006), which is focused on reintroduction efforts, and NPS management in accordance with the Organic Act of 1916, as amended (54 U.S.C. 100100) and the National Park Service General Authorities Act of 1970 (54 U.S.C. 100101(b)) (see ***Existing Regulatory Mechanisms***, below). In addition, in January 2016, the Service received an application for a Section 10(a)(1)(A) Enhancement of Survival Permit from the WDFW to implement a draft Candidate Conservation Agreement with Assurances (CCAA) for fisher. The Service announced the availability of the draft CCAA and EA, and a 30-day open comment period on February 29, 2016 (81 FR 10269). If the Enhancement of Survival Permit is issued, WDFW would hold the permit and be responsible for enrolling non-Federal Washington landowners in the CCAA and issuing certificates of inclusion; see the final Species Report for further details (Service 2016, p. 118).

(2) New Reintroduction Site—South Washington Cascades

The WDFW began a fisher reintroduction project in the South Cascades of Washington State on December 3, 2015. Between December 3, 2015, and February 10, 2016, project employees released 23 fishers from the Cispus Learning Center along the Cispus River, just south of Mount Rainier National Park. This project is the second phase of WDFW's efforts to recover fishers in Washington according to the Washington State Recovery Plan for the Fisher (Hayes and Lewis 2006). The reintroduction plan (Lewis 2013) calls for a total of 160 fishers to be released into the Cascade Mountains at a rate of 40 per year for 4 years (2 years in the South Cascades, 2 years in the North Cascades). The source population for the fishers (British Columbia) is the same as for the Olympic National Park reintroduction. The Washington fisher recovery plan has the goal of establishing multiple self-sustaining populations of fishers in Washington (Hayes and Lewis 2006). We are not referring to this group of fisher individuals in the South Cascades as a population at this time because they have not yet had the opportunity to successfully reproduce. These animals are not physically or demographically connected to any other populations of fishers. At this time, we do not have any direct evidence of stressors affecting these newly reintroduced fishers, although it is likely that the most significant stressors will be predation and collisions with vehicles, and potentially wildfire on the east side of the Cascade crest. HCPs and the NWFP are being implemented within the vicinity of this reintroduction site, thus providing general conservation benefits for these fishers and their habitat (see "Conservation measures to reduce stressors related to habitat or range of the species" in the final Species Report (Service 2016, pp. 115–122). In addition, all reintroduced fishers in the State of

Washington would benefit from the implementation of the CCAA under development, as described above, if finalized.

(3) Northern California–Southwestern Oregon (NCSO), which includes the original native fisher population and the Southern Oregon Cascades (SOC) and Northern Sierra Nevada (NSN) Reintroduced Populations

Fishers in the SOC portion of the NCSO population stem from a translocation of 24 fishers from British Columbia and Minnesota to the area west of Crater Lake between 1977 and 1981 (Aubry and Lewis 2003, p. 84). Based on survey and research efforts starting in 1995 genetic evidence shows these fishers continue to persist (Drew *et al.* 2003, p. 57; Aubry *et al*. 2004, pp. 211–215; Wisely *et al*. 2004, p. 646; Pilgrim and Schwartz 2014–2015, entire). Little survey work has occurred north of this population, although a radio-collared juvenile male dispersed 34 mi (55 km) northeast of this population to the Big Marsh area on the Deschutes National Forest (Aubry and Raley 2006, p. 5). West of Big Marsh, over the Cascade crest, the first verifiable contemporary detection of a fisher on the Willamette National Forest occurred in 2014 (Wolfer 2014, pers. comm.); however, genetic evidence was not obtained to determine whether or not this individual was from fishers reintroduced from British Columbia and Minnesota.

Information is not available on population size for the SOC portion of NCSO population. Recent detections of fisher in areas where they were not previously recorded (e.g., north and eastern portions of Crater Lake National Park and portions of the Lakeview and Medford BLM study area) may or may not represent an expansion of this population. However, based on the current survey efforts along with multiple unsolicited sightings of fishers in the past few years on the Lakeview District BLM Klamath Falls

Resource Area (KFRA) where fishers were previously not detected (based on protocol surveys conducted from 1998 to 2001), fishers are now being detected in the KFRA (Hayner 2016, pers. comm.).

Fishers in the NSN portion of the NCSO population stem from a 2009 to 2012 translocation of 40 fishers from Humboldt, Siskiyou, and Trinity counties, California, to the SPI Stirling Management Unit in Butte, Plumas, and Tehama counties, California. Ongoing monitoring of fishers that were reintroduced have confirmed that fishers born onsite have established home ranges and have successfully reproduced. Trapping efforts in the fall of 2015 as part of ongoing monitoring of the reintroduced population indicate a minimum of 49 fishers (34 females, 15 males), 9 more individuals than were originally introduced.

Population size estimates for the approximately 17,375 mi^2 (45,000 km^2) NCSO population (excluding the SOC and NSN reintroduced populations) using various methodologies range from a low of 258–2,850 individuals, based on genetic data (Tucker *et al.* 2012, pp. 7, 9–10), to a high of 4,018 individuals based on extrapolation of data from two small study areas within the NCSO population to the entire NCSO population (Self *et al.* 2008, pp. 3–5). A recent 2015 estimate of 632–1,165 fishers was based on data collected by CDFW as part of a meso-carnivore monitoring program in northern California (Furnas *et al*. 2015, pers. comm.). It is important to note that the sampling area for the CDFW study excluded southwest Oregon and the coastal redwood of California; thus, this estimate is not representative of the entire area within the NCSO population.

Population trend information for the NCSO population is based on two long-term studies. The NCSO population includes the area in both the SOC and NSN reintroduced fisher populations.

(1) The Hoopa study area is approximately 145 mi^2 (370 km^2) in size and represents the more mesic portion of the NCSO population area. Fisher studies have been ongoing since 1996. The population trend from 2005–2012 indicates a lambda (population growth rate) of 0.992 (C.I. 0.883–1.100) with a higher lambda rate for females 1.038 (0.881–1.196) than males 0.912 (0.777–1.047) (Higley *et al.* 2014, p. 102, Higley 2015, pers. comm.). Demographic parameters are showing a decrease in annual male fisher survival. A lambda of approximately 1.0 indicates a stable overall population trend.

(2) The Eastern Klamath Study Area (EKSA) is approximately 200 mi^2 (510 km^2) in size and represents the more xeric portion of the NCSO population area. Monitoring has been conducted since 2006. Estimates for lambda from 2006–2013 are 1.06 (C.I. 0.97–1.15) (Powell *et al.* 2014, p. 23). This lambda of approximately 1.0 indicates a current stable population within the study area.

The major stressors experienced by the NCSO population are wildfire and fire suppression activities, vegetation management, ARs, and, in some areas, predation. Within the Oregon portion of the NCSO population two fishers were tested for the presence of ARs; exposure to ARs were found in both. Conservation measures that benefit fishers include those being implemented within the portion of the range covered by the NWFP, including potential measures associated with section 7 consultations in overlapping northern spotted owl (*Strix occidentalis caurina*) designated critical habitat.

The principal conservation efforts currently in progress in Oregon include the recently signed intergovernmental Memorandum of Understanding (MOU) for fisher conservation, and, upon finalization, the western Oregon fisher CCAA (81 FR 15737). A strong desire to implement the western Oregon fisher CCAA is exhibited by us receiving, as of mid-March 2016, letters of intent from nine different landowners (private and ODF) covering nearly 2 million ac (809,371 ha); most of these letters also commit to financial or in-kind support of a coordinated program of work to increase our understanding of fisher populations and potentially reintroduce fishers in Oregon. In addition, ODFW has committed, via a separate letter of intent, to submit a budget request of $1,000,000 to the Oregon legislature to fund and administer the CCAA and other fisher conservation actions in Oregon. For the portion of the NCSO population in California, ongoing monitoring efforts for the SPI Stirling Management Area CCAA indicate the reintroduction efforts may result in establishment of an additional fisher population in the northern Sierra Nevada. The NEPA process will soon be initiated for the approximately 1.6 million-ac (647 thousand-ha) CCAA for fishers on SPI ownership in the Klamath, Cascade, and Sierra Nevada mountains. If completed and implemented, this proposed CCAA could secure habitat for the fishers for the 10-year time period of the permit and likely retain important fisher habitat components into the future.

(4) Original Native Population—Southern Sierra Nevada (SSN)

The SSN native population of fisher is small and is geographically separated from the remainder of the fishers in the west coast States. The SSN population is found in Mariposa, Madera, Fresno, Tulare, and Kern counties in California. While historically the population extended farther north, today the northern limit is the Merced River in

Yosemite National Park in Mariposa County. The southern limit is the forested lands abutting the Kern River Canyon, while the eastern limit is the high-elevation, granite-dominated mountains, and the western limit is the low-elevation extent of mixed-conifer forest. Multiple lines of genetic evidence suggest that the isolation of the SSN population from other populations of fisher within the west coast States is longstanding and predates European settlement (Knaus *et al*. 2011, entire; Tucker *et al*. 2012, entire; Tucker 2015, pers. comm., pp. 1–2).

No census of the SSN fisher population has been conducted. Estimates for the SSN population range from a low of 100 to a high of 500 individuals (Lamberson *et al.* 2000, entire). A recent estimate of 256 female fishers was based on available habitat (Spencer *et al.* 2016, p. 44). Other population estimates are: (1) 125–250 adult fishers (Spencer *et al.* 2011, p. 788); (2) fewer than 300 adult fishers (Spencer *et al.* 2011, p. 801); and 276–359 fishers, including juveniles and subadults (Spencer *et al.* 2011, p. 802). The latter estimate was based on extrapolation from portions of the population where fishers have been intensely studied to the range of the entire population.

An 8-year monitoring study that sampled 139.5 units (i.e., sample sites)/year showed no declining trend in occupancy. However, this study had been designed to be run for 10 years while sampling 288 units/year and was intended to have an 80 percent probability of detecting a 20 percent decline over 10 years (Zielinski *et al.* 2013, p. 11; Tucker 2013, p. 82). As a result of the smaller sample size and shorter duration, the results of this study must be considered inconclusive. Another study of radio-collared fishers monitored from 2007 through 2014 in the SSN population showed the survival rate (calculated using demographic parameters) of adult males, but not females, is lower

than other populations in the west coast States, and estimates a lambda of 0.97 (C.I. 0.79–1.16) (Sweitzer *et al.* 2015a, pp. 781–783; Sweitzer *et al.* 2015b, p. 10). Population growth in the SSN population area is thus estimated to trend less than 1.0; the authors suggest the population is not in persistent decline, however, but is offset by periods of stability or growth (Sweitzer *et al*. 2015a, p. 784). Although the authors express concern for the population and the need for continued monitoring, their research suggests a basically stable trend when considered together with information on population size and density (Sweitzer *et al*. 2015b, p. 10).

The major stressors on this population are wildfire and fire suppression activities, vegetation management, high mortality rates from predation, and small population size. Potential conservation measures include the development of the Southern Sierra Nevada Fisher Conservation Strategy (Spencer *et al.* 2016, entire).

Summary of Factors Affecting the Species

Section 4 of the Act and its implementing regulations (50 CFR 424) set forth the procedures for adding species to 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. Listing actions may be warranted based on any of the above threat factors, singly or in combination. Each of these factors is discussed below.

A thorough analysis and discussion of the stressors that may impact the proposed West Coast DPS of fisher is included in the final Species Report (Service 2016, entire) associated with this document (and available at *http://www.regulations.gov* under Docket No. FWS–R8–ES–2014–0041). All potential threats of which we are aware that are acting upon fishers or their habitat within the proposed West Coast DPS currently or in the foreseeable future were evaluated and addressed in the final Species Report, and are summarized in the following paragraphs.

Many of the stressors on fisher populations and their habitat are present throughout the proposed DPS's range, although their effects vary across the range. For example, the population and habitat in the SSN population area likely will continue to be more susceptible to the various stressors than will the NCSO population area given SSN's smaller population size and more limited amount of unoccupied, suitable habitat available. Nevertheless, at this point in time, our review and consideration of the best available information does not indicate that loss of or declines in these populations, or a contraction of their ranges, is either ongoing or is likely to occur in the foreseeable future (see "Review of Stressors" section of the final Species Report (Service 2016, pp. 53–162) and **Determination** section of this document). As discussed in the stressor summaries and **Determination** sections, below, our evaluation of the best available information leads us to conclude that the native populations will persist into the future (which is also likely for the reintroduced populations, although more time is needed to confirm their persistence with certainty), and that as a whole the proposed West Coast DPS of fisher does not meet the definition of an endangered or threatened species under the Act. Although our finding that the proposed West Coast DPS of fisher is not endangered or

threatened does not depend on it, we anticipate that the fishers in the new reintroduction in the South Washington Cascades will likely survive and reproduce (Lewis 2013, pp. 4–5), based on our past experience with other fisher reintroductions. If successful, the South Washington Cascades fisher reintroduction will provide an additional population in the future that would provide even greater insurance against the fisher's risk of extinction in the west coast States caused by possible catastrophic events (see redundancy discussion under the ***Small Population Size and Isolation***, below). Finally, the best available information indicates that these populations will continue to receive direct or indirect management that we reasonably can predict will contribute to the conservation of fishers in the west coast States as a whole, although these future conservation activities (and the anticipated future population in the South Washington Cascades), are not relied upon as part of the basis for this decision.

The stressors that are of highest current or future scope and magnitude within the range of the proposed DPS (i.e., the most significant stressors overall across the range of the proposed DPS) include those that may result in current or future habitat destruction or modification and natural or human-induced stressors affecting fishers in the west coast States (i.e., wildfire and fire suppression, and vegetation management) and exposure to toxicants (specifically ARs). These impacts, along with those that are currently considered less significant or minor (i.e., rural or suburban development, forest insect and tree diseases, climate change, trapping and incidental capture, research activities, disease or predation, collisions with vehicles, and small population size), also have the potential to act cumulatively or synergistically to negatively affect the populations of fishers in the west coast States.

Forest insects and tree diseases were discussed as stressors in the draft Species Report with respect to their influence on habitat loss and fragmentation and the potential synergistic effects associated with climate change (Service 2014, pp. 72, 146, 170–172). However, this stressor was not summarized in the proposed listing rule. We have included a summary of forest insects and diseases in this document.

We recognize that multiple stressors have impacted individuals of the proposed West Coast DPS of fisher and their habitat, as well as populations in some cases, and that these stressors may be considered ongoing (and expected to continue into the future) in certain areas within the proposed DPS's range. Given these ongoing impacts, and the various recommendations or concerns expressed from partners, species experts, and the public, we intend to continue monitoring the biological status of the populations of fisher within California, Oregon, and Washington through active Service-directed science efforts and through the efforts of cooperating Federal, State, and private entities. If at any time in the future the stressors appear to be rising to the level such that listing may be warranted, we will initiate a status review as appropriate.

Following are summary evaluations of stressors assessed for the proposed West Coast DPS of fisher: (1) wildfire and fire suppression; (2) forest insects and tree diseases; (3) effects of climate change; (4) vegetation management; (5) development (including linear infrastructure); (6) trapping and incidental capture; (7) research activities; (8) disease or predation; (9) collision with vehicles; (10) exposure to toxicants; (11) small population size and isolation; and (12) cumulative or synergistic effects. The inadequacy of existing regulatory mechanisms is also evaluated. We have evaluated these stressors

consistent with the five statutory factors set forth in section 4(a)(1) of the Act, although the factors are not set forth in this document.

The final Species Report (found at *http://www.regulations.gov* under Docket No. FWS–R8–ES–2014–0041) presents the best available information currently known: We note that the final Species Report now describes the magnitude (scope and severity) of various stressors using the terms low, medium, and high. While we have also included as Appendix C the more quantitative evaluation we employed for the draft Species Report, that quantitative analysis implied a greater level of certainty or precision in assessing effects than is supported by the underlying information. The final Species Report includes: (1) A discussion of the stressors that may be impacting the proposed West Coast DPS of fishers, based on our evaluation of the best scientific and commercial information available at the time of the withdrawal; (2) inclusion of corrections or clarifications, where applicable, such as those identified by peer reviewers or other public commenters; (3) inclusion of significant new information since the proposed listing rule, where applicable; and (4) summary conclusions of our assessment of the best scientific and commercial information currently available.

The following sections provide a summary of the past, current, and potential future impacts to the proposed West Coast DPS of fisher and its habitat. Please see the final Species Report (Service 2016, pp. 53–162) for a full evaluation of the stressors evaluated for the proposed West Coast DPS of fisher.

Wildfire and Fire Suppression

Our evaluation of the effects of wildfire on fisher habitat included those activities associated with fire suppression that may result in removal of fisher habitat (for example,

backburning, fuel breaks, and snag removal). In our proposed listing rule, we stated that the naturally occurring fire regimes vary widely across the analysis area, and, therefore, the effects of wildfire are also likely to vary geographically (Service 2014, p. 58, 62, Figure 13). In general, high-severity fire has the potential to permanently remove suitable fisher habitat, and is very likely to remove habitat for a period of many decades while the forest regrows. Moderate-severity fire may also remove habitat, but likely in smaller patches and for a shorter length of time. Low-severity fire may reduce some elements of fisher habitat temporarily, but in general is unlikely to remove habitat.

Fishers' behavioral and population responses to fires are unknown within the West Coast range. Based on fisher information outside of the West Coast range and other related species, it is possible that large fires, particularly those of higher severity and larger scale, could cause shifts in home ranges and movement patterns of fishers in the west coast States, lower the fitness of fishers remaining in the burned area (due to increased predation, for example), or create barriers to dispersal. Fire suppression actions and post-fire management have the potential to exacerbate the effects of wildfire on fisher habitat. We indicated previously that the scope and severity for this stressor were the highest for the Sierra Nevada and northern California–southwestern Oregon areas; these are the two areas where the two remaining original native populations of fishers are found. We also stated that because there is evidence of increasing fire severity in yellow pine–mixed-conifer forests, which include the majority of fisher habitat in the Sierra Nevada, the estimate of the severity of stressors related to wildfire is likely to be an underestimate. A number of other conclusions were drawn from our analysis, as described in the "Wildfire and Fire Suppression" section of the proposed listing rule and

draft Species Report (Service 2014, pp. 58–71). Overall, we determined that the scope and severity for this stressor were lower throughout most of Oregon and Washington than the Sierra Nevada and northern California–southwestern Oregon areas; however, high-severity fires that remove fisher habitat have the potential to further disrupt habitat connectivity and availability (Service 2014, pp. 57–71).

We concluded in the proposed listing rule that wildfire and fire suppression were a threat to fisher habitat, including in the future, based on known or perceived effects to fishers outside of the West Coast range and other related species and because the frequency and size of wildfires is increasing and will continue to increase in the future. We predicted that large fires (particularly those of higher severity and larger scale) would cause shifts in home ranges and movement patterns, lower the fitness of fishers remaining in the burned area, and create barriers to dispersal. We also:

(1) Considered fire and fire suppression to be particularly problematic in the SSN because of the narrow band of habitat that comprises SSN and the small population size;

(2) Stated that the degree to which fire-related effects impact NCSO was lower than SSN because the NCSO does not exist in a narrow band of habitat and covers a larger area;

(3) Indicated that fire and fire suppression will likely have some negative effect on NCSO because fire will further decrease connectivity in the fragmented habitat of NCSO (noting that it was difficult to fully determine the impact at NCSO because the locations and severities of future fires relative to important habitat components were not known at [that] time; and

(4) Indicated that scope and severity of fire are lower in Washington and Oregon given that much of this area is considered to be unoccupied but that fire could have a negative impact on existing fisher populations if fires occur within or in proximity to occupied areas (again, similar to NCSO, noting that the locations and severities of future fires relative to important habitat components were not known at [that] time).

In conducting our updated analysis of the best scientific and commercial information available, we reviewed information provided by commenters and peer reviewers, and made corrections and clarifications of wildfire information in the final Species Report as necessary, and have clarified the discussion of the effects of wildfire on ecosystems. This approach contributed to our goal of describing as accurately as possible whether the best available information indicates if this stressor is causing impacts to fishers or their habitat in the west coast States, and if so, whether those impacts are resulting in significant impacts to individuals, populations, or the proposed DPS rangewide. For example, in the final Species Report:

(1) We clarified the fire severity categories, particularly as they relate to "mixed-severity" fires (Halofsky *et al*. 2011, entire).

(2) We included and described the significant beneficial aspects of wildfire on the landscape, such as creation or maintenance of some structural elements used by fishers, or how some areas of high-severity fire may contribute to the regeneration of the hardwood component of mixed-conifer forest used by fisher (Cocking *et al.* 2012, 2014, entire, for example).

(3) We noted how low-severity fires can be critical in the creation or maintenance of reproductive habitat for fishers by creating fire scars that enhance the formation of cavities that serve as denning sites (Weir *et al*. 2012, pp. 237–238).

(4) We described how fishers in areas that experience mixed-severity fires could benefit from associated increases in mammalian prey species, including how fishers may use burned forests for foraging (e.g., Hanson 2013, p. 27).

(5) We noted how fragmentation due to fire can increase risk of predation due to the lack of cover and higher abundance of predators in fragmented landscapes (Naney *et al.* 2012, pp. 7–8).

(6) We included discussion of studies (Shatford *et al*. 2007, pp. 144–145; Donato *et al*. 2009, p. 142; Halofsky *et al*. 2011, p. 14, Baker 2014, p. 26; Cocking *et al*. 2014, pp. 94, 102–104) that suggest that systems characterized by highly variable natural disturbances, such as mixed-severity fire regimes, are relatively resilient to recurrent severe fire, and that severe, short-interval fires do not result in loss of species richness, including hardwood and conifer species (suggesting that such fires promote vigorous regeneration of mixed-conifer forest).

In sum, these corrections, clarifications, and revised discussions in the final Species Report provide a clearer picture of the degree to which fisher may be able to use burned landscapes and potential effects of wildfire to fisher habitat across the landscape.

When considering all scientific and commercial information available regarding wildfire and fire suppression activities (including new information since the time of the proposed listing rule), we maintain that wildfire is a natural ecological process that occurs throughout the range of the proposed West Coast DPS of fisher. As stated above, there

are some indications that wildfire may be increasing in terms of frequency, severity, and magnitude, although these projected increases are greater in California and southern Oregon than areas further north. Whether fires may be increasing in severity is subject to continuing debate; thus, it is necessary for us to use our best professional judgment based on the best fire effects information available. Studies on the effects of wildfire on fisher habitat, although limited, demonstrate a variety of both positive and negative consequences, depending on the specific circumstances (see "Effects of fire on fisher habitat elements" in the final Species Report (Service 2016, pp. 63–65)). If the severity and extent of the fire is such that substantial areas of canopy and large trees are lost, it may take decades for the area to support fisher reproduction. If the fire severity is low or mixed, important habitat elements to fisher can be both created and removed within a home range, such that the burned habitat may continue to support both fisher foraging and reproduction. The degree to which fire may affect fisher populations is unknown, but all indications are that the population response would be specific to the forest type, landscape location, size, and intensity of the fire.

Another factor to consider regarding wildfires is the potential for overlay of future fires with fisher-occupied habitat, and the subsequent potential likelihood of wildfire-displaced fishers moving successfully into nearby suitable unoccupied habitat. Although fishers are not abundant throughout their known current range, their distribution where found covers very large geographic areas of habitat. Because of this broad distribution, even in the event that wildlife frequency and severity increases rather than decreases, it is extremely unlikely that any wildfires would be of such magnitude that they would cover an entire fisher population area. Therefore, while future wildfires may affect individual

fishers, with the potential of displacement rather than injury or death, there will likely also be unaffected fishers outside the wildfire zones.

Coupled with this likelihood is the fact that throughout the analysis area, there are numerous areas of suitable but currently unoccupied habitat. While some of these areas may be inaccessible to extant fisher populations, due to being far removed from the known current fisher distribution or to existing landscape patterns that are not conducive to dispersal, there are other areas of suitable unoccupied habitat that are adjacent to occupied habitats or connected to them via dispersal-conducive landscapes. This combination of available and accessible suitable habitat with the likelihood that any future wildfires would be extremely unlikely to affect entire fisher population areas, suggests as it relates to wildfires that habitat is not limiting for fishers across the west coast States. We also note that there are active hazardous fuels reduction plans and projects being actively implemented throughout the analysis area (such as those on Federal lands described in the National Fire Plan, or on private lands in California via California Fire Safe Council or CAL FIRE wildfire prevention grants (see "Conservation measures that may reduce impacts of fire effects" in the final Species Report (Service 2016, pp. 76–77)), which should help reduce the future frequency, size, and severity of wildfires.

Our updated analysis of the best information now available leads us to change our previous conclusion that wildfire and fire suppression rise to the level of a threat, particularly given that the best available data do not indicate habitat impacts are significant at either the population or rangewide scales. In other words, following wildfire events and subsequent salvage operations, no surveys or other information have

shown this stressor to be functioning as an operative threat on the fisher's habitat to the degree we considered to be the case at the time of the proposed listing. We have reached this conclusion given:

(1) Our evaluation of past and continued predicted impacts of wildfire in the future across the landscape within the range of the proposed West Coast DPS of fisher;

(2) The beneficial as well as negative aspects of wildfire to fisher habitat;

(3) The beneficial aspects of current and continued management activities into the future to help reduce wildfire impacts (e.g., fuels reduction projects that reduce the risk of high-severity wildfires while retaining appropriate habitat structures, composition, and configuration for fishers); and

(4) The presence of suitable but unoccupied habitat available to the fisher throughout the west coast States (although to a greater extent in the northern portion of the proposed DPS's range.), coupled with the extremely low likelihood that future wildfires would impact entire fisher population areas, and the lack of data to demonstrate that this stressor is manifesting itself to a significant degree across the proposed DPS such that the fisher populations in the west coast States are in decline across its range due to significant wildfire impacts to their habitat.

We acknowledge that individual fishers in the proposed West Coast DPS (or potentially portions of one or more populations) likely are impacted as a result of the level of impact this stressor is having on fisher habitat, particularly to a greater extent in the California portions of the proposed DPS's range, and that these impacts to fisher habitat could increase in magnitude in the future within portions of the proposed DPS's range. However, the best available information does not suggest that fisher habitat will

experience significant impacts at either the population or rangewide scales in the future as a result of wildlife fire and suppression activities given: (1) Future wildfires are expected to continue at a similar rate and severity across the landscape as has been occurring in the recent past, (2) wildfires are not expected to be high severity in all cases such that they destroy habitat for entire populations, (3) forest ingrowth is expected to continue to provide suitable habitat across the proposed DPS's range to help offset some future wildfire impacts, and (4) future low- or mixed-severity wildfires are expected to continue to provide some benefits to fisher habitat to help offset some future wildfire impacts.

Climate Change

At the time of the proposed rule, we stated that, overall, fisher habitat is likely to be affected by climate change, but the severity will vary, potentially greatly, among different regions, with effects to fishers ranging from negative, neutral, or potentially beneficial. Climate change is likely to alter the structure and tree species composition of fisher habitat, and also result in changes to habitat of prey communities and ultimately prey availability. However, studies of climate change present a range of effects including some that indicate conditions could remain suitable for fisher. Climate throughout the analysis area is projected to become warmer over the next century, and in particular, summers will be hotter and drier, with more frequent heat waves. In the northern portion of the analysis area, winters will likely become wetter, but even these areas will likely experience increased water deficits during the growing season. Climate modeling projections are done at a large scale, and effects to species can be complex, unpredictable, and highly influenced by local-level biotic and abiotic factors. Although

many climate models generally agree about the changes in temperature and precipitation, the consequent effects on vegetation are more uncertain. Therefore, it is not clear how changes in forest type, species composition, or growth rate will affect the availability of fisher habitat and its ability to support fisher populations (Service 2014, pp. 71–84). Consequently, we concluded that climate change was not viewed as a threat to fisher habitat at that time or in the foreseeable future.

Based on our evaluation of the best available information known at this time, we reaffirm our previous conclusion that climate change does not rise to the level of a threat now nor do we anticipate it as a threat in the foreseeable future. Most predictions of future conditions are relatively general in nature, and provide little specificity with regard to timeframes or geographic region of occurrence that would be informative in terms of our consideration of future habitat conditions for fishers within the analysis area. This same viewpoint applies even after taking into consideration new information available since the time of the proposed listing rule. Overall, we place relatively greater weight on studies or models that are more narrowly focused on fisher habitat needs, specifically, or are downscaled to our geographic region of interest. Studies specific to predicting the effects of climate change on suitable fisher habitat have produced a wide range of results. Ecotype conversion to woodland, shrubland, or grassland would result in the loss of suitable fisher habitat. This type of shift is predicted, for example, in the southern Sierra Nevada (Gonzalez *et al.* 2010, Fig. 3; Lawler *et al.* 2012, p. 388). On the other hand, shifts from conifer forest to hardwood-dominated mixed forest in the southern Sierra Nevada or Klamath region are unlikely to have negative effects on fishers, and the species' response may be relatively neutral to such a change (Lawler *et al.* 2012, pp. 385–

386; Loarie *et al.* 2008, p. 4 and Fig. 4). Some studies have suggested that fishers may experience an overall net gain of suitable habitat in response to climate change, for example due to reduced snowpack, or that areas inhabited by fishers will remain in climate refugia (Burns *et al.* 2003, p. 11476; Olson *et al.* 2014, pp. 93, 94, 97). Others predict that fisher distribution will remain largely stable (Spencer *et al.* 2015, p. 143 and Table 9.6, Figures 9.3–9.5). All of these predictions are accompanied by a wide range of assumptions and caveats. In sum, predictions regarding future habitat suitability for fishers in response to climate change are not consistent, and the likely specific response of the species to these predicted changes remains highly uncertain. Moreover, we find that the best available information does not indicate that this stressor is causing or contributing to significant habitat loss or range contraction at either the population or rangewide scales, nor do we anticipate that it will do so in the future. Finally, there is also suitable but unoccupied habitat available for fishers throughout the analysis area where fisher populations occur, although to a greater extent in the northern portion of the proposed DPS's range. These areas likely would help offset any potential foreseeable future impacts to fisher habitat from climate change (i.e., we do not have information to suggest that fishers are habitat limited currently or expected to become so in the future).

With regard to direct impacts to fishers in the west coast States, fishers may be sensitive, physiologically, to warming summer temperatures (Zielinski *et al.* 2004, p. 488; Slauson *et al.* 2009, p. 27; Facka 2013, pers. comm.; Powell 2013, pers. comm.). If so, fishers likely will either alter their use of microhabitats or shift their range northward and upslope, in order to avoid thermal stress associated with increased summer temperatures, as demonstrated by fishers in California that choose rest sites in areas of

cooler microclimate (Zielinski *et al.* 2004, p. 488), and based on studies that have made projections for future range shifts specifically for fishers (Lawler *et al.* 2012, entire; Burns *et al.* 2003, entire; Olson *et al*. 2014). However, there is no information to suggest that such changes will result in significant, negative impacts to fishers or their habitat at either the population or rangewide scales. Thus, the best scientific and commercial information currently available does not indicate that significant impacts at either the population or rangewide scales as a result of direct effects of climate change are occurring, nor is there any indication that these scales of impacts are likely to occur in the foreseeable future.

Vegetation Management

Vegetation management techniques of the past (primarily timber harvest) have been implicated as one of the two primary causes for fisher declines across the United States. Many fisher researchers have suggested that the magnitude and intensity of past timber harvest is one of the main reasons fishers have not recovered in Washington, Oregon, and portions of California, as compared to the northeastern United States (Service 2014, pp. 54–56). At the time of the proposed rule, we stated that vegetation management techniques have, and can, substantially modify the overstory canopy, the numbers and distribution of structural elements, and the ecological processes that create them. There are also areas where habitat may not be the limiting factor for current or potential fisher populations and where habitat is being managed intentionally or incidentally in ways that benefit fisher. For example, the Northwest Forest Plan (NWFP), which was adopted by the U.S. Forest Service and the BLM in 1994 to guide the management of more than 24 million ac (9.7 million ha) of Federal lands in Washington,

Oregon, and northwestern California within the range of the northern spotted owl, provides the basis for conservation of the spotted owl and other late-successional and old-growth forest associated species, such as fisher, on Federal lands (USDA Forest Service and USDI BLM 1994, entire). The NWFP incorporates seven land allocations—Congressionally Reserved Areas, Late-Successional Reserves (LSRs), Adaptive Management Areas, Managed Late-Successional Areas, Administratively Withdrawn Areas, Riparian Reserves, and Matrix. Much of the NWFP area currently provides fisher habitat, which is expected to increase over time. The Matrix, which represents only 16 percent of the Federal land within the NWFP area, is the Federal land outside the other six NWFP land allocations and is the area in which most timber harvest and other silvicultural activities are conducted. LSRs, which cover 30 percent of the NWFP area, are expected, in combination with the other allocations and standards and guidelines, to maintain a functional, interactive, late-successional and old-growth forest ecosystem and are designed to serve as habitat for late-successional and old-growth related species including fishers. Stand management is limited in LSRs, is subject to review, and does not contribute to probable sale quantity (USDA Forest Service and USDI BLM 1994b, pp. A-4, C-12, C-13, C-39).

At the time of the proposed rule, we concluded that data limitations in most sub-regions across the analysis area prevented us from quantifying what proportion of the treatments in the data sets we used may be outside the scope of habitat loss or downgrade (e.g., areas subject to vegetation management activities that may still function as fisher habitat post-treatment). Thus, at that time, the severity scores presented in the draft Species Report and summarized in the proposed listing rule represented our best estimate

and constituted a relatively broad range to incorporate this uncertainty. Our previous quantitative analysis of stressors resulting in habitat loss also did not account for ingrowth of fisher habitat over our 40-year analysis timeframe and, therefore, provided no values for net habitat loss (or gain); although we acknowledged that ingrowth occurs, primarily on Federal lands, we lacked the data at that time to quantitatively estimate that ingrowth (Service 2014, pp. 84–92). Although we recognized data limitations in most subregions across the analysis area and we did not account for ingrowth, we found that vegetation management was a threat because activities that remove or substantially degrade fisher habitat through the removal of large structures and overstory canopy are projected to take place within the analysis area over the next 40 years.

Based on information and comments received from peer reviewers and the public, we reevaluated our analysis (as stated previously) and changed our approach to rely on qualitative evidence to derive a qualitative descriptor of each stressor, rather than extrapolating. Several sources of data currently available provide information on past changes in vegetation in different areas of the proposed West Coast DPS of fisher's range. Because of the large area encompassed by the fisher, these different sources are not directly comparable and do not easily combine to paint a complete picture of the vegetation trends within the west coast States. The limitations of this information were acknowledged in our proposed rule, and we explicitly requested information from the public to better inform our analysis of this stressor and to help us make a final determination. Specifically, we requested information related to the scope and severity of vegetation management on Federal land within the range of the fisher, and scientific or commercial information on the type, scope, and severity of vegetation management

(timber harvest, restoration thinning, fuels reduction, etc.) on non-Federal land in Oregon and Washington. We also requested scientific evaluation of our use of the northern spotted owl habitat data as a surrogate for fisher habitat data, and its use in our draft Species Report as the best available data to determine the scope and severity of vegetation management effects on Federal lands.

Currently, there is no analysis that explicitly tracks changes in fisher habitat in recent decades where loss specifically attributable to vegetation management specifically can be determined. Therefore, we used other available information, as described below, and our best professional judgment to analyze the potential effects of this stressor on the proposed West Coast DPS of fisher. After considering the best available data, including comments received from peer reviewers and the public regarding the vegetation management stressor analysis presented in the draft Species Report (Service 2014, pp. 85–96) and summarized in the proposed listing rule, we updated and reconsidered our analysis. Our updated analysis included the use of several different sources of information to depict net forest vegetation changes caused by vegetation management activities within the west coast States. With the exception of the non-Federal timber harvest database in California (CAL FIRE THP 2013), all of these sources are either new or updated since the time of the proposed listing rule (Davis *et al*. 20XX, entire; USDA Forest Service 2016, entire; Spencer *et al*. 2016, entire; gradient nearest neighbor (GNN) data/maps). Because we were able to utilize these sources of data, we did not need to rely on northern spotted owl habitat data as a surrogate for fisher habitat data in our final evaluation. Our analysis is described in detail in the final Species Report (Service 2016, pp. 98–111) and summarized as follows.

While historical loss of older forests via timber harvest through much of the 1900s resulted in a substantial loss of fisher habitat in the west coast States, harvest volume has sharply declined throughout this area since 1990, primarily on Federal lands, but also on non-Federal lands. Although timber harvest is still ongoing throughout the west coast States, habitat ingrowth is also occurring, offsetting some of those losses. For example, modeling in the southern Sierra Nevada region indicates that ingrowth of fisher habitat has even replaced habitat lost by all disturbances in the southern Sierra Nevada region since 1990, resulting in a net gain of habitat since that time in that area (see below in this section).

Within the NWFP region, we used information from the draft late-successional and old-growth forest monitoring report (Davis *et al.* 20XX, entire) to assess changes in fisher habitat as a result of vegetation management. Over a 20-year period (1993–2012), Davis *et al.* (20XX, pp. 5–6, 13–16) tracked changes in forests classed as OGSI–80, which represents forests that begin to show stand structures associated with older forests (e.g., large live trees, snags, down wood, and diverse tree sizes). Though OGSI–80 forests are not a comprehensive representation of fisher habitat, we considered this report the best available scientific and commercial information to assess changes in fisher habitat within the NWFP area. This information was the only data set available that identified the amount of acres lost to specific disturbance types (e.g., timber harvest or vegetation management, fire) and calculated specific acres of forest ingrowth, allowing us to explicitly track loss of a specific forest type (OGSI–80) to a specific disturbance category (vegetation management). All remaining data sets provided a net change in vegetation type but did not categorize or quantify the disturbance types (e.g., acres and

type of loss, acres of ingrowth). In these areas, where available, we had to look separately at timber harvest data to assess loss to vegetation management.

Although loss of older-forest habitat due to timber harvest on non-Federal lands (21.8 percent since 1993) was substantially greater than on Federal lands (1.2 percent since 1993), in combining all ownerships, the percent loss due to timber harvest over the past 20 years was low (8.2) (Service 2016, Table 6). This translates to a 4.1 percent loss per decade (see Table 6 in the final Species Report). The net loss of habitat, however, is somewhat less because 4.1 percent per decade does not include ingrowth of OGSI–80 stands, which were recruited at a rate of 6 percent over the 20-year period, or 3 percent per decade (Service 2016, Table 6). However, it is not an entirely accurate representation to subtract total ingrowth from total loss to vegetation management without also considering all other disturbances that may be offset by ingrowth. We evaluate net vegetation changes as a result of all disturbance types separately below. The projection of vegetation loss may also be an overestimate given that projections in the NWFP showed older forest recruitment on Federal lands would replace losses to the degree that within 50 to 100 years, older forests would be within the range of amounts occurring prior to logging and extensive fire suppression (Davis *et al.* 20XX, p. 6). Thus, older forest recruitment rates on Federal lands would result in a future increase in ingrowth, offsetting losses more than what is currently projected based on ingrowth rates over the first 20 years of the NWFP.

Elsewhere in the west coast States, while we could track vegetation changes over time, the available data did not indicate the amount or types of disturbances affecting the specific vegetation types; that is, we could only determine net vegetation change of a

particular vegetation type, not the specific amount of that type that was lost to a specific disturbance type, unlike in the NWFP area. Timber harvest records were available for the Sierra Nevada region, but idiosyncrasies in the Forest Service FACTS database (see Spencer *et al.* (2016, p. A–30)) and the fact that the available private lands database (CAL FIRE timber harvest plans) did not indicate types of treatment or what portion of the plans may have actually been implemented, led to concerns in translating acres of "treatment" as depicted in these databases into on-the-ground changes in forest vegetation types that could represent fisher habitat. Instead, we relied on net vegetation change data to display actual changes in forests that represent fisher habitat, realizing that net changes include other disturbances and that vegetation management will be some unknown portion of that change.

In the Sierra Nevada region, we approximated fisher habitat change using a GNN vegetation trend analysis to track changes in forests with large structural conditions thought to be associated with fisher habitat. Note that the vegetation category tracked in this analysis is not equivalent to the OGSI–80 forests used by Davis *et al.* (20XX, entire), where the net change in OGSI–80 stands was 5.9 percent over a 20-year period, or almost 3 percent per decade. Instead, we used predefined GNN structure conditions describing forests with larger trees (greater than 20 in (50 cm)), realizing this may not include all vegetation types used by fishers. This analysis showed that net loss of forests with larger structural conditions was 6.2 percent across all ownerships over the past 20 years, which equates to a loss of 3.1 percent per decade. Outside of the NWFP area, in the eastern Washington Cascades and eastern Oregon Cascades regions, net losses were 3.2 and 9.5 percent, respectively, translating to 1.6 and 4.8 percent per decade. These losses, while

incorporating ingrowth, included all disturbances (e.g., fire) across all ownerships, so the loss due to timber harvest is actually less. In the single analysis where fisher habitat was actually modeled and tracked through time (southern Sierra Nevada region), ingrowth of fisher habitat actually replaced habitat lost by all disturbances between 1990 and 2012, equivalent to an increase of 151 mi^2 (390 km^2) of fisher habitat at the female home range scale, or a 7.8 percent increase in suitable cells during the 22-year analysis window (Spencer *et al*. 2016, p. A–21). The authors note that their analysis window did not include the large fires of 2013 and 2014, but that even with those losses, a net increase in fisher habitat still results (Spencer *et al.* 2016, p. 44).

Vegetation Management Summary

In the southern Sierra Nevada, fisher habitat appears to be increasing despite losses to vegetation management and recent large wildfires. Within the NWFP area, where we were able to explicitly track loss of older forest structural condition due to vegetation management activities, the scale of loss was at a low level (4.1 percent per decade) and was partly compensated by ingrowth. We incorporated ingrowth by looking at net forest change over time, although we could not quantify amounts lost to specific disturbance types throughout the west coast States; outside of the NWFP area, net loss of forests with larger structural conditions ranged from 1.6 to 4.8 percent per decade, depending on the region, for all disturbance types. Although the habitat types tracked in the GNN analysis for the non-NWFP area is not the same as the OGSI–80 vegetation type tracked in the NWFP area, the net change in the OGSI–80 type (almost 3 percent per decade) is relatively similar to that observed in forests with larger structural condition outside the NWFP area.

Based on our analysis of the best scientific and commercial information available, we find that forest losses were less than 5 percent per decade, either when looking at just total vegetation management loss within the NWFP area, or looking at net loss (i.e., incorporating ingrowth) that included all disturbances, knowing vegetation management comprises some proportion of that loss. Given the large home range of fishers and the geographic extent of forest management activities throughout the analysis area, some fisher individuals are likely affected as a result of habitat impacts. While these individual fishers are affected to some degree as a result of loss of cover and structural features associated with various vegetation management activities, we have not found evidence of a population-level response directly from vegetation management activities to fisher habitat. Fishers occur in landscapes and stands where timber harvest has occurred (e.g., Slauson *et al.* 2003, pp. 7–9; Self and Callas 2006, entire; Hamm *et al.* 2012, pp. 421–422; Clayton 2013, pp.7–19; Niblett *et al.* 2015, entire), but there is no information on how different vegetation management activities affect fisher populations and their persistence within the west coast States. Analysis is further confounded because the category of vegetation management contains activities ranging from those that result in substantial loss of habitat attributes valuable to fishers (e.g., large clearcut harvests that remove almost all tree canopy and structural features) to activities that modify habitat at small-scale levels yet retain functionality (e.g., minor reductions in canopy cover and retention of structural features suitable for rest sites, den sites, or prey production).

We have found no empirical evidence that vegetation management is manifesting itself to a significant degree across the proposed West Coast DPS in a way that is causing

habitat-related impacts that are causing fisher to decline across its range currently, or that suggests an expected decline across its range in the future. Furthermore, there are large areas of suitable but unoccupied habitat available throughout the west coast States where fisher populations occur, although to a greater extent in the northern portion of the proposed DPS's range. Overall across the proposed DPS's range, this suggests that habitat may not currently be a limiting factor for fisher populations in these States, and that these areas likely would help offset any potential future impacts to fisher habitat from potential future vegetation management activities. Overall, the best available scientific and commercial information summarized above and presented in detail in the final Species Report (Service 2016, pp. 98–111) leads us to conclude that impacts from vegetation management do not rise to the level of a threat given the lack of information indicating that these activities are significantly affecting habitat currently at either the population or rangewide scales. We also find that these activities are not likely to significantly affect habitat at either the population or rangewide scales in the foreseeable future because our analysis of loss/alteration of habitat shows the trend to be slightly declining (with actual increases in habitat in the SSN population area); fishers can continue to utilize some managed landscapes; we have detected no population-level response of fishers to vegetation management activities; and habitat does not appear to be limiting for fishers across the proposed DPS.

Development (Including Linear Infrastructure)

We stated in the proposed listing rule and draft Species Report, and we reaffirm here, that human population density within the analysis area varies considerably, but density in all areas appear to be increasing. Human population growth within the

analysis area may increase needs for housing, services, transportation, and other infrastructure, likely placing ever-greater demands on land, water, and other natural resources. Specifically, human infrastructure growth includes recreational opportunities such as ski area developments, vacation cabins, trails, and campgrounds. Besides permanently removing potential fisher habitat, human developments in rural areas are changing land use from forest to other land cover types, which has the potential to fragment previously continuous habitat or hamper fisher movements. Overall, human developments associated with population growth (including linear and other infrastructure) will likely have an increasing impact on fisher habitat into the future, but the severity varies depending on the type and location of development.

We stated in the proposed listing rule that the scope of the human development stressor (which implied inclusion of linear and other infrastructure) is relatively low throughout the analysis area, with the majority of impacts most likely occurring within the Sierra Nevada, Coastal Washington, and Western Washington Cascades portions of the proposed DPS's range. The best available scientific and commercial information indicates that, although an insignificant amount of suitable habitat is undergoing development such that individual fishers may be impacted, significant impacts to fisher habitat do not appear to be occurring at either the population or rangewide scales, nor is there any indication that these scales of impacts to suitable habitat are likely to occur in the future. Thus, we reaffirm our previous conclusion that development is not a threat to fisher habitat within the proposed West Coast DPS now and in the foreseeable future.

Forest Insects and Tree Diseases

Potential impacts associated with forest insects and tree diseases were described in the "Anthropogenic Influences" section of the draft Species Report (Service 2014, p. 72) and mentioned in the proposed listing rule within the context of potential "anthropogenic mortality stressors" that could be synergistically impacting fisher along with other stressors. Confusion in the draft Species Report resulted in conflation of anthropogenic stressors and stressors related to forest insects and diseases, because they were combined in a single section wherein only insects and diseases were discussed and not anthropogenic factors (Service 2014, p. 72). We revised the final Species Report to separate those stressor discussions and we have provided clarification in the final Species Report regarding these potential anthropogenic stressors (Service 2016, pp. 77–78), including correcting the title of the potential stressor to "Forest Insects and Tree Diseases," and we provide a stand-alone summary of our analysis of this stressor below.

In the proposed rule, we found that the usual pattern of localized outbreaks and low density of tree-damaging forest insects and tree diseases are beneficial, providing structures conducive to rest and den sites used by fishers or their prey (Service 2014, p. 72). However, we noted that it is possible that large, area-wide epidemics of forest disease and insect outbreaks could potentially displace fishers if canopy cover is lost, and if salvage and thinning prescriptions in response to outbreaks degrade the habitat (Naney *et al.* 2012, p. 36). Examples of potential forest insect or tree diseases that have been present within the west coast States but to our knowledge have not resulted in impacts to fisher habitat include:

(1) Mountain pine beetle, which is currently known in British Columbia (Weir and Corbould 2008, entire; 2010, entire)); and

(2) Sudden oak death (*Phytophthora ramorum)*, which is currently known to impact forests in southwestern Oregon and northwestern California.

At this time, the best available information does not indicate that any forest insects or tree diseases are significantly affecting the proposed DPS currently. Moreover, although some diseases have been present within the west coast States for many years, the best available data do not indicate that they would result in significant impacts to fisher habitat at either the population or rangewide scales in the foreseeable future. Based on our evaluation of the best scientific and commercial information currently available, we find that fishers at the individual, population, and rangewide levels are beneficially affected by forest insects and tree diseases through their creation of structures used by fishers for denning and resting, as well as structures used by fisher prey. Localized outbreaks that result in canopy loss substantial enough to reduce the stand's suitability for fisher habitat may affect individuals, but there is no evidence to indicate any impacts to fishers currently or in the foreseeable future. Thus, forest insects and tree diseases do not constitute a threat to the proposed DPS either currently or in the foreseeable future.

Trapping and Incidental Capture

Historical, unregulated fur trapping (prior to the 1930s) appears to have been the primary initial cause of the marked contraction in fisher distribution across the Pacific States. The effects of current trapping, which are limited to incidental capture and an unknown amount of poaching, are significantly reduced compared to the previous effects of widespread unregulated legal trapping of fishers. In our proposed listing rule, we stated that the severity of the potential stressor of trapping and incidental capture is

extremely low throughout the analysis area (Service 2014, pp. 106–108), and, therefore, we did not consider trapping to be a threat to the fisher, including in the future. Since that time, minimal new information has become available regarding trapping activities, none of which results in any significant changes or differences in our understanding of this stressor.

Based on our evaluation of the best available information currently known, we reaffirm our previous conclusion that the severity of trapping (and incidental capture) throughout the analysis area is extremely low, and is not expected to increase in the foreseeable future. Our current analysis reveals that where impacts occur as a result of trapping, those impacts are affecting few individuals (i.e., a total of eight individuals since 1975, including three in Washington (Happe 2015, pers. comm.) and five in Oregon (Robart 1982, pp. 3, 8; Oregon Department of Fish and Wildlife (ODFW) 1998, entire; ODFW 2007, p. 1)) to a minor degree as opposed to significant impacts to entire populations or significant impacts rangewide. Given that widespread, unregulated legal trapping of fishers is not expected to occur in the future, potential future impacts from trapping and incidental capture are expected to remain extremely low. Thus, we conclude that the scope and magnitude of impacts resulting from trapping and incidental capture do not rise to the level of being a threat to the fisher in the west coast States, now or in the foreseeable future.

Research

Although scientific research is necessary to fully understand the various aspects of fishers' life-history needs and population status in the west coast States, some research techniques (e.g., trapping, handling, and attachment of radio-telemetry transmitters to

fishers) have potential risks to individual animals, including injury and mortality. Current research and monitoring efforts vary greatly by subregion across the three States. We concluded in the proposed listing rule and reaffirm here that research is not a threat to the continued existence of fisher, now or in the future. Both the draft Species Report (Service 2014, pp. 113–115) and final Species Report (Service 2016, pp. 127–128) describe impacts that have occurred to only a few individuals throughout the analysis area, which the best available data indicate will remain at an extremely low level into the future. Our evaluation of the best scientific and commercial information currently available lead us to conclude that research activities are not causing significant impacts at either the population or rangewide scales such that they constitute a threat to the proposed DPS now, nor are they expected to do so in the foreseeable future.

Disease or Predation

Several viral and bacterial diseases are known to affect mustelids, including fishers, but it is unclear how these diseases affect wild populations of fishers. Potential predators of fishers include mountain lions, bobcats, coyotes, and large raptors. Disease and predation are stressors that can cause direct mortality of fishers, and both are documented to occur throughout the analysis area. Minimal new information is available regarding disease or predation since the time of our proposed listing rule, none of which results in any significant changes or differences in our understanding of these stressors.

Based on our evaluation of the best scientific and commercial information currently available, neither disease nor predation are considered threats to fisher. Our analysis reveals that, for both disease and predation, impacts are affecting individuals to a minor degree within the various populations as opposed to significant impacts to entire

populations or the proposed DPS rangewide. Additionally, the best available information does not indicate that disease or predation would increase in the future to a significant degree such that fishers in the west coast states are likely to experience significant impacts at either the population or rangewide scales. Thus, we reaffirm our conclusion that the scope and magnitude of impacts resulting from disease or predation do not rise to the level that are considered threats to the proposed DPS, now or in the foreseeable future.

Collision With Vehicles

In the proposed listing rule, we stated that roads are sources of vehicle-collision mortality of fishers and disrupt habitat continuity, particularly in high-use, high-speed areas. Collision with vehicles is a stressor that causes direct mortality of fishers, and thus, we found that collision with vehicles has the potential to be a stressor to extant fisher populations. We stated in the proposed rule that vehicle collisions have the potential to occur throughout all occupied areas, but we concluded that vehicle collisions are not a threat to fisher based on known impacts at the individual level. No new information has been discovered or provided since the time of the proposed listing rule to indicate that fisher collisions with vehicles are increasing or decreasing.

Based on our evaluation of the best scientific and commercial information currently available, we reaffirm our previous conclusion that vehicle collisions are not a threat to fisher, both currently and in the future (Service 2016, pp. 137–138). We found that individual fishers may be killed by vehicles in multiple populations, with a greater risk occurring in portions of the fisher populations that also harbor paved, major roads where vehicles travel at fast speeds and possibly at a higher volume of traffic compared

to many dirt roads. The best available data indicate that vehicle collisions are a substantial source of anthropogenic mortality for fisher populations, but we have no information to indicate that the frequency of collisions with vehicles is going to increase in the future, or that this source of mortality is having or will have significant impacts at either the population or rangewide scales. Based on the scope and magnitude of this stressor, we reaffirm our conclusion that fisher collisions with vehicles are not a threat to the fisher in the proposed DPS, now or in the foreseeable future.

Exposure to Toxicants

Anticoagulant rodenticides (ARs), which are intended to kill small pest mammals, impair an animal's ability to produce several key blood clotting factors. Anticoagulant exposure is manifested by such conditions as bleeding nose and gums, extensive bruises, anemia, fatigue, and difficulty breathing. Anticoagulants also damage the small blood vessels, resulting in spontaneous and widespread hemorrhaging. A sublethal dose of an AR can produce significant clotting abnormalities and hemorrhaging, leading to a range of symptoms, such as difficulty moving and the decreased ability to recover from physical injury, which may increase the probability of mortality from other sources.

The final Species Report details the exposure of toxicants to fishers in the west coast States (Service 2016, pp. 141–159), which is summarized herein. Relatively recent research documenting exposure to toxicants in a number of fishers, and mortalities of individual fishers directly caused by ARs, has raised concerns regarding potential individual- and population-level impacts of toxicants. Exposure to ARs, resulting in death in some cases, has been documented in fishers in the two native populations

(NCSO and SSN), and the reintroduced ONP population. However, sources of AR exposure in fishers have not been conclusively determined.

The number of fishers determined to have had exposure to toxicants varies across the proposed DPS's range, with the majority of records known from California. Large quantities of ARs have been found at illegal marijuana cultivation sites within occupied fisher habitat on public, private, and tribal lands in California (Gabriel *et al.* 2012a, p. 12; Thompson *et al.* 2014, pp. 97–98). In Oregon, AR residues were found in both fisher carcasses tested (Gabriel 2015, pers. comm.). Marijuana cultivation sites are not common in Washington and only three fishers can confidently be documented as having been exposed to rodenticides in Washington (Happe *et al.* 2015, pp. 38–39). Six other carcasses of fishers reintroduced in Washington have tested positive for AR, but those individuals may have been exposed in British Columbia before translocation (Happe *in litt.* 2015). Of the three fishers that were exposed in Washington, it appears that exposure occurred as a result of legal applications in residential areas given they were found near human habitation where ARs can be legally applied (Happe *in litt.* 2015).

We stated in the proposed listing rule that the scope of toxicants as a stressor varied across the landscape and that our determination regarding the scope was influenced by the availability of data for different parts of the proposed West Coast DPS of fisher's range. In those areas where data were available, we stated that the severity of the stressor was comparable to that of disease, noting that the data used to estimate the severity of toxicants were based solely on mortality (i.e., four mortalities from California). We concluded at that time that ARs are likely a threat to fisher populations, but that we did not have specific information about the population-level effects.

Our evaluation of the best scientific and commercial information available regarding toxicants and their effects on fishers at this time leads us to conclude that individual fishers within three populations (i.e., NCSO, SSN, and ONP) have been found dead from other causes and also were found to be exposed to ARs at sublethal levels with an unknown degree of impact to those individuals. In addition, 15 mortalities directly caused by AR exposure have been documented in the NCSO and SSN populations in California (Gabriel *et al.* 2015, p. 5; Wengert 2016, pers. comm.). The best available information reveals little regarding the extent of AR exposure in Washington and Oregon, and no rangewide studies have occurred to evaluate the population-level impacts across the proposed DPS's range. However, the broad use of ARs at illegal marijuana cultivation sites in California, which has been documented to occur within or adjacent to portions of the proposed DPS's range, could be impacting portions of the California populations. The extent to which the legal use of ARs occurs at agricultural and commercial sites within the range of the fisher is unknown.

Our analysis of this stressor also includes a further evaluation of a variety of toxicant information (in response to comments by peer reviewers). New information included (but is not limited to):

(1) Concentrations of active ingredients in bait (Erickson and Urban 2004) and a description of how exposure to ARs is confirmed (Vandenbrouke *et al.* 2008; Rattner *et al.* 2014). Erickson and Urban (2004, p. 94) specifically noted that no consistent trends associate residue concentrations with levels at which adverse effects occur. Thus, at what level of toxicant exposure fishers may be experiencing adverse impacts remains unknown.

(2) Clarification or corrections related to ARs found in the dead fishers tested from the ONP population. Happe (2015, pers. comm.) noted that the first released individuals found dead were all captured near residential areas/private lands in British Columbia prior to their release into the Olympic Peninsula. Exposure from legal use of brodifacoum in British Columbia cannot be ruled out because their deaths occurred well within the half-lives reported for brodifacoum persistence in mammalian tissue. Two subsequent mortalities among the translocated individuals on the Olympic Peninsula tested positive for bromadiolone too long after their relocation from British Columbia to have been exposed there. These individuals were found near rural areas where rodenticides could have been used legally. The most recent fisher mortality that tested positive for an AR was born to a translocated female, and was found on the border of the Port Angeles city limits, surrounded by a low-density housing area and commercial development. Thus, AR impacts for the Olympic Peninsula reintroduction area could be from legally applied sources.

(3) Rodent diversity at marijuana cultivation sites. Wengert (2015, pers. comm.) reports that rodent diversity is reduced to only mice at marijuana cultivation sites that are treated with rodenticides, as compared to nearby untreated sites where large-bodied rodents (e.g., woodrats, squirrels, chipmunks), which are the prey species that the fisher prefers, are found. This finding provides support for the possibility that fishers could experience indirect effects such as prey shifting outside of current home ranges, or prey depletion due to impaired reproduction, starvation, or physiologic (hematologic, biochemical and endocrine) changes.

(4) Estimating the extent of fisher exposure to ARs and determining the source(s) is difficult because the delay in toxicity caused by ARs and their persistence within food webs can result in contaminated rodents being found within and adjacent to treated areas weeks or months after bait application (Geduhn *et al.* 2014, pp. 8–9; Tosh *et al.* 2012, pp. 5–6; Sage *et al.* 2008, p. 215).

The only new regulatory measure of which we are aware of specific to ARs (in addition to those existing regulatory mechanisms identified in the proposed listing rule) is related to the State of California's new 2014 prohibition on the sale of second generation ARs (brodifacoum, bromadiolone, difethialone, and difenacoum) to the general public. While the State of California has prohibited these sales to the general public, they are still widely available and can be purchased by anyone with a State-issued pesticide applicator's license. No records are kept on the sale and use of rodenticides that can be used to determine whether this new measure will reduce the illegal and legal uses of the second-generation ARs (see ***Existing Regulatory Mechanisms***, below, for additional discussion). Overall, our evaluation of new information, including the one new regulatory measure, provides clarity and corrections to some information presented in the draft Species Report.

Marijuana cultivation sites are present within or near both native fisher populations in the proposed West Coast DPS, and potentially other areas within the west coast States. There are other possible sources of ARs from legal applications in agriculture and around buildings in rural areas. Furthermore, the recent legalization of marijuana in the State of Oregon adds an additional element of uncertainty to evaluation of this stressor, as it is unknown whether or how this policy change may potentially affect

exposure rates (for example, whether there may be a trend toward indoor-grow operations, which would potentially reduce exposure of wildlife to ARs). The incidence of fisher exposure to toxicants from all uses across its range is unknown and the best available data are very limited (including known mortalities of only 15 individuals in California). However, the best available information does not suggest that any of the fisher populations where exposure has been documented are in decline, nor does it suggest that significant AR impacts would occur as operative threats on the fisher populations in the west coast States as a whole to the degree that there would likely be significant impacts at either the population or rangewide scales in the future. The best available information at this time does not demonstrate there are significant deleterious sublethal effects in fishers at the population and rangewide scales. In addition, we are not aware of any information that indicates use of ARs will increase within the range of the proposed DPS in the future. Therefore, the best available information does not indicate that exposure to toxicants rises to the level of a threat, and this conclusion is supported by our finding that the proposed West Coast DPS of fisher is not experiencing significant impacts at either the population or rangewide scales, currently or in the foreseeable future.

Small Population Size and Isolation

A principle of conservation biology is that small, isolated populations are subject to an increased risk of extinction from stochastic (random) environmental, genetic, or demographic events. Fishers appear to have several characteristics related to small population size that increase the species' vulnerability to extinction from stochastic events and other threats on the landscape. Extremely small populations of low-density

carnivores, like fishers, are more susceptible to small increases in mortality factors due to their relatively low fecundity and low natural population densities. Fishers may also be prone to instability in population sizes in response to fluctuations in prey availability. Low reproductive rates retard the recovery of populations from declines, further increasing their vulnerability. These factors together imply that fishers are highly prone to localized extirpation, their colonizing ability is somewhat limited, and their populations are slow to recover from deleterious impacts.

A scarcity of verifiable sightings in the Western and Eastern Cascades in Washington and Oregon, coastal Oregon, and the north and central sections of the Sierra Nevada indicates that populations of fishers in southwestern Oregon and California are isolated from fishers elsewhere in North America. Fishers in the west coast States are currently restricted to two extant native populations and three reintroduced populations, the latter of which are known to be relatively small in size.

We concluded at the time of the proposed rule that the isolation of small populations and associated increased risk of extinction from stochastic events constituted a threat to the proposed West Coast DPS of fisher. However, as described above, that conclusion was based largely on the application of general theoretical principles regarding the implications of small population size and isolation for the persistence of some generic species. We continue to recognize that fisher populations in the west coast States are, for the most part, relatively small and geographically isolated from one another (with the likely exception of the NCSO population, which now overlaps the NSN and SOC reintroduced populations), with little opportunity for genetic interchange. However, we note that populations of forest carnivores are often isolated and generally

occur in low densities; because we lack specific information about genetic processes in small, isolated forest carnivore populations, it is unknown whether generalities about persistence based on untested theoretical models may apply to fisher (Ruggiero *et al*. 1994, p. 146). In the specific case of fishers in the west coast States, our evaluation of the best scientific and commercial information available indicates that the separation of the SSN and NCSO populations occurred a very long time ago, possibly on the order of more than a thousand years, pre-European settlement (Tucker *et al.* 2012, pp. 1, 7). Despite their size and isolation, the native NCSO and SSN populations have persisted over a long period of time, and interchange between the native NCSO population and the reintroduced NSN and SOC populations may be beginning to occur (see Service 2016, pp. 38–41, 48).

Estimates of fisher population growth for the NCSO population and the portion of the SSN population surveyed do not indicate any overall positive or negative trend as a result of the various stressors acting upon those populations (Service 2016, pp. 42–50). At this point in time, we do not have information to indicate that these portions of the proposed DPS are expected to change to a negative trend in the foreseeable future given the projected current and future level of impacts from the various stressors, and, in some instances, offsetting beneficial effects from some stressors (e.g., wildfire, forest insects, and tree diseases that can create habitat components needed by fishers). The NCSO population, which encompasses the NSN reintroduced site, covers a relatively large geographic area of approximately 15,444 mi^2 (40,000 km^2). Although the areas monitored for population trend are limited, for the Hoopa study, the population trend from 2005–2012 indicates a lambda (population growth rate) of 0.992 (C.I. 0.883–1.100)

with a higher lambda rate for females 1.038 (0.881–1.196) than males 0.912 (0.777–1.047) (Higley *et al.* 2014, p. 102, Higley 2015, pers. comm.) and 1.06 (C.I. 0.97–1.15, years 2006–2013) for the EKSA (Powell *et al.* 2014, p. 23) (a population growth rate of 1.0 indicates a stable population; confidence intervals that bound 1.0 indicate the growth rate is not statistically different from 1.0). For the SSN population, which is smaller and estimated to range anywhere in size from 100 to 500 individuals (Service 2016, pp. 48–50), the population growth rate is estimated as 0.97 (C.I. 0.79–1.16, years 2007–2014) (Sweitzer *et al*. 2015a, p. 784). The population growth rate for the SSN population is slightly less than 1.0, but nonetheless because the confidence intervals include 1, this indicates a statistically stable trend. The reintroduced SOC population has now persisted for more than 30 years, despite a very small founding population (Service 2016, pp. 48–50). The ONP and NSN populations were reintroduced too recently to determine likelihood of long-term persistence, but initial results indicating that these populations are breeding and expanding are encouraging.

Overall, although fisher populations are relatively small and geographically isolated, our evaluation of the best scientific and commercial information leads us to conclude that the separation of the two native populations is longstanding. The best available information does not suggest any negative consequences in terms of population abundance or other indicators across the west coast States, or that small population size or isolation are likely to cause significant impacts at either the population or rangewide scales in the future. In addition, recent and ongoing reintroductions to establish additional populations of fishers within the west coast States reduce the likelihood of loss to random stochastic events. Based on all of these considerations, we now conclude that

small population size and isolation are not threats to the proposed West Coast DPS of fisher, currently or in the foreseeable future.

Resiliency, Redundancy, and Representation

In this section, we synthesize the information above to evaluate resiliency, redundancy, and representation as they relate to fishers in the proposed West Coast DPS. *Resiliency* refers to the capacity of an ecosystem, population, or organism to recover quickly from disturbance by tolerating or adapting to changes or effects caused by a disturbance or a combination of disturbances. *Redundancy*, in this context, refers to the ability of a species to compensate for fluctuations in or loss of populations across the species' range such that the loss of a single population has little or no lasting effect on the structure and functioning of the species as a whole. *Representation* refers to the conservation of the diversity of a species, including genetic makeup.

The degree of resiliency of a species (or DPS) is influenced by both the degree of genetic diversity across its range and the number of individuals. Resiliency increases with increasing genetic diversity or a higher number of individuals; it decreases when the species has less genetic diversity or fewer individuals. In the case of the proposed West Coast DPS of fisher, resiliency may be slightly lower to some degree because the total population size is considered by some as small, although forest carnivores generally occur at low densities (Ruggiero *et al*. 1994, p. 146).

From a genetics standpoint, fisher from the ONP population (as well as for the new southern Washington Cascades reintroduction site) were sourced from British Columbia, and fisher from the SOC population were sourced from both British Columbia and Minnesota. Fisher from the NSN population area were sourced from native fishers in

northwestern California. Fisher within this proposed DPS (NCSO, NSN, and SSN populations) contain unique genetic haplotypes not found elsewhere within the range of the fisher in North America (Knaus *et al*. 2011, p. 7). Wisely *et al*. (2004, pp. 642–643) demonstrated a gradient of genetic diversity in fisher populations along the Pacific Coast, with allelic richness highest in native populations in British Columbia and the reintroduced SOC population, and lowest in the southern Sierra Nevada.

Multiple, interacting populations across a broad geographic area (redundancy) provide insurance against the risk of extinction caused by catastrophic events. As was known at the time of the proposed listing rule, population redundancy continues to exist across the west coast States as a result of the presence of two native populations across southern Oregon (northern California and the Sierra Nevada (NCSO and SSN populations, noting that the SOC and NSN reintroduced populations now have overlapping boundaries with the native NCSO population)), as well as two reintroduction locations, including the ONP population and the new South Washington Cascades reintroduction site. There is also an additional reintroduction site (new as of December 2015 (see *Species Information*, above)) in the South Washington Cascades that is expected to start reproducing in the near future. The existence of the five broadly distributed populations (and the new reintroduction site) increases the probability that fisher populations in the west coast States will persist into the future and contribute to long-term genetic and demographic viability across the fisher's West Coast range; however, more time is needed to determine with accuracy the viability of the reintroduced populations. If any of the five populations (particularly the native populations) were to be permanently lost, the fisher's population redundancy in the west

coast States would be lowered, thereby decreasing the fishers' chances of survival in the face of potential environmental, demographic, and genetic stochastic factors and catastrophic events (extreme drought, wildfire, etc.). However, our evaluation of the best scientific and commercial information available does not indicate that there are any stressors acting upon any of the populations that are of such imminence or magnitude that we would anticipate the wholesale loss of any of these populations, and particularly not the native populations. Thus, we conclude there is sufficient redundancy at present to sustain the fishers in the west coast States over the long term, and continued and future reintroductions of fishers will continue to strengthen the degree of redundancy in the west coast States into the future.

The aggregate number of individuals across multiple populations increases the probability of demographic persistence and preservation of overall genetic diversity by providing an important genetic reservoir (representation). We consider representation across the west coast States to be high, with five different groups (two native (NCSO and SSN) and three reintroduced (ONP, SOC, and NSN)) across California, Oregon, and Washington (although we note it is early to conclude with certainty the persistence of two of these reintroduced populations). Although there may be some risk that any of the small reintroduced populations could fail to persist within the short-term future, the level of representation across the west coast States at this time reduces the likelihood of future extirpation of these fishers. In addition, preliminary results of the recent reintroductions are encouraging, demonstrating successful reproduction and population expansion, and additional reintroduction efforts are both ongoing and planned.

Our current analysis reveals that small population size by itself is not a threat to the proposed West Coast DPS of fisher. A species (or DPS) with a relatively small number of small populations may be a concern when there are significant threats to the species such that one or more populations are likely to be permanently lost. However, fishers in the west coast States comprise three geographically separated populations, including one (NCSO) that overlaps with two reintroduced populations (SOC and NSN), as well as a new (as of December, 2015) reintroduction site in the South Washington Cascades (see *Species Information*, above). While each of the populations is considered relatively small (except, perhaps for the NCSO), as discussed above, the two native populations have continued to persist for a long time in the face of all of the identified stressors (noting that fisher exposure to toxicants (ARs) is a recently identified stressor), and there is no indication that any of the monitored populations are exhibiting a population growth trend that is other than essentially stable. In addition, our evaluation of the best available information does not suggest that any of the stressors acting within the proposed DPS are likely to result in the extirpation of these populations, acting either singly or in concert, either now or in the future; this is particularly true for the established native populations of fisher. Furthermore, recent information suggests that three of these fisher populations (NCSO, NSN, and SOC population) may no longer be separate breeding populations, as indicated by at least one documented occurrence of dispersal and potential reproduction. Connectivity between populations reduces the potential risk posed by small population sizes. This information, combined with the absence of stressors that rise to the level of a threat, supports our position that the proposed West

Coast DPS of fisher populations demonstrate resiliency, redundancy, and representation currently and in the future.

Cumulative Effects

Consistent with our approach for the proposed rule, we took into consideration all of the stressors operating within the west coast States. We previously stated in the proposed rule that the sizes of the fisher populations within the proposed West Coast DPS are reduced from historical levels due to historical trapping and past loss of late-successional habitat and, therefore, are overall more vulnerable to extinction from random events and increases in mortality. We previously evaluated the potential for cumulative effects of multiple stressors, although we were unable in the proposed rule to quantify the scope and severity of these cumulative effects and the variation of these effects between subregions. We did, however, determine that the various stressors were not occurring in equal magnitude across the analysis area and that cumulative effects from these stressors may be occurring more in some subregions than others.

The most likely scenarios for potential cumulative impacts on fisher that we identified previously and reaffirm here are:

- Alterations to habitat could increase fishers' vulnerability to predation.
- Sublethal exposure to ARs could potentially increase the death rates from predation, collisions with vehicles, disease, or intraspecific conflict.
- Stressors associated with the effects of climate change, such as increased risk of wildfire and forest disease, and environmental impacts of human development, could interact to cause large-scale ecotype conversion including shifts away from fisher habitat

types, which could impact the viability of populations and reduce the likelihood of reestablishing connectivity.

- Diseases that are currently present among mammal populations and also overlap the fisher's range in the west coast States could be exacerbated by climate change, such that fishers experience impacts at either the population or rangewide scales.
- Development activities could cause increases in fisher collisions with vehicles, conflicts with domestic animals, and infections contracted from domestic animals.

At this time, we find no indication that stressors are manifesting themselves to a significant degree on fishers, both singly or cumulatively, across the west coast States at either the population or rangewide scales currently, nor are they expected to do so in the future. We reach this conclusion because the best available information does not indicate that one or more stressors (by themselves or cumulatively) are expected to interact to such a degree that they would significantly contribute to decreased reproductive viability, reduced distribution, or significant loss of habitat for the proposed West Coast DPS of fisher. Additionally, there is also suitable but unoccupied habitat available throughout the analysis area where fisher populations occur (including in the SSN population area, although to a lesser extent compared to the northern portion of the proposed DPS's range). These areas likely would help offset any potential future impacts to fisher habitat from habitat-related cumulative impacts over the next 40 years.

Overall, we recognize that fishers in the west coast States have been exposed to multiple stressors, in some cases over many decades. The stressors may be impacting some individual fishers or habitat in one or more populations, but those stressors are not acting on the fisher's habitat, populations, or the proposed DPS as a whole such that the

stressors are functioning cumulatively as operative threats on the proposed DPS. Thus, the best available scientific and commercial data at this time do not show that combined impacts of the most likely cumulative impact scenarios are resulting in significant impacts at either the population or rangewide scales, including when taking into consideration small population sizes. Fisher populations today in the west coast States are smaller and their range has been reduced compared to historical conditions, which potentially increases the vulnerability of the fisher to cumulative low- or medium-level impacts. However, the best available information does not suggest that current fisher populations in the west coast States are experiencing population declines or further reductions in distribution, which would be indicative of such impacts and likely to be demonstrated through survey information (which is not evident in the best available information). Cumulatively, the stressors to the proposed West Coast DPS of fisher have not manifested in operative threats across the range of the DPS. Moreover, our analysis of the stressors does not indicate that they are expected to increase in the foreseeable future to a degree that their cumulative effects would be significantly different than current levels. Thus, the best available scientific and commercial data do not indicate that these stressors are cumulatively causing now or will cause in the future a substantial decline of the total extant populations of fishers across the range of the proposed West Coast DPS. Therefore, we have determined that the cumulative impacts of these potential stressors do not rise to the level of a threat, now or in the future.

Existing Regulatory Mechanisms

In the final Species Report, we evaluated whether existing regulatory mechanisms may be inadequate to address the stressors impacting fishers in the west

coast States. We stated in the proposed listing rule and we reaffirm here that there are many Federal and State existing regulatory mechanisms that provide a benefit to fishers and their habitat. For example, trapping regulations have substantially reduced fisher mortality throughout the analysis area. There are places in the analysis area where forest management practices are explicitly applied to benefit fishers or other species with many similar habitat requirements, such as the northern spotted owl. In addition, some habitat conservation plans (HCPs) are in place and are intended to provide a benefit to fishers and their habitat. Also, as of August 6, 2015, the California Fish and Game Commission voted to list the southern Sierra Nevada Evolutionarily Significant Unit (ESU) of the fisher as a threatened species under the California Endangered Species Act (CESA). Consequently, take, under the CESA definition, is prohibited in the SSN population area.

Take of fishers in Oregon is also prohibited through its designation as a protected nongame species, although the definition of take under Oregon law is different from the definition of take under the Act. The fisher is State-listed as endangered in Washington, where take (e.g., hunting, trapping) is prohibited and environmental analyses need to occur for projects that may affect fishers. State and Federal regulatory mechanisms have abated the large-scale loss of fishers to trapping and loss of fisher habitat, especially on Federal land (Service 2014, pp. 117–141). Rodenticides are regulated under Federal and State laws. However, fishers may still be exposed to such rodenticides in certain areas where they can still be used legally. Fishers are also exposed to some degree to rodenticides used illegally (as discussed below).

Federal Regulatory Mechanisms

Forest Service and BLM

A number of Federal agency regulatory mechanisms pertain to management of fisher (and other species and habitat). Most Federal activities must comply with the National Environmental Policy Act of 1969, as amended (NEPA) (42 U.S.C. 4321 et seq.). NEPA requires Federal agencies to formally document, consider, and publicly disclose the environmental impacts of major Federal actions and management decisions significantly affecting the human environment. NEPA does not regulate or protect fishers, but requires full evaluation and disclosure of the effects of Federal actions on the environment. Other Federal regulations affecting fishers are the Multiple-Use Sustained Yield Act of 1960, as amended (16 U.S.C. 528 et seq.) and the National Forest Management Act of 1976, as amended (NFMA) (90 Stat. 2949 et seq.; 16 U.S.C. 1601 et seq.).

NFMA specifies that the Forest Service must have a land and resource management plan to guide and set standards for all natural resource management activities on each National Forest or National Grassland. In addition, the fisher has been identified as a sensitive species by the Forest Service throughout the analysis area. BLM management is directed by the Federal Land Policy and Management Act of 1976, as amended (43 U.S.C. 1704 et seq.). This legislation provides direction for resource planning and establishes that BLM lands shall be managed under the principles of multiple use and sustained yield. This law directs development and implementation of resource management plans, which guide management of BLM lands at the local level. Fishers are also designated as a sensitive species throughout the analysis area on BLM lands.

In addition, the NWFP was adopted by the Forest Service and BLM in 1994 to guide the management of more than 24 million ac (9.7 million ha) of Federal lands in portions of western Washington and Oregon and northwestern California within the range of the northern spotted owl. The NWFP Record of Decision amends the management plans of National Forests and BLM Districts and is intended to provide the basis for conservation of the spotted owl and other late-successional and old-growth forest associated species on Federal lands. However, the BLM is currently revising their Resource Management Plan (RMP) (a draft RMP/Environmental Impact Statement (EIS) was published in April 2015 (USDI BLM 2015, entire)), which, if approved, would change their management direction from the existing NWFP. Once signed, a revision would replace the NWFP for BLM-administered lands in western Oregon, totaling approximately 2.5 million ac (1.0 million ha). Although a decision has yet to be made, BLM's preferred alternative (Alternative B), as stated in their EIS (USDI BLM 2015, p. 76), would allocate a slightly smaller amount of their landscape to timber harvest management as compared to the NWFP (22 percent and 28 percent, respectively). The BLM preferred alternative, however, shows a larger amount of LSR acreage than what is designated under the NWFP. Another reason is that BLM is adding all stands identified as structurally complex forest, creating scattered patches of older-forest reserves across BLM ownership (USDI BLM 2015, pp. 32–33, 50). Because BLM's decision is not final, our analysis in the final Species Report and summarized in this document is limited to their existing management under the NWFP.

The NWFP is important for fishers because it created a network of late-successional and old-growth forests (LSRs) that currently provide fisher habitat, and the

amounts of habitat are expected to increase over time. Also, the National Forest and BLM units with anadromous fish watersheds provide buffers for riparian reserves on either side of a stream, depending on the stream type and size. With limited exceptions, timber harvesting is generally not permitted in riparian habitat conservation areas, and the additional protection guidelines provided by National Forests and BLM for these areas may provide refugia and connectivity among more substantive blocks of fisher habitat. Furthermore, the NWFP, while anticipating losses of late-successional and old-growth forests in the initial decades of plan implementation, projected that recruitment would exceed those losses within 50 to 100 years (Davis *et al.* 20XX, p. 6).

National Park Service

Statutory direction for the 1.6 million ha (4 million ac) of National Park Service lands in the analysis area is provided by provisions of the National Park Service Organic Act of 1916, as amended (54 U.S.C. 100100) Land management plans for the National Parks within the west coast States do not contain specific measures to protect fishers, but areas not developed specifically for recreation and camping are managed toward natural processes and species composition and are expected to maintain fisher habitat. In addition, hunting and trapping are generally prohibited in National Parks (e.g., 16 U.S.C. sections 60, 98, 127, 204c, and 256b).

Tribal Lands

Several tribes in the analysis area recognize fishers as a culturally significant species, but only a few tribes have fisher-specific guidelines in their forest management plans. Some tribes, while not managing their lands for fishers explicitly, manage for forest conditions conducive to fisher (for example, marbled murrelet (*Brachyramphus*

marmoratus) habitat, old -forest structure restoration). Trapping is typically allowed on most reservations and tribal lands, and is frequently restricted to tribal members. Whereas a few tribal governments trap under existing State trapping laws, most have enacted trapping laws under their respective tribal codes. However, trapping (in general) is not known to be a common occurrence on any of the tribal lands.

Rodenticide Regulatory Mechanisms

The threats posed to fishers from the use of rodenticides are described above under "***Exposure to Toxicants***." In the final Species Report, we analyzed whether existing regulatory mechanisms are able to address the potential threats to fishers posed from both legal and illegal use of rodenticides. As described in the final Species Report, the use of rodenticides is regulated by several Federal and State mechanisms (e.g., Federal Insecticide, Fungicide, and Rodenticide Act of 1947, as amended, (FIFRA) 7 U.S.C. 136, et seq.; California Final Regulation Designating Brodifacoum, Bromadiolone, Difenacoum, and Difethialone (Second Generation Anticoagulant Rodenticide Products) as Restricted Materials, California Department of Pesticide Regulation, 2014). The primary regulatory issue for fishers with respect to rodenticides is the availability of large quantities of rodenticides that can be purchased under the guise of legal uses, but are then used illegally in marijuana grows within fisher habitat. The amounts of rodenticides commercially available for purchase (but which could then be used for illegal purposes) are greater than the amount of rodenticides that could be expected to kill or harm individual fishers. Both the Environmental Protection Agency (EPA), through its 2008 Risk Mitigation Decision for Ten Rodenticides (EPA 2008, entire), which issued new legal requirements for the labelling, packaging, and sale of

second generation anticoagulants, and California's Department of Pesticide Regulation, through a new rule effective in July 2014, which restricts access to second generation anticoagulants, are attempting to reduce the risk posed by second generation anticoagulants. Although it is currently not clear that these mechanisms have yet been effective in addressing the potential threat of rodenticide and its effects on fishers, the best available information does not support concluding that rodenticide impacts rise to the level of a threat. We reach this conclusion because there is no evidence that ARs are having significant impacts to fishers at either the population or rangewide scales (see additional discussion under ***Exposure to Toxicants***, above).

State Regulatory Mechanisms

Washington

The fisher is listed as endangered in Washington (Washington Administrative Code 232–12–014, Statutory Authority: RCW 77.12.020 WSR 98–23–013 (Order 98–232), § 232–12–014, filed 11/6/98, effective 12/7/ 98). This designation imposes stringent fines for poaching and establishes a process for environmental analysis of projects that may affect the fisher. The primary regulatory mechanism on non-Federal forest lands in western Washington is the Washington State Forest Practices Rules, title 222 of the Washington Administrative Code. These rules apply to all commercial timber growing, harvesting, or processing activities on non-Federal lands, and they give direction on how to implement the Forest Practices Act (Revised Code of Washington (RCW) 76.09) and Stewardship of NonIndustrial Forests and Woodlands (RCW 76.13). The rules are administered by WDNR. The Washington State Forest Practices Rules do not specifically address fishers and their habitat requirements; however, some habitat

components important to fishers, like snags, downed wood, and canopy cover, are likely to be retained in riparian management zones as a result of the rules. Land conversion from forested to non-forested uses is interrelated to private timber harvest, but is primarily regulated by individual city and county ordinances that are influenced by Washington's Growth Management Act (RCW 36.70a). In some cases, these ordinances result in maintaining forested areas within the range of the fisher.

Oregon

In Oregon, the fisher is a protected nongame species (Oregon Administrative Rules (OAR) 635–044– 0130). In addition, ODFW does not allow trapping of fishers in Oregon. Although fishers can be injured and/or killed by traps set for other species, known fisher captures are infrequent. State parks in Oregon are managed by the Oregon Parks and Recreation Department, and many State parks in Oregon provide forested habitats suitable for fisher. The Oregon Forest Practice Administrative Rules (OAR chapter 629, division 600) and Forest Practices Act (Oregon Revised Statutes (ORS) 527.610 to 527.770, 527.990(1) and 527.992) (Oregon Department of Forestry (ODF) 2010, entire) apply to all non-Federal and non-Tribal lands in Oregon, regulating activities that are part of the commercial growing and harvesting of trees, including timber harvesting, road construction and maintenance, slash treatment, reforestation, and pesticide and fertilizer use. The OAR provides additional guidelines intended for conserving soils, water, fish and wildlife habitat, and specific wildlife species while engaging in tree growing and harvesting activities, and these rules may result in retention of some structural features (i.e., snags, green trees, downed wood) that contribute to fisher habitat. There are approximately 821,000 ac (332,300 ha) of State forestlands

within the analysis area that are managed by ODF, and management of these State forest lands is guided by forest management plans. Managing for the structural habitats as described in these plans should increase habitat for fishers on State forests.

California

At the time of the proposed rule, fishers were a Candidate Species in California; thus, take (under the CESA definition) was prohibited during the candidacy period. On June 10, 2015, the California Department of Fish and Wildlife (CDFW) submitted its status review of the fisher to the California Fish and Game Commission, indicating that listing of the fisher in the Southern Sierra Nevada ESU as threatened was warranted, but that fishers in the Northern California ESU were not threatened (CDFW 2015, entire). On August 6, 2015, the California Fish and Game Commission voted to list the southern Sierra Nevada ESU of the fisher as a threatened species under the CESA. Consequently, take, under the CESA definition, is prohibited only in the southern Sierra Nevada portion of the proposed DPS's range. It is also illegal to intentionally trap fishers in California.

The California Environmental Quality Act (CEQA) can provide protections for a species that meets one of several criteria for rarity (CEQA 15380). Fishers throughout the proposed DPS's range in California meet these criteria, and under CEQA a lead agency can require that adverse impacts be avoided, minimized, or mitigated for projects subject to CEQA review that may impact fisher habitat. All non-Federal forests in California are governed by the State's Forest Practice Rules (FPR) under the Z'Berg Nejedly Forest Practice Act of 1973, a set of regulations and policies designed to maintain the economic viability of the State's forest products industry while preventing

environmental degradation. FPRs do not contain rules specific to fishers, but they may provide some protection of fisher habitat as a result of timber harvest restrictions.

Determination

As required by the Act, we considered the five factors listed in section 4(a)(1)(b) of the Act in assessing whether the proposed West Coast DPS of fisher meets the definition of a threatened or endangered species, including: (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.

We examined the best scientific and commercial information available regarding the current and foreseeable future potential threats faced by fishers in the west coast States. We relied on an evaluation of the foreseeability of those stressors and the foreseeability of the effect of the stressors on the proposed DPS, extending this time period out only so far as we can rely on the data to formulate reliable predictions about the status of the proposed DPS, and not extending so far as to venture into the realm of speculation. In this case, many of the stressors fell into a foreseeable future timeframe within which we concluded the effects of stressors on the proposed DPS could be reliably projected out over a time period of approximately 40 years. Thus, for the purposes of this determination, we consider the foreseeable future to extend over a time period of roughly 40 years, as previously described in the proposed listing rule, based on the time horizons for which the effects of the various stressors on the proposed DPS can be reliably

projected into the future (as described under the various stressor discussions in the Species Report (Service 2016, pp. 54, 58–162)).

Summary of Previous Determinations

At the time of our 2004 12-month finding, the proposed West Coast DPS of fisher was described as having lost much of its historical habitat and range. Specifically, the 2004 12-month finding stated (69 FR 18771, April 8, 2004) that the fisher is considered to be extirpated or reduced to scattered individuals in Washington, extant fisher populations in Oregon are restricted to two genetically distinguishable populations in the southern portion of the State, and extant fisher populations in California consist of two remnant populations located in northwestern California and the southern Sierra Nevada Mountains. Regarding population size, the 2004 12-month finding stated that the relative reduction in the range of the fisher on the West Coast, the lack of detections or sightings over much of its historical distribution, and the high degree of genetic relatedness within some populations indicate the likelihood that extant fisher populations are small (69 FR 18772). In addition, threats to the proposed West Coast DPS of fisher were described, including habitat loss and fragmentation, incidental capture, removal of important habitat elements such as cover, mortality from vehicle collisions, decrease in the prey base, human disturbance, small population size and isolation, and the inadequacy of existing regulatory mechanisms (69 FR 18791). The threats were described as occurring across the fisher's range in the west coast States, resulting in a negative impact on fisher distribution and abundance (69 FR 18792). The 2004 12-month finding also stated that additional reintroduced populations of fishers will reduce the probability that a stochastic event would result in extirpation of fishers in the west coast States, and we would

evaluate any conservation strategy developed to determine whether the strategy sufficiently removes threats to the fisher so that it no longer meets the definition of a threatened species under the Act (69 FR 18792). Since the 2004 12-month finding, reintroductions have occurred in the ONP and NSN populations, and another has begun in the South Washington Cascades; however, a multi-State conservation strategy has not been finalized and implemented.

At the time of our proposed listing in 2014, we found that the proposed West Coast DPS of fisher met the definition of a threatened species (likely to become endangered throughout all or a significant portion of its range within the foreseeable future) based on our analysis of the scope and severity of threats impacting the DPS. We found that the main threats to the proposed West Coast DPS of fisher were habitat loss from wildfire and vegetation management, as well as toxicants, and the cumulative impact and synergistic effects of these and other stressors in small populations. We also stated that the proposed West Coast DPS of fisher was not in danger of extinction throughout all of its range because it existed in: (1) Two separate native populations (one small population estimated at approximately 300 fishers and one with population size estimates ranging from 258 to 4,018 fishers) that have persisted; and (2) three reintroduced populations that provide redundancy, representation, and resiliency for the extant populations. We also determined that the threats acting on the proposed West Coast DPS of fisher were not all imminent and not evenly distributed across the DPS. We found at that time that the proposed DPS was likely to become endangered throughout all of its range in the foreseeable future based on multiple threats impacting the two extant native original populations and the cumulative and synergistic effects of

the threats on small populations in the west coast States. We reached that conclusion based on an analysis of the best scientific and commercial information available at that time, as presented in detail in the draft Species Report (Service 2014, entire).

At the time of our proposed listing in 2014, we found there to be considerable uncertainty regarding the level of impacts (magnitude and immediacy of threats) from various stressors potentially affecting the proposed West Coast DPS of fisher. Specifically because of this uncertainty, we sought peer review and public comment on what we clearly identified as several complex issues with regard to the status of the DPS (see **Information Requested** section of the proposed rule (79 FR 60419)) and our proposal to list as a threatened species. For example, we requested information to assist us in evaluating the magnitude and overall immediacy of threats to fisher populations within the proposed DPS (including toxicants, wildfire, climate change, and vegetation management), and comments on the methodology for developing stressor scope and severity, adequacy in revealing assumptions and uncertainties, appropriateness of data extrapolations, and applicability and interpretation of quantitative stressor values presented in the draft Species Report. Through our initial evaluation of peer review and public comments received, we determined that these complex issues, as they related to our 2014 analysis and the status of fishers in the west coast States, deserved additional analysis. Consequently, we published a 30-day extension of the initial comment period (79 FR 76950; December 23, 2014) and then later opened an additional comment period concurrent with our announcement of a 6-month extension of the final determination of whether to list the West Coast DPS of fisher as a threatened species (80 FR 19953; April 14, 2015). We received a variety of opinions and material (e.g., conflicting information,

some scientific disagreement) from the peer reviewers and from the public and conservation partners.

Current Determination

As indicated above regarding feedback from peer reviewers, the public, and conservation partners, we received a substantial amount of varied scientific, other agency, and public input on our proposal to list the West Coast DPS of fisher. In addition, we held numerous internal Service discussions regarding interpretation of the best available information and what it meant for the status of fisher both prior to and following the October 7, 2014 (79 FR 60419), proposed listing of the West Coast DPS of fisher. During these internal discussions, varied opinions were expressed and vetted. The extensive disparity in comments received (including those from peer reviewers and others) during the open comment periods highlighted the fact that considerable uncertainty remained as to potential threats to fisher and its current and future status.

Our regulations direct us to determine if a species is endangered or threatened due to any one or combination of the five threat factors identified in the Act (50 CFR 424.11(c)). We consider cumulative effects to be the potential threats to the species in totality and combination; this finding constitutes our cumulative effects analysis. The discussions summarized above and provided in detail in the final Species Report evaluated the individual impact of the following potential threats to the proposed West Coast DPS of fisher and its habitat: (1) wildfire and fire suppression (Factor A); (2) forest insects and tree diseases (Factor A); (3) effects of climate change (Factors A and E); (4) vegetation management (Factor A); (5) development, including linear infrastructure (Factor A); (6) trapping and incidental capture (Factor B); (7) research activities (Factor

B); (8) disease or predation (Factor C); (9) collision with vehicles (Factor E); (10) exposure to toxicants (Factor E); (11) small population size and isolation (Factor E); and (12) cumulative or synergistic effects. We also evaluated the inadequacy of existing regulatory mechanisms (Factor D). Our determination as reflected in this document thus is based upon an analysis of these stressors in accordance with the five factors required by the statute. Although this determination utilizes a different structure than what was presented in the proposed rule, where each stressor was analyzed under its particular statutory factor, it contains the same types of analyses that we have previously depicted under the five factor framework.

Upon careful consideration and evaluation of all of the information before us, we have arrived at a different conclusion regarding the status of fishers in the west coast States. In our proposed determination, we identified stressors that could impact the species negatively and identified three of those stressors (wildfire and fire suppression, vegetation management, and small population size and isolation) as threats. We also identified exposure to toxicants (specifically ARs) and cumulative effects from multiple stressors as threats, although there were uncertainties at that time. We applied the standards we had laid out in our proposed rule, which set forth that this determination 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 stressors that could impact a species negatively is not sufficient to compel a finding that listing is appropriate; we require evidence that these stressors are operative threats that act on the species to the point that the species meets the definition of an endangered or threatened species under the Act (October 7,2014; 79

FR 60419, p. 60427). Following our analysis of all the best available scientific and commercial information, we now conclude that, although fishers in the west coast States have clearly been exposed to multiple stressors, in some cases over many decades, the best available data do not indicate significant impacts at either the population or rangewide scales, currently or in the foreseeable future. In other words, stressors may be impacting some individual fishers or habitat in one or more populations, but the information we have does not show that the stressors are functioning as operative threats on the fisher's habitat, populations, or the proposed DPS as a whole to the degree we considered to be the case at the time of the proposed listing. Thus, the stressors acting upon fisher populations are not of such imminence, intensity, or magnitude that they are manifesting themselves at either the population or rangewide scales, nor is there evidence to suggest that they will do so in the future (i.e., the next 40 years). Absent evidence of significant impacts at either the population or rangewide scales, in this case we cannot conclude that the stressors acting on fishers or their habitat within the proposed West Coast DPS are so great that the DPS is currently in danger of extinction (an endangered species), or that it is likely to become an endangered species within the foreseeable future (definition of a threatened species). Therefore, the proposed West Coast DPS of fisher does not meet the definition of an endangered or threatened species, and we are withdrawing the proposed rule to list the West Coast DPS of fisher as a threatened species.

Significant Portion of the Range

Under the Act and our implementing regulations, a species may warrant listing if it is an endangered or a threatened species throughout all or a significant portion of its

range. The Act defines "endangered species" as any species which is "in danger of extinction throughout all or a significant portion of its range," and "threatened species" as any species which is "likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." The term "species" includes "any subspecies of fish or wildlife or plants, and any distinct population segment [DPS] of any species of vertebrate fish or wildlife which interbreeds when mature." On July 1, 2014, we published a final policy interpreting the phrase "Significant Portion of its Range" (SPR) (79 FR 37578). The final policy states that (1) if a species is found to be an endangered or a threatened species throughout a significant portion of its range, the entire species is listed as an endangered or a threatened species, respectively, and the Act's protections apply to all individuals of the species wherever found; (2) a portion of the range of a species is "significant" if the species is not currently an endangered or a threatened species throughout all of its range, but the portion's contribution to the viability of the species is so important that, without the members in that portion, the species would be in danger of extinction, or likely to become so in the foreseeable future, throughout all of its range; (3) the range of a species is considered to be the general geographical area within which that species can be found at the time FWS or NMFS makes any particular status determination; and (4) if a vertebrate species is an endangered or a threatened species throughout an SPR, and the population in that significant portion is a valid DPS, we will list the DPS rather than the entire taxonomic species or subspecies. It is important to note that we do not base a determination to list a species on the status of the species in lost historical range; in other words, lost historical range

cannot be considered an SPR. The focus of an SPR analysis is the status of the species in its current range.

The SPR policy is applied to all status determinations, including analyses for the purposes of making listing, delisting, and reclassification determinations. The procedure for analyzing whether any portion is an SPR is similar, regardless of the type of status determination we are making. The first step in our analysis of the status of a species is to determine its status throughout all of its range. If we determine that the species is in danger of extinction, or likely to become so in the foreseeable future, throughout all of its range, we list the species as an endangered (or threatened) species and no SPR analysis will be required. If the species is neither an endangered nor a threatened species throughout all of its range, we determine whether the species is an endangered or a threatened species throughout a significant portion of its range. If it is, we list the species as an endangered or a threatened species, respectively; if it is not, we conclude that listing the species is not warranted.

When we conduct an SPR analysis, we first identify any portions of the species' range that warrant further consideration. The range of a species can theoretically be divided into portions in an infinite number of ways. However, there is no purpose to analyzing portions of the range that are not reasonably likely to be significant and either an endangered or a threatened species. To identify only those portions that warrant further consideration, we determine whether there is substantial information indicating that (1) the portions may be significant and (2) the species may be in danger of extinction in those portions or likely to become so within the foreseeable future. We emphasize that answering these questions in the affirmative is not a determination that the species is an

endangered or a threatened species throughout a significant portion of its range—rather, it is a step in determining whether a more detailed analysis of the issue is required. In practice, a key part of this analysis is whether the threats are geographically concentrated in some way. If the threats to the species are affecting it uniformly throughout its range, no portion is likely to warrant further consideration. Moreover, if any concentration of threats apply only to portions of the range that clearly do not meet the biologically based definition of "significant" (i.e., the loss of that portion clearly would not be expected to increase the vulnerability to extinction of the entire species), those portions will not warrant further consideration.

If we identify any portions that may be both (1) significant and (2) endangered or threatened, we engage in a more detailed analysis to determine whether these standards are indeed met. The identification of an SPR does not create a presumption, prejudgment, or other determination as to whether the species in that identified SPR is an endangered or a threatened species. We must go through a separate analysis to determine whether the species is an endangered or a threatened species in the SPR.

Depending on the biology of the species, its range, and the threats it faces, it may be more efficient to address the "significant" question first, or the status question first. Thus, if we determine that a portion of the range is not "significant," we do not need to determine whether the species is an endangered or a threatened species there; if we determine that the species is not an endangered or a threatened species in a portion of its range, we do not need to determine if that portion is "significant."

Because we determined that the proposed West Coast DPS of fisher is neither endangered nor threatened throughout all of its range, we must next determine whether

the proposed DPS may be endangered or threatened in a significant portion of its range. To do this, we must first identify any portion of the proposed DPS's range that may warrant consideration by determining whether there is *substantial information* indicating that: (1) The portions *may be* significant, and (2) the proposed DPS *may be* in danger of extinction in those portions or is likely to become so within the foreseeable future. We note that a positive answer to these questions is not a determination that the proposed DPS is endangered or threatened within a significant portion of its range, but rather a positive answer to these questions confirms whether a more detailed analysis is necessary.

Our current evaluation of the best scientific and commercial data available, as described earlier in this document and in our final Species Report, leads us to conclude that the stressors acting upon fishers in the west coast States are not of sufficient imminence, intensity, or magnitude to indicate that they are singly or cumulatively resulting in significant impacts at either the population or rangewide scales currently or in the foreseeable future. Thus, the proposed DPS does not meet the definition of endangered or threatened under the Act. For this SPR analysis we first evaluated whether the proposed West Coast DPS of fisher may be in danger of extinction in portions of its range or likely to become so within the foreseeable future. To make this determination, we considered whether the stressors affecting the entire proposed DPS might be manifesting themselves in the form of significant impacts at the population scale only in certain portions of the range, such that the fisher in those portions may be an endangered or threatened species under the Act.

We have determined that currently and in the foreseeable future:

(1) The stressors affecting the proposed West Coast DPS of fisher occur in most populations within the west coast States but are not having significant impacts at the population scale in any portion of the proposed DPS's range. For example, ARs may be more problematic in certain populations (e.g., NCSO, SSN); however, as described above in the ***Exposure to Toxicants*** section, they are not resulting in significant impacts at either the population or rangewide scales.

(2) The fisher is not exhibiting population declines in any portion of its range.

Thus, at this time, fishers in any portion of their range in the west coast States do not meet the definition of an endangered or threatened species under the Act. Because we determined that no portion of the proposed West Coast DPS of fisher's range *may be* in danger of extinction in those portions or is likely to become so within the foreseeable future, it was not necessary to assess whether any portion of the range may be significant under the SPR policy. Therefore, in accordance with our SPR policy, no portion of the range of the proposed West Coast DPS of fisher warrants further consideration to determine whether the West Coast DPS of fisher is endangered, or threatened throughout a significant portion of its range.

We encourage the continuing development and implementation of positive conservation actions for the benefit of fishers and their habitat, as exemplified by the CCAAs currently underway in association with our State and private conservation partners, to ensure against the future need to reconsider the listing of fisher in the west coast States.

Summary of Comments and Recommendations

In the proposed rule published on October 7, 2014 (79 FR 60419), we requested that all interested parties submit written comments on the proposal by January 5, 2015. This proposed rule also announced one public hearing and seven public informational meetings held in California, Oregon, and Washington. This comment period was subsequently extended an additional 30 days, as announced on December 23, 2014 (79 FR 76950), and closed on February 4, 2015. Finally, the Service announced the reopening of the comment period on April 14, 2015 (80 FR 19953), for an additional 30 days, and we announced a 6-month extension of the final determination of whether or not to list the proposed West Coast DPS of fisher due to substantial disagreement regarding available information related to toxicants and rodenticides (including law enforcement information and trend data) and related to surveyed versus unsurveyed areas (including data on negative survey results) to help assess distribution and population trends. This second comment period on the proposed listing rule closed on May 14, 2015.

We contacted appropriate Federal and State agencies, scientific experts and organizations, and other interested parties and invited them to comment on the proposal (we additionally solicited peer review at this time; see *Peer Review*, below). We also received requests for public hearings. We held one public hearing in Redding, California, on November 17, 2014. We held seven public informational meetings in: (1) Yreka, California, on November 13, 2014; (2) Medford, Oregon, on November 17, 2014; (3) Arcata, California, on November 20, 2014; (4) two meetings in Lacey, Washington,, on November 20, 2014; (5) Visalia, California, on December 3, 2014; and (6) Turlock, California, on December 4, 2014. Newspaper notices inviting general public comment and advertisement of the information and public hearings were published in the Seattle

Times, The Oregonian, Herald and News, Medford Tribune, Eureka Times-Standard, Siskiyou Daily News, Redding Record Searchlight, Sacramento Bee, Modesto Bee, and Fresno Bee.

During the two comment periods, we received more than 460 comment letters directly addressing the proposed listing of the West Coast DPS of fisher. Submitted comments were both for and against listing the DPS, including some for and against listing different geographic configurations of the DPS. During the November 17, 2014, public hearing, 12 individuals (3 from the same organization) commented on the proposed rule; all were opposed to the proposed listing. All substantive information provided during the comment periods has been incorporated into the final Species Report and, where applicable, summarized or addressed in this withdrawal. As noted in our proposed rule, comments that merely express support for or opposition to a particular action may not meet the standard of information required under section 4(b)(1)(A) of the Act, which directs that determinations as to whether any species is an endangered or threatened species must be made "solely on the basis of the best available scientific and commercial data available" (79 FR at 60422).

A substantial amount of new information was received from peer reviewers and the public (including old information of which we were not aware and some literature published just prior to the proposed listing rule publication), all of which we have reviewed, considered, and incorporated (where applicable and appropriate) into the final Species Report, this **Federal Register** document, or our files. We also reviewed and considered other new information such as recently published journal articles and

unpublished reports associated with management activities or research projects. All of this new information was considered for this final decision.

Peer Review

In accordance with our peer review policy published on July 1, 1994 (59 FR 34270), we solicited expert opinion from 27 appropriate and independent specialists with scientific expertise that included familiarity with fisher and their habitat in the west coast States, including biological needs and threats. We received responses from 22 of the peer reviewers.

We reviewed all comments received from the peer reviewers for substantive issues and new information regarding the listing of the proposed West Coast DPS of fisher. Peer reviewer comments are addressed in the following summary and incorporated into this withdrawal document as appropriate.

Peer Review Comments Received

Climate Change

(1) Comment: Two peer reviewers did not believe that the Service's summary of climate change impacts in the proposed rule matched the analysis of climate change in the body of the draft Species Report. The peer reviewers disagreed with the Service's conclusion that climate change is not a threat now or in the future. A third peer reviewer pointed to several statements in the draft Species Report that the reviewer believed supports climate change as a threat, such as "ecotypes that support fisher habitat may decrease in area;" "where habitat area decreases the number of fishers that can be supported by the habitat will also decrease;" and "loss of habitat could threaten the viability of native and reintroduced populations, and would reduce the likelihood of

reestablishing connectivity between populations." This peer reviewer noted that the Service found other complex and unpredictable stressors to pose a threat to the fisher, such as wildfire and vegetation management; the peer reviewer believed that if those issues can conclusively be determined to pose a threat to the fisher, then climate change should also be found to pose a significant threat to the species. On the other hand, a fourth peer reviewer was pleased that the Service acknowledged uncertainty where it exists and agreed with the Services' conclusion in the proposed rule [79 FR 60433] that we do not have sufficient data to reliably predict the effect of climate change on fisher populations at this time.

Our Response: The summary of climate change in the proposed rule [79 FR 60429] stated that, although many climate models generally agree about the changes in temperature and precipitation, the consequent effects on vegetation are more uncertain. Therefore, it is not clear how changes in forest type, species composition, or growth rate will affect the availability of fisher habitat and its ability to support fisher populations (Service 2014, pp. 71–84). Consequently, at this time, climate change is not viewed as a threat to fisher habitat now or in the future. We have not received any new information that would lead us to change this conclusion; all of the best scientific and commercial data available to us continues to underscore the uncertainty with regard to the projected effects of climate change specific to fishers and fisher habitat.

In the *Summary of the Effects of Climate Change on Fisher Habitat* section (Service 2014, p. 80), the draft Species Report stated: "In all or most sub-regions of the analysis area, fisher habitat will be altered, with likely shifts away from conifer forest and towards an increased hardwood component, or from maritime conifer forest to drier

temperate conifer forest. It is uncertain how these habitat shifts will affect fisher populations. Modeling projections are done at a large scale and effects to species can be complex, unpredictable, and highly influenced by local level biotic and abiotic factors." Although we did not consider climate change to be a threat to fisher or their habitat, we did discuss in the proposed rule (79 FR 60434–60435) that we considered climate change to be one of multiple synergistic factors acting on small population size, although the impacts would depend on the scope and severity of each of the stressors. We also noted the potential for climate change-induced habitat shifts in the future according to modeling projections and how those may affect fisher populations, although it is important to note that there are inherent uncertainties in modeling climate change habitat effects into the future and across the fisher's range in the west coast States. We do not agree that modeling future wildfire and vegetation management habitat effects are as complex and unpredictable as modeling those of climate change because we used past effects of these stressors to predict into the future. We have no information on past effects of climate change to project into the future.

Our analysis of all the best scientific and commercial data available, including new information received during the open comment periods, reaffirms our initial conclusion that we do not have sufficient data to reliably predict the effect of climate change on fisher populations at this time. For example, some models project that ecotypes that support fisher habitat may decrease in area in response to the effects of climate change. However, as noted in both our draft and final Species Reports, depending on the emissions scenario considered and other variables, various models also predict that fisher habitat may increase in area, remain relatively stable, or shift in range.

We have clarified in the final rule that climate change, by itself, is not a threat. In addition, the cumulative and synergistic effects of climate change and other stressors acting on small populations do not pose a threat to the proposed West Coast DPS of fisher, based on insufficient evidence that climate change acting alone or synergistically on small populations is having significant impacts at either the population or rangewide scales, or is likely to do so within the foreseeable future.

(2) Comment: Several peer reviewers noted that, because fishers prefer habitat at low- to mid-elevations and areas with no snowfall, there would likely be an increase in their habitat as global temperatures increase. One peer reviewer mentioned that a decrease in snowpack could lead to more fisher habitat at higher elevations, and allow increased habitat connectivity through those mountaintops. Another peer reviewer stated that the Service should consider how alterations in snowpack could benefit the fisher, but opined that there would not be any significant net benefit to such decreases in snowpack when compared to the other negative impacts of climate change.

Our Response: The draft Species Report (Service 2014, p. 13) discussed the effects of snow conditions and ambient temperatures on fisher activity and habitat use and concludes that fishers' reaction to snow likely depend on a myriad of factors and are variable across the range of the species. We mentioned the possible benefits of lower snowfall amounts, and the drawbacks of less precipitation falling as snow, to fishers and their habitat (Service 2014, p. 76). Peer reviewers also pointed us to more recently available modeling efforts that additionally suggested fishers may benefit to some degree from climate change as a consequence of reduced snowpack; we have incorporated this information into our final Species Report (Service 2016, pp. 78–98).

(3) Comment: One peer reviewer believed that climate change would have a positive impact on fishers because climate change is expected to result in increased hardwood species, which develop the cavities used by nesting fishers much more rapidly than conifers do, and because an increase in hardwood species in a forest usually results in increased diversity in prey species.

Our Response: The "Climate Change Effects on Fisher Habitat" section of the final Species Report contains an in-depth discussion of the effects of climate change across the fisher's range in the west coast States. In the Klamath region, for example, Lawler *et al.* (2012, pp. 385–386) predict a shift from conifer to hardwood-dominated mixed forests and woodlands, by the end of the twenty-first century. We agree that in some instances, climate change may have a positive impact on fishers because of an increase in the diversity of hardwood species, which in turn may lead to an increase in the number of den structures, and abundance and diversity of prey species. However, it is important that we note the distinction between any possible benefits of increased hardwoods and the potentially negative impacts of a vegetation shift toward a woodland community.

However, as we stated in both the draft and final Species Reports, it is uncertain how these habitat shifts will affect fisher populations, and because modeling projections are done at a large scale, effects to species can be complex, unpredictable, and highly influenced by local level biotic and abiotic factors (Service 2014, p. 80; Service 2016, p. 84, 87–88, 91–95). Because of the uncertainty of the effects of climate change on fisher populations, the Service does not agree with the peer reviewer that we can conclude climate change will have an overall positive impact on fishers.

(4) Comment: One peer reviewer suggested that the mid-century projections of climate change presented in the draft Species Report are flawed because they were developed by extrapolating predictions out 100 years and then adjusting backward in time. The peer reviewer pointed out that projections for the late 21st century are an order of magnitude less certain than those for mid-century because of the cumulative error associated with longer runs of the models plus the multiple errors associated with the many feedbacks in the global system. The peer reviewer claimed that the approach used in the draft Species Report, in which effects projected for the late 21st century were halved, magnifies these errors and is inappropriate. The peer reviewer suggested it would be more accurate to rely on models that are designed for mid-century projections, even if there are fewer available. The peer reviewer noted that this problem undermines the conclusions drawn in the draft Species Report regarding the timing, scope, and severity of the effects of climate change on fisher habitat.

Another peer reviewer stated that the correlative climate change models we used in the draft Species Report are not robust because the time periods chosen were not random. Thus, the peer reviewer stated that the 8-fold increase is a model extrapolation that is not accurate for the purposes of this analysis.

Our Response: We agree with these criticisms. Taking end of century projections and then adjusting backward in time is not appropriate, as it improperly assumes that the rate of change is linear and constant over time, which is not the case and leads to misleading results. We have modified our final Species Report to present projections only in the timeframes over which they were modeled and reported. We have used mid-century results only if they were available to us, but as so many models project

out over a roughly 100-year timeframe, we have reported late century results as well. We note that late century results are provided for informational purposes only, as we consider predictions on that long-term timeframe to be beyond our foreseeable future for the purposes of making reliable predictions about the effects of stressors on the conservation status of the fisher. As described in our final Species Report, most climate change models are in agreement until mid-century, or approximately 40 years from now, at which point they diverge in magnitude and severity depending on the emissions scenario. For this reason we chose 40 years in the future as that period of time over which we could make reliable predictions with regard to the potential effects of climate change on fishers and fisher habitat.

(5) Comment: One peer reviewer stated that the assumption in the draft Species Report that vegetation change would occur rapidly and begin immediately was not supported by studies that use empirical data. The peer reviewer cited several studies that suggest that shifts in tree distribution caused by climate change will be slow, and that these changes will be slowed or prevented by interspecific competition. The peer reviewer further noted that climate is not a strong predictor of tree growth or species limits in low-elevation forests, and that existing data (Ettinger and Lambers 2013) predict a much slower effect of climate change on tree species than was described in the draft Species Report, and that the effect may be outside of the foreseeable future range described in the proposed listing rule.

Our Response: We have incorporated discussion of additional studies and models into our final Species Report. Although we acknowledge the ongoing debate and uncertainty as to the potential rate of vegetation change and tree species range shifts in

response to climate change, we are required use our expertise to make a determination based on the best available evidence. In most cases, as suggested by the peer reviewer, the best available scientific data suggests that range shifts for long-lived tree species are likely to occur relatively gradually, and likely extend beyond our foreseeable future timeframe. However, we also recognize the possibility of some more relatively rapid range shifts in some portions of the analysis area, particularly in response to significant disturbance events. For example, models are in agreement regarding biogeographic shifts in vegetation cover over time, and the uncertainty as to when these shifts will occur and how they may specifically affect fishers within the analysis area is too great for us to rely upon these predictions with any confidence in our evaluation.

(6) Comment: One peer reviewer noted that it will be difficult to predict the effects of climate change on fine-scale landscape and habitat features, particularly as the effects of climate change on fire and drought are not expected to be consistent across the historical range of fishers in the western United States. The peer reviewer cited a study (Rapacciulo *et al.* 2014) that showed significant variation in biogeographic feature response to predicted climate change throughout California. Another peer reviewer also cited the work of Rapacciuolo *et al.* (2014) as providing further evidence that forest habitat would likely be more favorable to fisher. Therefore, based on this information, the second peer reviewer stated that it is probable that the potential effects of climate change may not be relevant to fisher conservation within the foreseeable future (40 years) horizon considered in the proposed rule.

Our Response: We generally agree with both peer reviewers assessments, and have incorporated the information from the referenced study into our final Species

Report. We have additionally acknowledged the uncertainty associated with climate change projections beyond a 40-year time horizon with particular regard to predicting future conditions specific to fisher. Overall, we found the projections from multiple studies provided an array of likely outcomes, ranging from a decrease in suitable habitat to an increase in suitable habitat, with some studies predicting that large areas of the fisher's current range will remain relatively stable. In sum, our review of the best available information for the time period beyond a 40-year time horizon did not produce any clear, consistent predictions for the consequences of climate change with regard to fishers and fisher habitat across the west coast States over the time horizon considered here. However, within the 40-year timeframe (i.e., foreseeable future), we have concluded that there is no information to suggest that climate change will result in significant, negative impacts to fishers or their habitat at either the population or rangewide scales. Thus, climate change does not rise to the level of a threat (see ***Climate Change***, above).

(7) Comment: Two peer reviewers recommended that the Service assess the effects of climate change on prey and prey habitat. One peer reviewer highlighted multiple new recent studies assessing the future impacts of climate change on small mammals, as well as on mustelids.

Our Response: We have incorporated additional discussion of the potential effects of climate change on the abundance and diversity of fisher prey species into our final Species Report (Service 2016, pp. 83–86). However, like so many of the projections with regard to climate change, the results of studies are equivocal with regard to the potential impacts of climate change on prey populations. Although some studies

suggest a possible decrease in prey, or that prey may shift in range in response to climate change (e.g., Moritz *et al.* 2008, entire), others suggest that prey populations may remain steady or even increase in response to predicted changes in vegetation, such as increased areas of shrubland, that will result in increased ecotype diversity and thus greater foraging opportunities for fisher (e.g., Safford 2006, and references therein). In addition, the fact that fishers are generalist predators helps buffer fishers from potential declines in any particular prey species, as they are able to take advantage of a wide variety of prey species that may be available.

(8) Comment: One peer reviewer commended the way that the Service outlined concerns related to climate change. However, the peer reviewer also expressed puzzlement that the proposed listing rule did not identify climate change as a threat to fisher. The peer reviewer noted the fisher is a habitat specialist, and California is the southernmost part of its range on the west coast, and stated that the effects of climate change have been shown to have the highest effects on species in the southern portion of their ranges. Based on the number, scope, and severity of the stressors associated with climate change, and particularly the way that climate change interacts with other stressors facing the fisher, the peer reviewer asserted that climate change is a threat to the fisher.

Our Response: Please see response to *Comment (1)* above.

(9) Comment: One peer reviewer stated that the uncertainty inherent with climate change predictions should not preclude its recognition as a stressor, as there is some degree of uncertainty present in all stressors. The peer reviewer stated that climate change was the only stressor in the draft Species Report that was not recognized as a threat due to uncertainty, and the rationale for that was not clear. The peer reviewer

stated that, due to the synergistic effects of climate change with other stressors, it should be considered as an important threat impacting the fisher and its habitat.

Our Response: Please see our response to *Comment (1)* above. As described in our final Species Report, we carefully evaluated all existing and new information provided by peer reviewers and public comment regarding the potential effects of climate change specific to fishers in the proposed West Coast DPS. Based on the best scientific and commercial information available at this time, we conclude that, although we can make general predictions about future environmental conditions as a consequence of climate change on a relatively broad scale, this information does not allow us to draw any reliable conclusions with regard to the future availability of the specific habitat elements and conditions required to sustain the proposed West Coast DPS of fisher. In addition, the best available scientific and commercial data do not indicate likely significant impacts to fisher in terms of direct mortality as a consequence of climate change in the analysis area. Studies specific to fishers in the face of predicted climate change scenarios are equivocal in their results, and there is no general scientific agreement that points to ongoing or future significant impacts at either the population or rangewide scales to the West Coast DPS of fisher as a consequence of climate change. Therefore, although we recognize the effects of climate change as a stressor, we cannot conclude that climate change rises to the level of a threat to the proposed West Coast DPS of fisher now or in the foreseeable future.

(10) Comment: One peer reviewer considered the estimates of tree species distributional changes to be too rapid, stating that they were calculated at less than 100 years, whereas the lifespan of forest trees in the Pacific Northwest is typically greater

than 100 years. Based on the lifespan, the peer reviewer stated that shifts in tree species distribution will occur on a much longer time scale.

Our Response: We have incorporated discussion of additional studies and models into our final Species Report (Service 2016, pp. 83–89), and acknowledge the ongoing debate and uncertainty as to the potential rate of vegetation change and tree species range shifts in response to climate change. In most cases, as suggested by the peer reviewer, the best available scientific data suggests that range shifts for long-lived tree species are likely to occur relatively gradually, and likely extend beyond our foreseeable future timeframe. However, we also recognize the possibility of some more relatively rapid range shifts in some portions of the analysis area, particularly in response to significant disturbance events (for example, drought and severe fire). Nonetheless, although we may observe the beginning of shifts in tree species distribution in response to climate change in the relatively near future, we conclude there is no evidence to suggest that widespread, wholesale changes in tree species distribution are likely to be realized within the analysis area in the foreseeable future. We have updated the final Species Report to more clearly express this interpretation of the best available scientific data. See also our response to *Comment (5).*

(11) Comment: One peer reviewer noted that the references from the work of the Intergovernmental Panel on Climate Change (IPCC) used in the draft Species Report are out of date, and suggested that we use the most recent data from the Fifth Assessment Report, which uses new model runs using the Representative Concentration Pathways instead of older emissions scenarios. The peer reviewer noted that results are similar

enough that much of the substance remains unchanged, but urges the Service to use the most up-to-date data.

Our Response: We have updated the final Species Report with information from the IPCC Fifth Assessment Report.

Collision With Vehicles

(12) Comment: One peer reviewer referenced unpublished data about 11 fisher deaths due to collisions with vehicles on the Olympic Peninsula, and asked if those deaths had been included in calculations of vehicle mortality in Table 22 of the draft Species Report. The peer reviewer noted that the number of fisher collisions with vehicles in the Olympic Peninsula appear to be higher than elsewhere in the range of the proposed DPS.

Our Response: At the time of writing the draft Species Report, we were aware of the 11 documented fisher deaths by vehicles (Service 2014, p. 147). However, the severity scores presented for Washington (1 to 4) were based on severity calculated for the NCSO population (as part of our quantitative analysis) because we lacked data for quantifying Washington-specific severity. We acknowledge that Lewis (2014, p. iii) reported 20 percent mortality from vehicle strikes and that this percentage is higher than many other reported mortality rates for vehicle strikes. However, we are not updating the calculations of severity in the final Species Report for any of the stressors evaluated. We received comments indicating that the quantitative approach we used in the draft Species Report implies a greater level of precision, accuracy, and certainty than we have; so, for that reason (as described earlier in this document), we now present our assessment of the stressors in qualitative, rather than quantitative, terms, to avoid creating a false sense of

precision with regard to the level of scientific accuracy underlying our estimates. In the final Species Report and the "Collision With Vehicles" section of this document, we conclude (including consideration of information specific to fishers on the Olympic Peninsula) that vehicle strikes do not rise to the level of a threat to fisher in Washington or any portion of the fisher's range in the proposed West Coast DPS.

Completeness and Accuracy

(13) Comment: One peer reviewer suggested that transparency would be aided by making reports of fisher observations public information, and suggested that if these observations were considered sensitive material, they could be presented at a relatively coarse scale to avoid precise location information.

Our Response: All comments, including location data submitted as part of the public comment periods for the proposed rule are available on the Internet at *http://www.regulations.gov* at Docket No. FWS–R8–ES–2014–0041. We received many detection data sets during the public comment period, and this information is currently being reviewed for redundancy against the survey records we had obtained previously. The fisher locality database currently consists of more than 17,000 positive and negative locality data records. When this quality control process is complete, we hope to be able to create an updated map of positive and negative survey information. We will make maps of this information available when we have completed this quality control process.

(14) Comment: One peer reviewer suggested that some additional, upfront discussion of taxonomy would help clarify the relationship between fishers in the west coast States (now recognized in the monotypic genus *Pekania*) and what were until

recently recognized as three subspecies of *Martes pennanti—M.p. pennanti, M.p. Columbiana,* and *M. p. pacifica*. The peer reviewer believed the relationship between fishers in the west coast States and these three formerly recognized subspecies was not clear. Furthermore, the peer reviewer stated that it was unclear when the word "fisher" was used in the draft Species Report whether it referred specifically to fishers in the proposed West Coast DPS or possibly to fishers in general. The peer reviewer suggested this distinction is important, as Rocky Mountain or Eastern North American populations of fishers, although potentially used for surrogate information, may be biologically very different.

Our Response: Because we have never referred to fishers in the proposed West Coast DPS as a portion of a subspecies, we have not revised the history of fisher taxonomy in the final Species Report, as the peer reviewer requested. Both the draft and final Species Reports distinguish between references to the species as a whole (*Pekania pennanti*) and to fishers in the west coast States, in those instances where the distinctions were unclear. We agree that there are important biological and habitat differences among fisher populations that are found in the eastern, central, northwestern, and Pacific regions of the species' range, most studies of which were conducted in regions outside of the proposed West Coast DPS, as indicated in the draft and final Species Reports.

(15) Comment: One peer reviewer suggested that the draft Species Report adopt some standard nomenclature for the various regions and subregions referenced throughout the document. The peer reviewer noted that many readers may not be familiar with the geography of the area in question or the alternate systems of geographical classification that have been used historically. In particular, the peer

reviewer suggested that the report should present the system of geographic units to be used early in the document to provide clarity for the reader.

Our Response: We appreciate the suggestion by the peer reviewer. However, we used different descriptions of subregions in the draft Species Report depending on whether we were referring to the review of stressors or to the habitat model regions. Figure 11 in the draft Species Report (Service 2014, p. 49) provided a map of the analysis area subregions for review of the stressors and now appears in the final Species Report (Service 2016, on page 56).

(16) Comment: One peer reviewer stated that it was unclear from the presentation in the draft Species Report that there was supporting methodology behind the habitat modeling. The peer reviewer asked that the methods either be integrated into the final Species Report itself, or be cited directly within the report to provide transparency as to how the models were derived.

Our Response: We thank the reviewer for the suggestion. The supporting methodology for the habitat modeling results presented in the draft Species Report was in the document "*Habitat Modeling Methods For The Fisher West Coast Distinct Population Segment Species Assessment*," which was made available on the Internet at *http://www.regulations.gov* at Docket No. FWS–R8–ES–2014–0041. We have included the methodology as Appendix B in the final Species Report, as suggested. In addition, we have revised the final Species Report so that it refers to this methodology document.

Detection Probability

(17) Comment: One peer reviewer requested a more detailed discussion of the way detection probability estimates from different studies were calculated. The peer

reviewer noted that there were considerable differences between the methodologies in the quoted studies.

Our Response: The purpose of the draft and final Species Reports is to summarize the best available scientific and commercial information regarding the fisher. A detailed discussion of the various methodologies used to calculate detection probabilities in different studies is beyond the scope of the species report. However, to aid the reader, we have provided in the final Species Report citations to the literature concerning the different studies to allow readers easier access to the details of the methodologies. We appreciate the comment.

(18) Comment: One peer reviewer appreciated the thorough analysis of known fisher detections, but requested more clarity on any negative detections for fishers, particularly given the secretive nature of fishers. The peer reviewer queried if detections outside of the expected range of fisher indicated an expanding population, males in search of mates, or increased survey effort combined with improved detection ability through use of digital cameras. The peer reviewer recommended including a map of all positive and negative surveys for fisher that followed appropriate detection protocols.

Our Response: Figure 6 in the draft Species Report included all opportunistic and systematic surveys (with both positive and negative results), as well as fisher trapping efforts for research and other verifiable records (e.g., fisher telemetry data) since 1993. Opportunistic and systematic surveys (with both positive and negative results), fisher trapping efforts for research, and other verifiable records (e. g. fisher telemetry data) from 1993–2013. A comparison of Figure 6 with Figure 7 (which presents all locality records from 1993 to the present with reliability ratings 1 and 2) illustrates the areas where

surveys, trapping efforts, or research have occurred, but fishers have not been detected at a reliability rating of 1 or 2 since 1993.

We received many detection data sets during the public comment period, and this information is currently being reviewed for redundancy against the survey records we had obtained previously. The fisher locality database currently consists of more than 17,000 positive and negative locality data records. As we received new detection information, we reviewed information, and in particular, sought instances where such detections occurred outside the currently expected range. At this time, we cannot reliably conclude whether these new detections are based on improved or increased monitoring methods, or a biological response by fishers, nor is it possible to determine the reason for the detections (i.e., whether it is a male in search of a mate, etc.). However, as discussed in the final Species Report, we do have some evidence of potential contact among the NCSO, NSN, and SOC populations. Several coordinated and comparable carnivore detection surveys are underway this winter throughout the Oregon Cascades that will aid in our understanding of fisher distribution in western Oregon.

Development

(19) Comment: One peer reviewer provided comments on the assessment of human population growth as a threat to fisher. The peer reviewer noted that recent demographic data in Oregon supports the Service's assessment that human population growth is not a threat to fishers because much of rural Oregon is experiencing slow to no population growth even as urban areas increase in size; yet the reviewer believed our assessment may still overestimate the overall effect, with parts of rural Oregon experiencing slow to no population growth and other rural areas expected to decrease in

population size through 2040. The peer reviewer also noted that Oregon's Land Use Planning System makes the development of forested areas difficult and requested that this situation be acknowledged in the final Species Report.

Our Response: We reviewed the information on Oregon's Land Use Planning system and have incorporated this information into our description of regulatory mechanisms in the final Species Report. In addition, we have reviewed the information regarding projected population growth in rural Oregon and incorporated that information into the final Species Report. Any overestimate of the development stressor (which is what we assume the peer reviewer was referring to when describing "human population growth" impacts) as observed by the commenter is within the realm of precision provided by our current analysis. Furthermore, any error as a result of a possible overestimate of this stressor did not change our final determination that development is not a threat to fishers in the proposed West Coast DPS.

Disease or Predation

(20) Comment: One peer reviewer provided data on incidences of canine distemper in southern Oregon between 2010 and 2014, which was an outbreak that affected multiple species of mid-sized carnivores, including fox, coyote, and raccoon. The peer reviewer stated that fisher may have been affected by this outbreak.

Our Response: We have included this information on the incidences of canine distemper in southern Oregon between 2010 and 2014 in the final Species Report. However, we note that we lack evidence that fisher were affected.

Distinct Population Segment (DPS)

(21) Comment: Four peer reviewers supported reconfiguration of the proposed DPS boundary to either Alternative 1 or 2 for one or more of the following reasons that they believe are biologically appropriate:

(1) Genetic evidence (Tucker *et al.* 2012) suggests a break in the distribution along the length of the Sierra Nevada, including that the fisher population was isolated prior to European settlement.

(2) The SSN population harbors distinctly different habitat, fire regimes, geography, and ownership patterns, suggesting that fishers in this area behave differently, have different needs, and will require a different conservation strategy than the rest of the West Coast fishers.

(3) The SOC and NCSO populations show no genetic exchange despite their relatively close proximity, and thus should not be part of a single DPS.

(4) The introduced fisher populations should not be included in the proposed DPS because they are more closely associated with their source populations as opposed to native populations.

(5) Alternative 2 is the most appropriate configuration based on the small number of animals present [note: we presume the commenter was referring to the SSN population] throughout the identified potentially suitable habitat, and the current risks identified for the small population as compared to the NCSO population.

(6) Alternative 2 is the most appropriate configuration because both nuclear and mtDNA research support a clear division between the Sierra Nevada and the remainder of the fishers in North America. Comprehensive research suggests that

the SSN population is a well-supported DPS, with a separate/second DPS along the West Coast being everything north of the SSN population.

(7) The NCSO population should be managed as a separate management unit (although not necessarily a DPS) from the reintroduced populations with British Columbia origins.

Our Response: We solicited comments from peer reviewers and the public regarding the possibility of different DPS configurations for fishers in the west coast States. We recognize and appreciate that there are many possible approaches to delineating potential DPSs, and that there may be valid arguments in support of (or against) aspects of each. However, at this time, our end decision is to use the original DPS configuration as presented in the proposed listing rule. Per section 4 of the Act and its implementing regulations, we have carefully assessed the best scientific and commercial data available regarding the potential threats to the proposed West Coast DPS of the fisher and have herein withdrawn our proposal to list this DPS.

(22) Comment: Eight peer reviewers suggested not changing the proposed DPS configuration from what was described in the 2004 proposed listing rule to either of the proposed alternatives for one or more of the following reasons:

(1) Alternative 1 is not reasonable because it would exclude the ONP population based on genetic distinctiveness, yet includes the NCSO and SSN populations despite the fact that they are genetically distinct.

(2) Alternative 1 would result in the exclusion of suitable habitat in Oregon and Washington that may be important to fishers given future climate change predictions.

(3) Alternative 2 is inappropriate because genetic evidence (statistical differences in neutral markers) is not strong enough to split the two Sierra Nevada populations and fails to protect the northern Sierra Nevada population when\if it expands from the reintroduction area. Additionally, there is an absence of samples from the currently unoccupied area to justify splitting the proposed DPS in California.

(4) Alternative 2 is inadequate to improve the fisher's status throughout the west coast.

(5) Neither alternative engenders recovery, although Alternative 1 is better than Alternative 2 because it promotes connectivity.

(6) Excluding much of Oregon and Washington (as in Alternative #1) or the currently unoccupied area in the Sierra Nevada (as in Alternative #2) is contrary to the goal of restoring the species to its historical range.

(7) Neither alternative provides for future climate change concerns that may result in a northward shift of fishers, as well as their habitat and prey. One peer reviewer asserted that this specific area north of the Alternative 1 and 2 boundaries is germane to the proposed DPS's recovery given the species past distribution from British Columbia to California, and the habitat modeling results that indicate future suitable habitat focused north of both the Alternative 1 and 2 boundaries.

(8) Neither alternative is supported by strong evidence for the historical distribution of fishers in significant portions of Washington and Oregon; thus, an

effort to conserve the taxon should not exclude areas where their return via management actions is scientifically justified.

(9) Neither alternative includes the SOC population.

(10) Both alternatives prevent what should be a long-term conservation goal of reconnecting all fisher populations to Canada.

(11) Neither alternative provides the combined conservation of preserving the native genetics and expanding the range of the proposed DPS to reoccupy suitable habitat in Washington and Oregon.

One of these eight peer reviewers stated that Alternative 1 or 2 should only be considered if they were found to be the only politically feasible path at the current time to ensure the long-term conservation of fishers in the west coast States. Another one of the eight peer reviewers also stated that a separate DPS for the SSN population would likely be beneficial to allow special management for recovery.

Our Response: Listing decisions made under section 4(b)(1)(A) of the Act are to be made solely on the basis of the best scientific and commercial data available. Although we recognize that our DPS policy (61 FR 4722; February 7, 1996) provides relatively great latitude in terms of the identification of a potential DPS—that is, there may be numerous possible configurations of DPSs identified for any one vertebrate species—the fundamental evaluation of whether any potential DPS meets the criteria of our DPS policy remains grounded in science. We first evaluate any potential DPS to determine whether it meets our criteria for discreteness and significance; the latter criterion, in particular, is specifically identified as a measure of the population's "biological and ecological significance." Considerations as to whether a particular DPS

may be politically feasible do not enter into our evaluation. Additionally, we note it would be predecisional to draw a DPS boundary with an eye to where the species should be.

As noted above, we solicited comments from peer reviewers and the public regarding the possibility of different DPS configurations for the West Coast populations of fisher. However, at this time, our end decision is to use the original DPS configuration as presented in the proposed listing rule

(23) Comment: One peer reviewer who did not specify a preferred DPS configuration (but provided concerns related to each as described in the proposed rule) stated that if the Service proceeds with listing the DPS as proposed in 2004, then the cumulative population size and effective population size are so large that the threats leading to the proposed DPS's extinction would be diminished, which comes into play regarding the Service's concerns about small population dynamics. The peer reviewer expressed a much graver concern if the DPS configuration was revised into multiple DPSs, and in particular, about a SSN DPS and its likely ability to persist into the future.

Our Response: We understand the peer reviewer's position and agree that a small DPS may be inherently more vulnerable to stressors that could potentially reduce long-term viability as compared to a larger DPS. We do wish to clarify for the public that our process for delineating a particular DPS does not include an assessment as to whether any particular configuration may be more or less likely to meet the definition of endangered or threatened under the Act. Our evaluation under the DPS policy (61 FR 4722; February 7, 1996) follows a three-step process in which we first determine whether the particular population in question is discrete, and if so, whether that population is also biologically

and ecologically significant to the taxon to which it belongs. If a population segment is both discrete and significant (i.e., it qualifies as a DPS), then at that point we evaluate its potential status based on the Act's definitions of endangered or threatened and a review of the factors enumerated in section 4(a) of the Act. We do not consider it appropriate to first determine whether a population may potentially meet the definition of endangered or threatened under the Act, prior to our evaluation of whether the population in question may qualify as a valid DPS. See also our response to *Comment (22).*

(24) Comment: One peer reviewer stated that the NCSO population is expanding beyond the boundary described in the proposed listing rule (referencing genetics data that has documented at least one occurrence of a male fisher having traversed from the NCSO population to the SOC population). Given this information and the 40-year time horizon for our evaluation, the peer reviewer suggested that the Service combine the SOC and NCSO populations as one unit for conservation purposes, as they will likely become indistinguishable over this time period.

Our Response: We appreciate the peer reviewer's opinion. Our end decision at this time is to use the original DPS configuration as presented in the proposed listing rule. As this single DPS encompasses most of the fisher's historical range in Washington, Oregon, and California, the question of whether to potentially combine the SOC and NCSO populations for the purposes of delineating any smaller DPS is moot. This information will be useful and an important consideration, however, as we continue to develop management strategies and to work toward the conservation of fisher throughout its range, and we thank the peer reviewer for the information. We note that in

our final Species Report we have combined both the SOC and NSN populations within the greater NCSO population.

(25) Comment: One peer reviewer asserted that the Service did not use recent molecular genetic information (e.g., Knaus *et al.* 2011, Tucker *et al.* 2012, Tucker 2013, Tucker *et al.* 2014) to distinguish potential separation of DPSs between the NCSO and SSN populations. The peer reviewer stated that these literature sources suggest long-term isolation of the NCSO and SSN populations (similar to DPS Alternative 2 as opposed to one large three-State DPS as outlined in the proposed listing rule).

Our Response: We have expanded our discussion of the available information regarding the molecular genetics of fisher populations in our final Species Report (Service 2016, pp. 133–137). We solicited comments from peer reviewers and the public regarding the possibility of different DPS configurations for fishers in the west coast States. We also recognize that molecular genetic information could be utilized to delineate potentially different population segments. Many different biological or ecological considerations may come into play in delineating potential DPSs; as a result, it is often possible to identify multiple possible DPS configurations, all of which may technically meet our DPS criteria of discreteness and significance. However, at this time, our end decision is that the original DPS configuration as presented in the proposed listing rule is most appropriate.

(26) Comment: One peer reviewer asserted that if the proposed DPS configuration changes to Alternative #2, the Service should account for a recovery area large enough in the SSN population area to support a population size that would not suffer the stochastic genetic and demographic effects of small populations. The peer

reviewer stated that this may require expanding the current SSN population boundary outlined in DPS Alternative #2 further north.

Our Response: At this time, we are withdrawing the proposed rule to list the West Coast DPS of fisher under the ESA, and our end decision is to use the original DPS configuration as presented in the proposed listing rule. If in the future we consider an alternative DPS that includes the SSN population, we will thoroughly consider the most appropriate northern boundary of the SSN population area.

Distribution

(27) Comment: One peer reviewer requested clarification on how the range extent for the Olympic Peninsula population was calculated, and provided new information from Lewis (2014) on range expansion in Western Washington.

Our Response: In regard to Table 1 in the draft Species Report, the range extent for fisher on the Olympic Peninsula was calculated using GIS by roughly approximating the area of the Olympic Peninsula where we knew reintroduced fishers to have been generally reported. The peer reviewer is correct that Lewis (2014) reported a larger study area, thus our estimate of current range extent for the Olympic Peninsula is slightly undervalued. We have not amended Table 1 in the final Species Report, however, as the differences are relatively minor. We did use the best available information to conclude that the proposed West Coast DPS of fisher does not meet the definition of an endangered or threatened species under the Act (see **Determination**, above).

(28) Comment: One peer reviewer stated that evidence indicated fishers have expanded their range and probably increased in population density and abundance in north coastal California and possibly other portions of the NCSO region, though they

acknowledged that such an increase was not a large area and may not be significant relative to the overall proposed DPS. The peer reviewer's conclusions were based on historical information from maps (e.g., Grinnell *et al.* 1937), photographs, and tracking records as compared to the current fisher distribution. The peer reviewer stated that the historical trapping of martens and not fishers in the redwood zone (west coast) is compelling evidence that fishers did not historically occur in this coastal strip of old-growth redwood forests, yet current fisher distribution records indicate fishers are "commonly found" in the redwoods, and cites Thompson (2008) in reporting one of the highest densities of fishers on the west coast. The peer reviewer also stated that this comparison suggests that there are several other areas where the current fisher distribution may have increased, although information on historical trapping effort in those areas was not available. The peer reviewer further observed that expansion into the redwood region occurred in spite of extensive logging and loss of old-growth forest that occurred there since the time of Grinnell *et al.'s* (1937) map, speculating that historical logging practices left more of the structural features that fishers depend upon (e.g., snags, downed woody debris, den and rest trees), and that clearcutting redwood forests increases the densities of prey species such as dusky-footed wood rats.

Our Response: The peer review specifically mentioned northern coastal California as an example of where fisher distribution may have expanded, but didn't elaborate on what other portions of the NCSO population may also exhibit an expansion. As such, we limit our response to the northern coastal California region described by the peer reviewer.

We agree with the peer reviewer that there may be localized expansion of fisher distribution. The peer reviewer's comment that fishers did not historically occur in the coastal strip of old-growth redwood forests is supported by Grinnell *et al.*'s (1937, p. 216) historical distribution map, which excludes coastal coniferous forest habitat in north coastal California in Del Norte, Humboldt, and Mendocino counties. Zielinski *et al.* (1997, p. 385) reported several fisher detections within coastal "redwood-Douglas fir" habitat in southern Del Norte and northern Humboldt counties based on surveys conducted between 1989 and 1994. Figure 7 in the draft and final Species Report (Service 2014, p. 31; Service 2016, p. 34) and Figure 1 of the proposed listing rule show numerous recent (i.e., since 1993) fisher detections within coastal coniferous forest habitat throughout Del Norte County and in northern Humboldt County.

The peer reviewer's assertion that an increase in "...population density and abundance in north coastal California" is similar to conclusions presented by Slauson *et al.* (2003, pp. 10–11). Slauson *et al.* (2003, pp. 10–11) noted that, although fishers were not historically known to be common in old-growth redwood forests, they have more recently been found in this area, despite over 90 percent of the old-growth redwood forest being logged and most of the area being managed on short rotations. Slauson *et al.* (2003, pp. 10–11) also noted that fisher detections suggested they used second-growth forest habitats more than old-growth redwoods in this area.

Both the proposed listing rule and draft Species Report (Service 2014, pp. 13–17) cite numerous studies that suggest fishers are consistently associated with low to mid-elevation coniferous and mixed-conifer and hardwood forests with abundant physical structure. The key aspects of fisher habitat are best represented in areas that are

comprised of forests with diverse successional stages containing a high proportion of mid- and late-succcessional characteristics. In addition, fishers avoid larger open areas such as meadows and clearcuts. Extensively logged areas may contain suitable habitat for some fisher prey species, but generally lack abundant large structural elements (e.g., trees, snags, logs) required for denning and resting. However, Raley *et al.* (2012), cited in the Habitat Associations section of the draft Species Report (Service 2014, p. 15), reported that it may benefit fishers to have a diversity of forest conditions within their home ranges to increase access to prey, *provided* important habitat features supporting reproduction (den sites) and thermoregulation den and rest sites) are available. Consistent with Raley *et al.'s* (2012) assertions, Slauson *et al.* (2003, p. 11) found that the redwood second-growth stands in which fishers were found were among the most structurally complex, as well as near old-growth redwood patches.

Multiple commenters provided information on fisher use of managed landscapes and this information was also presented in the draft Species Report (Service 2014, p. 17). In addition, we have noted the historical change in fisher occurrence in the redwood portion of the proposed DPS.

Existing Regulatory Mechanisms

(29) Comment: One peer reviewer requested further details on the Forest Service's Fisher Analysis Suitability Tool, which was mentioned in the draft Species Report. The peer reviewer was particularly interested in determining how the tool has been used by Forest Service biologists and what impacts, if any, it has had on project planning.

Our Response: We appreciate the interest; however, further elaboration regarding the use of the Forest Service's Analysis Suitability Tool in project planning for fishers is outside the scope of this rulemaking. We recommend that questions regarding the tool or impacts of its use be directed to the Forest Service.

(30) Comment: One peer reviewer discussed the Service's use and interpretation of a study by Zielinski *et al.* (2006) in our discussion of "Existing Regulatory Mechanisms that may Address Stressors" in the draft Species Report (Service 2014, p. 123). The peer reviewer urged caution "when considering expanding late-successional reserves for a species that can use managed forests." The peer reviewer also cautioned extrapolation of the study's results because the analysis generates a theoretical set of new reserves based on models for fisher and northern spotted owls. The peer reviewer claimed that the draft Species Report does not adequately take into account the fisher's ability to use managed forest reserves because: (1) The study did not address the necessary size of a reserve to support fisher, (2) much of the suitable habitat predicted by the fisher model occurred on Federal land, and (3) the study asserted that the fisher's use of private timber lands was due to climatic factors and vegetation types rather than seral stage (it does not fully investigate the possibility that fishers may use younger forests).

Our Response: The peer reviewer may have misunderstood our reason for including Zielinski *et al.* (2006, pp. 409–430) in the draft Species Report. The purpose of the "Existing Regulatory Mechanisms that may Address Stressors" section in the draft and final Species Reports is to present the best available information on any regulatory mechanisms that are currently in place and to discuss how these mechanisms affect stressors acting on the proposed DPS. For example, a regulatory mechanism could

ameliorate, exacerbate, or have no effect on the stressors. Our discussion in the draft and final Species Reports does not anticipate expanding late-successional reserves, but merely attempts to gather all pertinent information that may inform the topic of the benefits or drawbacks of existing regulatory mechanisms. may inform the topic of the benefits or drawbacks of existing regulatory mechanisms. We did not intend to suggest that Zielinski *et al.* (2006, pp. 409–430) is a source for the approximation of reserve sizes for fishers, that fisher habitat is only present on Federal land, or that fishers avoid younger forests. Nevertheless, we did add to the final Species Report the caveats noted by Zielinski *et al.* (2006, p. 426) to qualify their conclusions (Service 2016, pp. 166–167)

We acknowledge fishers' use of managed landscapes (Federal and non-Federal), multiple seral stages, and potential climate-related influences. We received numerous comments in that regard. Please see our responses to peer review *Comments (37), (39),* and *(57),* below.

(31) Comment: One peer reviewer suggested adding more detail on the Oregon State Wildlife Action Plan and its conservation strategy to the final Species Report, and provided some suggested language. The peer reviewer also discussed the Oregon Forest Practices Act (FPA) and provided clarification on protections that benefit fisher habitat within Riparian Management Areas. Finally, the peer reviewer discussed the protections afforded to forested habitat from Goal 4 of the Land Use Planning Act, and recommended adding more detail on these protections to the final Species Report. The peer reviewer believed that, without these additions, the Species Report would overestimate the threats to fisher in Oregon.

Our Response: We have added fisher-specific information from the Oregon Conservation Strategy to the final Species Report, as well as expanded the description of the riparian regulations from the Oregon Forest Practices Act. In addition, we added information on Oregon's Land Use Planning Act into the regulatory mechanisms description in the final Species Report.

(32) Comment: One peer reviewer disagreed with the Service's conclusion about the effectiveness of NEPA and the Forest Service's Sensitive Species Program in conserving the fisher. The peer reviewer stated that NEPA analyses often find effects to individuals rather than populations, and that these analyses do not account for cumulative population effects as a result of vegetation management activities. The peer reviewer concluded that these two programs result in superficial analyses and are less effective for protecting species than described in the draft Species Report.

Our Response: The Service considers NEPA to be an important environmental disclosure statute. Our discussion of NEPA in the draft Species Report and proposed rule in the **Federal Register** clearly states that the evaluation of projects under NEPA does not regulate or protect fisher nor does it require or guide potential mitigation for project impacts. Our characterization of the Forest Service sensitive species program was that protections afforded the fisher as a sensitive species largely depend on LMPs or LRMPs and on site-specific project analyses and implementation. We appreciate the peer reviewer's comment, but stand by our characterization of these two mechanisms (NEPA and the Forest Service's Sensitive Species Program).

Fisher Biology

(33) Comment: One peer reviewer was surprised that the draft Species Report did not include a section on community ecology or community interactions, particularly on potential negative interactions between fishers and martens or other forest carnivores. The peer reviewer stated that a discussion of community ecology (including consideration of the references provided) would allow exploration of potential synergistic interactions with existing stressors.

Our Response: Our decision to withdraw our proposed rule to list the West Coast DPS of fisher as a threatened species is based on our determination that the stressors (including predation by other forest carnivores) acting upon the proposed DPS are not of sufficient imminence, intensity, or magnitude such that they are singly or cumulatively resulting in significant impacts at either the population or rangewide scales now or in the foreseeable future. Our analysis of cumulative effects of stressors including predation by other forest carnivores adequately considers interaction between fishers and other forest carnivores.

(34) Comment: One peer reviewer was surprised to note that all estimates of fisher population size and habitat occupancy were all from unpublished reports. The peer reviewer thought that more estimates should be taken from peer-reviewed papers or official reports, but did not provide any references or examples.

Our Response: Contrary to the peer reviewer's observation, we included available published and peer-reviewed information in describing fisher population size and occupancy in the draft Species Report, such as Zielinski *et al.* (2004, 2013) (Service 2014, pp. 40, 43). We also added newly published information, such as Sweitzer *et al.* (2016) that became available for the final Species Report (Service 2016, pp. 60, 66, 69).

We acknowledge that most of the population information used is in unpublished reports, but, as required by the Act, we must use the best scientific and commercial information available to reach our determination. Thus, in addition to the published information, we also used information concerning population size and habitat occupancy found in several unpublished reports (see *Species Information* section of this document and the "Distribution and Abundance" section of the final Species Report (Service 2016, pp. 25–53)).

(35) Comment: One peer reviewer called attention to a sentence in the habitat stressors summary of the draft Species Report that stated, "…habitat loss, modification, and fragmentation appear to be significant stressors to fishers." The peer reviewer noted that, though the document provides support for conclusions about habitat alteration and habitat loss through supporting literature or original analysis, there is no analysis of habitat fragmentation. The peer reviewer suggested that any analysis of habitat fragmentation should use a landscape metric, such as a comparison of patch size distribution over time, or a change in inner patch distances. In addition, the peer reviewer noted that the draft Species Report needs to cite references or original analysis to support conclusions made about fragmentation.

Our Response: The peer reviewer is correct that we did not specifically model the effects of habitat fragmentation on fishers in the proposed West Coast DPS. However, the results of the Fisher Analysis Area Habitat Model (Service 2014, Figures 2 and 3) did show that, in certain areas, connectivity within fisher population areas is disrupted as a result of habitat quality. We have revised the final Species Report to include references

to the results of the Fisher Analysis Area Habitat Model and other literature that relates to habitat fragmentation (Service 2016, pp. 58–62, Appendix B).

Forest Management

(36) Comment: One peer reviewer believed that the draft Species Report overstated the scope and severity for the stressor of timber harvest in Washington. The peer reviewer suggested that the reason for the issue might be that the analysis combined private and State lands, which have different levels of timber harvest. The peer reviewer further noted that low-density rural land in Washington seems to support fishers.

Our Response: Although the scope is correct as presented in the draft Species Report, we agree with the peer reviewer that including State lands with other non-Federal lands in the Washington portion of this analysis leads to an overestimation of severity (we stated this on page 95 of the draft Species Report). In any case, we have revised our assessment of stressors presented in the draft Species Report, as our presentation of the scope and severity of stressors in quantitative terms may have created a false sense of precision with regard to the level of scientific accuracy underlying these estimates. As described earlier in this document, in our final Species Report we use quantitative data wherever available, but if specific data are lacking, we rely on qualitative evidence to derive a qualitative descriptor of each stressor, based on the best scientific and commercial information available, rather than extrapolating. We, therefore, present a qualitative description of timber harvest on State lands and other non-Federal lands in our final Species Report, which we have concluded is most appropriate for our analysis; this adjustment should address any concerns expressed by the peer reviewer in regard to the potential overestimate of scope and severity of this stressor in Washington. Finally,

although fisher may be able to persist on low-density rural lands in Washington in some instances as the reviewer suggests, we do not have sufficient data to confirm or evaluate fisher use of this habitat type.

(37) Comment: One peer reviewer believed the draft Species Report failed to consider that managed forests may preserve or create new habitat for fisher, even in the face of climate change. The peer reviewer asserted that not all fisher habitat will be left subject to "natural processes" and, therefore, recommended that the Service consider whether managed forests may serve as refugia for fisher.

Our Response: The effects of vegetation management, and by proxy managed forests, on fishers, and the range of impacts that silvicultural treatments may have on fisher habitat, are discussed in the draft Species Report (Service 2014, pp. 86–87, 94–95), and expanded discussion is provided in the final Species Report (Service 2016, pp. 98–111). Because the outcomes of forest management are variable depending upon the objectives of the treatments, it is not appropriate to consider all managed forests as potential refugia for fisher. Both the draft and final Species Reports acknowledge that managed forests provide habitat for fishers if those forests provide sufficient amounts and adequate distribution of key habitat and structural elements required by fishers. The revised discussion on this topic in the final Species Report addresses the concerns of the peer reviewer.

We further interpret the peer review comment to suggest that forest management may ameliorate the effects of climate change on fisher habitat by shifting forest tree species to those that are more drought resistant (e.g., pine) or by reducing stocking levels so that forests are more resistant to catastrophic wildfire. While there is much

uncertainty about the localized effects of climate change within the various subregions of the proposed West Coast DPS of fisher, we agree that active management of forests may improve drought tolerance and reduce the severity and intensity of wildfires.

(38) Comment: One peer reviewer commented that while a certain population had high tolerance for both fuels reduction and recreational use, other populations may not show the same tolerance. The peer reviewer also noted that while fishers in the southern Sierra Nevada had shown some tolerance to fuel treatments, all watersheds had not seen such pressure. The peer reviewer concluded that more work is needed on the issue of commercial logging and thinning, and its effect on fisher.

Our Response: Fisher response to disturbance is likely to vary depending upon the ambient levels of noise and activity that occur within individual home ranges, as well as the existing condition and configuration of habitat. The scale, intensity, and distribution of disturbance events, such as vegetation management and recreation, may alter the overall ability of the landscape to support fishers (Powell and Zielinski 1994, p. 64; Weir and Corbould 2010, pp. 408–409; Naney *et al.* 2012, entire). Although there is no published work evaluating the direct effects of fuel treatments on fisher populations, various studies indicate that management to reduce fire risk or restore ecological resilience may be consistent with maintaining landscapes that support fishers in both the short and long term, provided that treatments retain appropriate habitat structures, composition, and configuration (Spencer *et al.* 2008, entire; Scheller *et al.* 2011, entire; Thompson *et al.* 2011, entire; Truex and Zielinski 2013, entire; Zielinski 2013, pp. 17–20). However, some recent research also indicates that certain types of fuels reduction treatments, such as mechanical thinning, may result in fisher avoidance of treated areas,

at least in the short term (e.g., Garner 2013; see final Species Report, p. 68). We agree that more research is needed to fully understand the impacts of vegetation management on fisher habitat and the ability of fisher to persist in managed landscapes.

(39) Comment: One peer reviewer asserted that the habitat features described for the fisher in the draft Species Report were too narrow. The peer reviewer pointed out that fishers have been documented on managed forest lands, and concluded that the Service should consider a broader range of habitat features in the final Species Report, including younger forests and stands with residual black oak.

Our Response: The draft and final Species Reports acknowledge that managed forests provide habitat for fishers if those forests provide sufficient amounts and adequate distribution of key habitat and structural elements (Service 2014, p. 17, citing Self and Callas 2006, entire and Reno *et al.* 2008, pp. 9–16; Service 2016, p. 19). The peer reviewer comment cited personal communications and unpublished data that were not provided to us and are not available to us; therefore, we are unable to include these data in our final Species Report. Through the public and peer review process, however, we did receive additional documentation of fisher habitat use that was used in an expanded discussion of fisher use of managed forests that we have incorporated into our final Species Report.

(40) Comment: One peer reviewer agreed with the Service that there are no estimates available of the fitness of fisher populations in different habitats, and that obtaining this information is unlikely given the difficulty of estimating demographic parameters for fishers. Thus, the peer reviewer questioned how the Service was able to assess impacts of habitat management on fishers. Given that timber harvesting was

primarily responsible for the complete extirpation of fishers in some areas concurrent with the persistence or recovery of fishers in other areas, the peer reviewer suggested that the amount, spatial pattern, or type (silvicultural technique) of timber harvesting be assessed to determine whether a different impact—trapping—had a serious effects on fishers everywhere in the west coast (as suggested in the draft Species Report).

The peer reviewer also suggested that there should be a strong correlation between the relative amount of late-seral and old-growth forests modeled as high quality fisher habitat not subjected to timber harvest and the persistence of fishers in the west coast. The peer reviewer's brief analysis of this situation suggested that the persistence or recolonization of fishers may not strongly correlate with past timber harvest, particularly in portions of the NCSO population that may have experienced high levels of past timber harvest with fragmented regions of high-quality habitat.

Our Response: As noted in the draft Species Report, individual stressors potentially acting on fisher or fisher habitat may also be acting in concert with other stressors. Though not explicitly discussed in the draft Species Report, the combined effects of past trapping and past timber harvest may have influenced the patterns of extirpation/recolonization the peer reviewer is questioning.

Past trapping of fishers appears to have been the primary initial cause of fisher population losses in the Pacific States (Service 2014, p. 112). Trapping and unregulated harvest varied by location, and were likely influenced by topographic features (Service 2014, pp. 110–111). Localized extirpations or greatly reduced numbers of individual fishers as a result of trapping mean that it became more difficult for remaining fishers to find one another and successfully recolonize previously occupied habitat. Adding to this

scenario, large-scale loss of important habitat components from timber harvest also reduced the available habitat and increased fragmentation, making it difficult for remaining fishers to encounter other fishers.

Specific data are not available to quantify the severity of trapping by each sub-region (Service 2014, p. 112). Because of this lack of data, it is difficult to determine if the NCSO population was either not subjected to the trapping pressures observed in other areas, or that the types of timber harvest in the area were more conducive to the persistence of fishers on the landscape.

(41) Comment: One peer reviewer questioned the Service's statement that the magnitude and intensity of timber harvest is "one of the main reasons that fisher have not recovered on the west coast as compared to the northeast U.S." The peer reviewer agreed that timber harvest has been a primary impact; however, the peer reviewer questioned the Service's statement implying that timber harvest in the northeastern United States has been less severe than the western United States. The peer reviewer requested clarification, given that there have been substantial losses of old-growth on the east coast and current estimates indicate that only 1 percent of old-growth forests remain there, and given there is little Federal ownership and significantly higher human population densities that create more fragmented and intensively managed forests in the east as compared to the west coast.

Our Response: We did not mean to suggest that timber harvest in the eastern United States was more or less severe than in the western United States. We reviewed the statement questioned by the peer reviewer and offer the following clarification. The draft Species Report (Service 2014, p. 56) stated: "Consequently many fisher researchers

have suggested that the magnitude and intensity of past timber harvest is one of the primary causes for fisher declines across the United States (Douglas and Strickland 1987, p. 512; Powell 1993, pp. 77–80, 84; Powell and Zielinski 1994, p. 41) and has been offered as one of the main reasons fishers have not recovered in Washington, Oregon, and portions of California as compared to the northeastern United States (Aubry and Houston 1992, p. 75; Powell 1993, p. 80; Powell and Zielinski 1994, pp. 39, 64; Lewis and Stinson 1998, p. 27; Truex *et al.* 1998, p. 59)." This was not meant to be a comparison of the relative severity of timber harvest in the west or the east. Rather, timber harvest and trapping declined in the 1930s in the eastern United States, and abandoned farmland began to return to a forested condition (Powell 1993, p. 80). Large-scale loss of important habitat components resulted from previous forest management practices that began in the 1800s and ended in the early 1990s in the west (Service 2014, p. 55). Thus, habitat in the eastern United States was recovering while much of the western United States continued to be harvested. Fisher in the eastern United States, therefore, have had more time to recolonize habitats under reduced trapping pressure and increased habitat availability than fisher in the west.

(42) Comment: One peer reviewer commented that the draft Species Report did not include any consideration of habitat recruitment from riparian buffer and leave trees, features that the peer reviewer asserts will increase habitat connectivity and lead to the eventual creation of structural features essential to fisher. The peer reviewer noted that private industrial and managed lands make up a substantial portion of the analysis area, and that these lands are subject to forest practice rules to preserve these features. The

peer reviewer provided references regarding legacy structures and dead wood in managed forest lands.

Our Response: The draft and final Species Reports (Service 2014, pp. 119–144; Service 2016, pp. 162–189) and the "Existing Regulatory Mechanisms" section of this document provide discussion of the Federal, tribal, and State regulatory mechanisms for Washington, Oregon, and California. Protection measures for riparian areas are a widespread standard in managed forests lands, with larger buffers and more stringent retention requirements typically associated with Federal and State lands than on other ownerships (Service 2014, p. 143). Many areas retained as riparian buffers or for other management goals (e.g., spotted owl special emphasis areas under Washington Forest Practice Rules, anchor habitats on Oregon State Forests, occupied site buffers on multiple ownerships, and Watercourse and Lake Protection Zones on private land in California) are not large enough to support a fisher home range (Service 2014, p. 143). However, they may provide habitat patches that allow fisher to move across the landscape, providing connectivity to and facilitating dispersal between larger blocks of fisher habitat either within existing ownerships among neighboring ownerships (Service 2014, p. 143). We reviewed the references provided by the peer reviewer and updated the final Species Report, as appropriate. Please see also our responses to *Comments (171)* and *(188),* below.

(43) Comment: One peer reviewer asserted that the severity ranking given to stressors related to vegetation management was too high, as it did not adequately consider the ability of the fisher to use managed forest habitat. The peer reviewer provided several references that demonstrate the use by fishers of fire-treated forest stands. Overall, the

peer reviewer stated that the Service should reevaluate the severity of habitat stressors in light of the fisher's use of managed forest habitat.

Our Response: We received multiple comments suggesting that we had understated the degree to which fishers may utilize a variety of successional stages of forests as well as actively managed forests. Our final Species Report incorporates a more robust discussion of the types of habitats used by fishers for their various life-history needs. With the exception of the fisher habitat trend analysis done for the southern Sierra Nevada, our final analysis of vegetation management was limited to looking at trends in vegetation classification based on predefined vegetation and structural classes that we related to fisher habitat quality. We considered fisher use of managed forests and structurally complex younger forests in selecting these predefined vegetation and structural conditions, when available, and noted their use in our vegetation management analysis in the final Species Report (Service 2016, pp. 98–111). Based on our thorough evaluation of the best scientific and commercial data available with regard to the present and future effects of vegetation management, as well as other stressors identified for fishers, fisher populations do not currently appear to be in decline, and no specific threats were identified as having significant impacts to the fisher or its habitat at either the population or rangewide scales. For more discussion, see the ***Vegetation Management*** section of this document and the final Species Report.

Fuels Treatments

(44) Comment: One peer reviewer noted that the draft Species Report seemed to lack a section that evaluated the comparative negative direct effects and indirect beneficial effects of fuel treatment on fisher habitat. The peer reviewer noted that the

coefficient of vegetation management calculated in the draft Species Report seems to assume that all forest acres affected by fuel treatment are degraded, when some studies have shown that fishers seem to tolerate the level of fuel treatment necessary to reduce fire severity. The peer reviewer stated that, although there are negative impacts from fuels treatment, there are also indirect benefits, and it is important for the Service to consider that tradeoff in the final Species Report.

Our Response: The peer reviewer is correct in that the draft Species Report primarily (but not completely) focused on the negative aspects of fuels treatments on fisher habitat. In the data sets we used to calculate the coefficient of vegetation management, we could not determine the degree of habitat modification or removal that was planned in the treated areas. On private lands, we did not estimate amount of habitat lost to fuels treatments because we only had information for commercial timber harvest plans. Further, we recognize, as described in the final Species Report, that fuels treatments may indirectly benefit fisher habitat by reducing the severity and extent of fires occurring within or adjacent to fisher habitat, but we could not filter such types of treatment out of the available data, as acknowledged in the draft Species Report (Service 2014, p. 93). See also our response to *Comment (58).*

Our assessment in the final Species Report has been updated to include additional discussion of the effects of fuels reductions treatments on fishers and fisher habitat; although there are many indirect benefits from some treatments, we note that our assessment of the best available scientific information additionally identified some potentially negative effects as well (Service 2016, pp. 99–111).

(45) Comment: One peer reviewer observed some tolerance by fishers to light fuel reduction activities. The peer reviewer provided three examples of female fishers inhabiting areas currently or recently subject to fuel treatment, but noted that the treatment in that area had been minimal. The peer reviewer also thought that one fisher may have remained in a fuel treatment area because she was surrounded on all sides by other female fishers and may have been unable to relocate. The peer reviewer concluded that some fishers may experience delayed responses to fuel treatment, but overall may also tolerate areas treated for fuels that maintain large-diameter trees and canopy closure.

Our Response: We appreciate the observations provided by the peer reviewer. The peer reviewer also provided a monitoring report to support the observations, and we considered this new information, in addition to other information received from other commenters, in our final analysis.

Genetics

(46) Comment: One peer reviewer suggested that the genetic separation of the Southern Sierra Nevada population might not be due to geographic separation, but due to a genetic bottleneck caused by overharvesting.

Our Response: We thank the peer reviewer for this suggestion, and acknowledge there are a variety of historical mechanisms that may have contributed to the genetic structure currently observed in native fisher populations (see the new genetic information discussion in the "Small Population Size and Isolation" section of the final Species Report (Service 2016, pp. 133–136).

(47) Comment: One peer reviewer commented that, although the Service reviewed recent fisher genetic information, it did not appear that this information was used in distinguishing the proposed DPS boundaries (for example, the peer reviewer noted the genetic separation of the NCSO and SSN populations). The peer reviewer provided multiple sources to back up the assertion.

Our Response: In the proposed listing rule we solicited comments from peer reviewers and the public regarding the possibility of different DPS configurations for fishers in the west coast States. We thank the peer reviewer for the information provided, but note that genetic information represents only one of the criteria that we may consider in determining whether a population may meet the requirements of our 1996 DPS policy. We did use genetic information along with other information, including that provided by the peer reviewer, to aid in our final decision regarding the DPS boundary. For our final analysis, we also provided an expanded discussion of genetics in the final Species Report (Service 2016, pp. 133–136). At this time, our end decision is to use the original DPS configuration as presented in the proposed listing rule, which is consistent with Congressional direction that the Services apply the DPS policy "sparingly." See also our response to *Comment (25)*.

(48) Comment: One peer reviewer provided new information from the individual's nearly completed study on fisher DNA. The results show that the SSN population was the most genetically separate from any other sampled area. The peer reviewer stated that these results support the SSN as a DPS, with the second DPS as everything north of this population. The peer reviewer also stated that these results support the NCSO as a separate management unit, but not a separate DPS from the SOC

introduced population. A second peer reviewer concurred that the SSN population is genetically separate from the NCSO population.

Our Response: Please see our response to *Comment (47).*

(49) Comment: One peer reviewer noted that the draft Species Report did not discuss low genetic diversity related to small population size, and suggested that discussion of low genetic diversity be added to the final Species Report.

Our Response: We direct the peer reviewer to our discussion of low genetic diversity in relation to small population size in the section "Small Population Size and Isolation," which was presented on pages 145–147 of the draft Species Report. We have expanded this discussion in the final Species Report to incorporate the additional information provided by the peer reviewer, particularly with regard to the relatively low genetic diversity of the SSN population.

(50) Comment: One peer reviewer, while acknowledging that he was a senior author on one of the references cited, stated that genetics studies support long-term genetic differentiation of fisher populations in northern California and in the southern Sierra Nevada (citing to Knaus *et al.* 2011 and Tucker *et al.* 2012). The peer reviewer stated that it is possible that gene flow may once have occurred between these populations, since fishers have been observed historically in the region that currently separates the two populations. However, the peer reviewer believed that the genetic data suggest if some level of connectivity did once exist, it was relatively minor and may not have contributed to the currently observed population structure.

Our Response: We received many comments regarding the genetic separation of the NCSO and SSN populations, particularly with regard to the question of whether

connectivity should be “restored” between these populations. Several commenters believed that, given the evidence for longstanding genetic differentiation between these populations, introducing gene flow between them at this point would do more harm than good. Others believed that introducing additional genetic diversity to the SSN population might be beneficial. Clearly, there are mixed opinions on this matter. Regardless of listing status, all of these considerations will be taken into account in future management efforts for West Coast populations of fisher.

(51) Comment: One peer reviewer requested that we add a table to the final Species Report that shows the sources of reintroduced fishers and the dates when they were reintroduced. The peer reviewer also requested clarification on whether the genetic origin of the reintroduced fishers had been determined, if these fishers were distinct from the origin population at the Great Lakes, and what the presence of this genetic material might mean for the management and recovery of the west coast fisher.

Our Response: The information showing the sources of reintroduced fishers and dates when they were introduced can be found in the draft (Service 2014, pp. 35–37) and final Species Reports (Service 2016, pp. 37–41; 50–53). Although the peer reviewer brings up a good point in terms of the potential implications of genetic differences between reintroduced and native populations in terms of future management considerations for West Coast fisher populations, such considerations are beyond the scope of this rulemaking.

(52) Comment: One peer reviewer provided new information on genetic analyses done on fishers found in the southwest portion of the reintroduced SOC population area. The analyses detected one male fisher in the range of the Cascades population (east of

Interstate 5) that was genetically grouped with the NCSO population, and another fisher that did not have enough DNA for complete genetic analysis, but that appeared to match the NCSO population. Given these examples, the peer reviewer believed that the NCSO and the SOC populations should be grouped as a single population, as it is possible that in the foreseeable future time horizon used in the draft Species Report, these populations could exchange enough individuals to become genetically indistinguishable. As such, any revision to the DPS boundary should not separate the NCSO population from the SOC population.

Our Response: We thank the peer reviewer for the new information indicating geographic overlap from individuals genetically associated with both the NCSO and SOC populations; this information will be useful in future management considerations for fisher, and we have updated our final Species Report to reflect this information. For the purposes of considering different DPS delineations, we solicited comments from peer reviewers and the public regarding the possibility of different DPS configurations for the West Coast population of fishers. We received many comments expressing support or opposition for various DPS options, or suggesting entirely new options. Following our careful consideration of all information, at this time, our decision is to use the original DPS configuration as presented in the proposed listing rule.

Habitat

(53) Comment: One peer reviewer suggested that the percentage of National Park area in "high elevation" and not expected to contain suitable fisher habitat reported on page 126 of the draft Species Report (67 to 85 percent of National Parks in the analysis area) is too large. Based on telemetry information from the Olympic Peninsula

population, this peer reviewer recommended using 4,700 ft (1,433 m) as the elevation cut-off.

Our Response: Delineations of suitable habitat for fishers in the draft Species Report were not made with elevation-based cut-offs; areas of suitable habitat were predicted based on snow pack, temperature, forest cover, and other variables (see Appendix C of the final Species Report). The clearest and most accurate presentation of suitable habitat in National Parks is provided by the data presented in Appendix A of the final Species Report. The sentence that prompted this peer review comment has been removed and replaced with the following: "In addition, higher elevation areas comprise much of National Park lands in the analysis area; these areas are typically classified as alpine and above elevations expected to contain suitable fisher habitat." (Service 2016, p. 170).

(54) Comment: One peer reviewer questioned why we did not include discussion or evaluation of the factors that may have allowed fishers to continue to persist in some but not other portions of its historical range, and relatedly, whether or not much of the west coast was ever good habitat for fishers. For example, the peer reviewer noted that the fisher has completely disappeared from much of its range in Washington and Oregon even though the current habitat models suggest that 40 million ac (16.2 million ha) of high- and intermediate-quality habitat currently exist (albeit fragmented in areas but with extensive blocks of habitat that should have the potential to support substantial populations of fishers).

Our Response: We agree with the peer reviewer that fishers likely completely disappeared from Washington despite substantial suitable habitat remaining on the

Olympic Peninsula and in the Cascades. We did not include a lengthy discussion in the draft Species Report as to the factors that may have allowed fishers to continue to persist in some but not other portions of the historical range, but we did cite several sources that suggest that fishers were extirpated from Washington by trapping (both direct and incidental) and by predator control (poisoning) (e.g., Lewis and Hayes 1998). In our draft Species Report, we acknowledged that a significant amount of high-quality habitat remains unoccupied by fishers in the analysis area. In addition, based on our consideration of comments received and our current analysis, in our final determination we now underscore the point suggested by the peer reviewer, that lack of suitable habitat does not appear to be a limiting factor for the proposed West Coast DPS of fisher throughout the majority of its range.

(55) Comment: One peer reviewer asked about the assessment of habitat fragmentation in the draft Species Report. The peer reviewer noted that, although the draft Species Report refers to habitat in the NCSO population as highly fragmented, there are no formal assessments of habitat fragmentation in the draft Species Report, and no reasoning to support habitat fragmentation as a stressor to the fisher. The peer reviewer also stated that it is not clear why the NCSO population area is called the most fragmented landscape in the draft Species Report; the peer reviewer thought that the SSN population would be more fragmented, given that the habitat occurs in a narrow elevation band. The peer reviewer also found it odd that the NCSO population area is fragmented but considered occupied, while much of Washington and Oregon is considered unfragmented but also unoccupied. The peer reviewer requested that the final Species Report include a summary of both known and potential effects of habitat fragmentation.

Our Response: The relatively more fragmented habitat of the NCSO population is considered occupied due to documented contemporary observations of fisher in that geographic region, as opposed to large areas of apparently suitable unfragmented habitat in Oregon and Washington where we lack detections of fisher (thus these areas are considered unoccupied). The peer reviewer's comparison to unoccupied and unfragmented habitat in Washington is not directly relevant because the likely cause of fisher extirpation on the Olympic Peninsula and in the Cascades was historical trapping (both direct and incidental) and predator control (poisoning), and not a result of habitat conditions. See also our responses to *Comment (54).*

(56) Comment: One peer reviewer asserted that there is no evidence that fishers are associated with riparian habitat.

Our Response: In many previous reviews and summaries of fisher habitat, riparian areas and buffers have often been highlighted as one of the key habitat features that improve a landscape's ability to support fishers (69 FR 18770, April 8, 2004, p. 18773; USDA Forest Service and USDI BLM 1994a, pp. J2-54, J2-56–J2-57, J2-79). Powell *et al*. (2003, p. 641) found that in forest types subject to frequent fires that remove woody structures near the ground, fishers are closely associated with riparian areas which do not burn as often. Although recent analysis of information across the west indicates that the fisher's pattern of use of riparian areas is not consistent among studies (reviewed by Lofroth *et al*. 2010, p. 94), the best available data do indicate that fishers utilize riparian areas (for example, Engstrom (2015, in litt., pp. 1–4) recently detected fishers in riparian areas located approximately one mile within the 1992 Fountain Fire perimeter).

Many of the riparian areas may also provide habitat patches that allow fisher to move across the landscape, providing connectivity to and facilitating dispersal between larger blocks of fisher habitat either within existing ownerships or among neighboring ownerships.

(57) Comment: Multiple peer reviewers questioned how heavily the draft Species Report relied on old-growth forests in the description of fisher habitats. Several of these peer reviewers asserted that fishers used more habitat types than just old-growth forests, and that the analysis of stressors overemphasized the importance of old-growth forests.

One peer reviewer noted that the Ashland fisher monitoring project has found that fishers use multiple habitat types, including chaparral (the peer reviewer hypothesizes that the fishers utilize this habitat in the winter while searching for prey). The peer reviewer noted that all habitat types used by fisher in the monitoring project had greater than 60 percent canopy cover. Another peer reviewer noted that fishers in the ONP population seem to be selecting a mosaic of mixed-ownership partially managed forests over old-growth.

Another peer reviewer agreed with the draft Species Report that prey availability may impact the distribution of fishers. The peer reviewer asserted that late-successional habitat, regardless of elevation, was not a limiting factor for fisher home ranges. A fourth peer reviewer noted that the fisher's use of managed forests and more diverse forest types is supported in the literature and in successful reintroductions in places like Michigan and Pennsylvania. That peer reviewer noted that because of the draft Species Report's overreliance on old-growth forest, the recruitment of forest structures in the late-successional reserves as set aside by the NWFP were not accounted for in the overall

measurement of the stressor of habitat loss. The fourth peer reviewer also believed that this oversight would lead to an overestimation of the impacts of habitat loss.

Finally, another peer reviewer asserted that fishers in central British Columbia are well-adapted to a mosaic of forest ages and structural types that result from normal fire intervals. The peer reviewer suggested that, based on this evidence, large amounts of old-growth forests might not be ideal for the fisher.

Our Response: As a basic life-history requirement, fishers need large standing and down trees with cavities to give birth and raise their young, and these cavities must be sufficiently large to accommodate the mother and her kits (reviewed by Lofroth *et al.* 2010, p. 119; Coulter 1966, p. 81). Depending upon the tree species and ecological conditions, cavity formation in large trees or snags may require greater than 100 years to develop (Raley *et al.* 2012, pp. 242–244; Weir *et al.* 2012, pp. 234–237). These trees often have characteristics associated with late-seral conditions (e.g., large diameter, large limbs, mistletoe brooms) that are most commonly associated with old-growth stands. We acknowledge that these trees may exist outside of intact old-growth stands, as remnants from previous natural (e.g., fire) and anthropogenic (e.g., timber harvest) disturbances. Because these cavities are essential for fisher, we placed a fair amount of emphasis on the importance of historical and current distribution of old-growth to fisher in our draft Species Report. We did not state, nor did we mean to imply, that fishers are obligate users of old-growth forests.

In our draft Species Report, we discuss the use of managed, younger, and mid-seral forests (e.g., Service 2014, pp. 15, 17, 56, 88). Fisher will use these forest types if high canopy cover and complex structural elements are present to provide denning,

resting, and foraging opportunities. We also recognize that habitat recruitment was not quantified in the draft Species Report and is important for understanding fisher use of habitat in the future. We received many comments on this topic, and have data available that allow us in the final Species Report to evaluate expected ingrowth of forests likely to provide suitable fisher habitat throughout most of the proposed DPS (see additional discussion on ingrowth in the "Vegetation Management" section of the final Species Report (Service 2016, pp. 98–111)).

(58) Comment: One peer reviewer requested more information on the calculation of the stressor of timber harvest on fisher. The peer reviewer believed that the way timber harvest was measured in the proposed listing rule resulted in an overestimation of the degree of threat attributed to timber harvest. The peer reviewer noted that many even-age harvest plans and permits report gross acres rather than net harvested acres, and that regulated and non-regulated or voluntary retention areas are not accounted for by the permits. The peer reviewer also stated that it was unclear if the Service's analysis of timber harvest distinguished between even-aged and uneven-aged harvest. The peer reviewer noted that uneven-aged harvest can result in increased levels of removal of structural components required by fishers. Finally, the peer reviewer asserted that the analysis of habitat loss due to forestry and vegetation management focused only on acres removed and did not consider any enhancements to habitat due to managed forestry on private timberlands, including increases in prey available to fisher.

Our Response: Quantifying the effects to fisher habitat from vegetation management across the west coast States is challenging and complex due to many factors, including, but not limited to differences in forest types, silvicultural practices, project-

specific objectives, and regulatory mechanisms. We received numerous comments on our draft calculations of scope and severity of stressors potentially impacting the proposed West Coast DPS of fisher. As described more fully elsewhere in this document, we found that our initial quantification of stressors may have conveyed a false sense of precision in our assessment, as we had to rely on extrapolation in areas where we did not have specific quantitative data available. In our final Species Report, we provide a qualitative description of stressors to explain the degree of impact a stressor may have on fishers or their habitat, as demonstrated by the best scientific and commercial data available. We recognize and acknowledge that reporting mechanisms for harvested acres may over- or underestimate the actual amount of acres treated; however, information is not readily available to inform further refinement of that estimate. Similarly, data are not readily available across the west coast States to assess differences between even- and uneven-aged management.

In our final Species Report, we have used the best available information to estimate the effects of vegetation management on the proposed West Coast DPS of fisher, including consideration of all comments and new information received during the comment periods on this rulemaking. Excellent sources of new information became available to us for the analysis of the effects of vegetation management within the analysis area, including the recently released NWFP 20-year late-successional old-growth monitoring report (Davis *et al*. 20XX, entire) within the area covered by the NWFP (most of the proposed DPS except the Sierra Nevada and eastern portions of the Oregon and Washington Cascades), the Gradient Nearest Neighbor (GNN) vegetation trend analysis

for the Sierra Nevada portion of the analysis area outside of the NWFP area, and fisher habitat modeling associated with the southern Sierra Nevada fisher conservation strategy.

We received multiple comments on the recruitment of fisher habitat on Federal and non-Federal lands and the extent to which regulatory mechanisms may provide for fisher habitat. Please see additional related responses, such as *Comments (38)* and *(42)* above, and *(75), (189), (215),* and *(229)* below.

Finally, we received two other peer review comments regarding managed lands and prey, and we have incorporated additional discussion of how some forms of vegetation management may affect prey species composition or abundance in our final Species Report. See also our response to peer review *Comment (83)*.

(59) Comment: One peer reviewer provided references to demonstrate that fishers in Oregon have been found in managed forests and even brush fields, and that fishers have been found in heavily logged areas elsewhere in their range. The peer reviewer noted that, although fishers do require structures related to late-successional forests, fishers can use a mosaic of habitats with managed forest stands next to old-growth forests, particularly if the managed stands retain high canopy closure.

Our Response: We thank the commenter for the additional information regarding fisher use of managed landscapes; we received multiple comments on this subject from various commenters, and have incorporated an expanded discussion of fisher use of managed landscapes in our final Species Report. Following our thorough evaluation of the best scientific and commercial data available, we have ultimately determined that vegetation management does not pose a threat such that the proposed West Coast DPS of fisher meets the definition of an endangered or threatened species under the Act.

Habitat Model

(60) Comment: One peer reviewer requested more discussion on how spatial independence was handled in the creation of the habitat model, and whether spatial correlation was treated as a desirable factor in creating the Maxent portion of the habitat model.

Our Response: Spatial correlation was not treated as a desirable factor. As noted in the document, "*Habitat Modeling Methods For The Fisher West Coast Distinct Population Segment Species Assessment*," which is now included as Appendix B in the final Species Report, location data points used to fit the model were filtered to ensure spatial independence by using a minimum nearest-neighbor distance of 3.1 mi (5 km).

(61) Comment: Three peer reviewers requested more information on how verified fisher detections were determined for the habitat model. They asked if telemetry data had been used, and if not, why not. The peer reviewers also asked if camera trap locations were used, and noted that this may be a biased method (compared to relatively unbiased telemetry) that would lead to overestimates of populations, particularly if scent lures are used.

Two of the peer reviewers questioned if using camera traps for fisher detections was ideal for building a habitat model. The first peer reviewer also discussed the results of a study in Idaho, where it was not unusual to have only a single detection of fisher through camera or hair trapping. The peer reviewer stated that in such cases, the density of fishers on the landscape is likely to be low, and so any model that uses detections rather than resident animals may potentially overestimate abundance and include poor-

quality habitat. The peer reviewer recommended that the Service build a model based on telemetry and one based on occurrence data, and compare the results of the two models.

Another peer reviewer stated that camera trap detections should not be used unless the model is being used to look at connectivity at a coarse landscape scale. The peer reviewer and other researchers could provide the Service with telemetry and GPS locations to assist in refining the model.

Our Response: As one of the peer reviewers implied, habitat models may be used for a variety of purposes, and the most appropriate source data may vary depending on the purpose of the model. In this case, the main purpose of the model was to identify, at a large landscape scale, areas that would be expected to support some level of fisher use. Therefore, in regions where adequate quantities of fisher detection data were available, we based the model on the locations of verifiable detections of fishers, including camera trap detections, but not including telemetry locations. As described in our response to *Comment (60)*, these detection locations were then filtered to a minimum nearest neighbor distance of 3.1 mi (5 km) to ensure spatial independence.

As one peer reviewer noted, survey methods that use scent lures (and bait lures) may not present an accurate picture of fine-scale habitat use because these methods may attract fishers to habitats that they would otherwise not prefer. However, at the large scale of our habitat model, we considered this source of bias to be less important than the type of bias that could be introduced by reliance on telemetry data. Although telemetry data give a relatively accurate picture of the fine-scale habitat use of an individual fisher, at this scale of analysis, the use of telemetry data would do little more than identify telemetry study areas within the overall analysis area. Furthermore, it is likely that most

telemetry locations are within 3.1 mi (5 km) of a camera survey location and, therefore, are already represented at the scale of our habitat model. The use of camera, hair snare, and track plate detection data allowed us to develop models that were more representative of the entire SSN and NCSO population areas, rather than focusing on telemetry study areas, some of which contain unique habitat conditions not found elsewhere in the analysis area.

Models based on telemetry locations would likely be very helpful at a finer scale to identify habitats used for particular functions of fisher life history, such as denning, resting, or foraging. Such a model would likely be of great use to land managers who are interested in managing for fisher habitat values, and we would appreciate the opportunity to collaboratively participate with researchers interested in developing a telemetry-based model. However, this particular type of model was less useful for the large-scale analyses presented in the draft and final Species Reports.

(62) Comment: One peer reviewer alleged that the habitat model was at too coarse a scale to be of assistance with fine-scale management for fishers on Federal land. The peer reviewer did not object to the use of the habitat model for large-scale analyses such as the draft Species Report, but was concerned that others may try to use the model inappropriately for more fine-scale uses, such as slowing or stopping proposed projects within fisher habitat.

Our Response: We agree with the peer reviewer that our habitat model, which is intended for use at the landscape scale, is not appropriate at the fine scales necessary for many forest management decisions. Use of the model at fine scales, such as the forest stand scale, would not be appropriate. The documentation that accompanies the model

makes it clear that it is intended for use at the landscape scale, and we hope that all potential users of the model will read this documentation carefully and avoid such misuse.

(63) Comment: One peer reviewer stated that the current habitat models, which the Service relied on in the draft Species Report, may have focused on the wrong primary signal for why fishers currently occur where they do. Specifically, the peer reviewer indicated that the current habitat models focus on mature and older forests as the most important habitat feature for high-quality habitat (thus resulting in millions of acres of habitat projected to be high and intermediate quality for fishers) as opposed to forested stands that support abundant food sources.

Our Response: We disagree that the habitat models developed for the draft Species Report focus on mature and older forests as the primary feature for high-quality habitat. In the Oregon and Washington Cascades and Olympic Mountains, where an expert modeling approach was used, the most important variable was dense forest, which could be of any age class. The expert models do include one component that is correlated with mature or older forests, but also include another component that represents prey diversity, which is in line with the peer reviewer's suggestion. In the remainder of the range, the Maxent computer algorithm, rather than human judgment, was used to select variables and fit models of relative habitat suitability for fishers. Only one of the variables selected (i.e., basal area-weighted canopy height) is likely to be related to the age of the forested stand, and this variable was only selected in the models for the Sierra Nevada modeling regions. For more information on the variables included in the models, please see the updated version of the document entitled "*Habitat Modeling Methods For*

The Fisher West Coast Distinct Population Segment Species Assessment," which is now included as Appendix B in the final Species Report.

(64) Comment: One peer reviewer noted that occupancy modeling in the Sierra Nevada does not distinguish between source and sink habitat, such as source areas that contain highly productive females, and sink habitat where juvenile males may be dispersing. The peer reviewer requested that we add more information on this subject to the species report.

Our Response: We agree with the peer reviewer that occupancy modeling only indicates whether or not a fisher is detected at a site and does not tell how the fisher is using the site or whether the site is high-quality (source) or low-quality (sink) habitat.

(65) Comment: One peer reviewer requested that the Service add references to the published fisher habitat model into the final Species Report. It was not initially clear to the peer reviewer that the habitat model had been published as a separate report.

Our Response: Please see our response to *Comment (16)*.

(66) Comment: One peer reviewer questioned whether reports of fisher observations could be made public in an online database, stating that doing so would aid in transparency.

Our Response: We received many detection data sets during the public comment period, and this information is currently being reviewed for redundancy against the survey records we obtained previously. The fisher locality database currently consists of more than 17,000 positive and negative locality data records. We are currently working through a quality control process to evaluate the data; therefore, the data are not in a format that is readily shareable at this point.

(67) Comment: Multiple peer reviewers suggested that the presentation of habitat modeling in the species report would be improved by including a more detailed discussion of how the habitat model was created. One peer reviewer specifically requested detail on which of the 22 environmental predictors considered were determined to be useful in predicting fisher habitat, as well as those that were identified as not making a significant contribution to the predictive power of the model. Another peer reviewer specifically requested information on model performance and parameter weighting. That peer reviewer also noted that there seemed to be more data available for California than Oregon and Washington, and recommended that the Service discuss the implications of that difference in data availability on model performance, interpretation, and results. A third peer reviewer noted that the habitat model seemed "off" for a portion of the Olympic Peninsula, and suggested the Service compare the baseline locality data to the model results.

Our Response: We encourage these peer reviewers to read the updated white paper describing how the habitat model was developed (*Habitat Modeling Methods for the Fisher West Coast Distinct Population Segment Species Assessment*, now included as Appendix B in the final Species Report). The appendix discusses the differences in data availability between California, Oregon, and Washington, and describes the variety of approaches (fitted Maxent, projected Maxent model, or expert model) we used to address these differences. We also added information regarding the variables that were selected by the Maxent process for use in the modeling regions where the Maxent models were used. We have not added detailed information about parameter weighting or model performance, as these are beyond the intended scope of the document.

With regard specifically to Washington data in the habitat model, we acknowledge that the habitat model is an approximation of fisher habitat on the Olympic Peninsula, and that actual fisher use of the landscape may suggest different areas that are or are not likely to be used by fishers. However, fisher home range data on the Olympic Peninsula is based on the habits of the first reintroduced animals over an approximately 5-year period, and may not reflect all of the habitats that will be used by fishers in the future. Therefore, the habitat model has an appropriate level of accuracy for the purposes of our analysis. We thank the peer reviewer for providing the information, which will be useful in guiding future management decisions.

(68) Comment: One peer reviewer stated that there were several factors not accounted for in the habitat models, including annual tree growth, the process by which forest stands develop into seral stages, the influence of natural disturbance events on the fisher and its prey, and the overall distribution and vulnerability of fisher prey.

Our Response: We agree with the peer reviewer that the habitat model did not account for every variable that might be useful for a comprehensive understanding of fisher habitat and its development over time. We note that we are not required to create the best possible information products, but rather, according to section 4(b)(1)(A) of the Act, we are required to use the best available scientific and commercial information in determining a species' status under the Act. Here, we took the additional step of developing a seamless model of potential habitat quality for fishers across the west coast evaluation area.

Every habitat model is not necessarily a simplification of reality. The type of model used and the particular simplifications to be made in a given model must be

selected based on the purpose of the model, the input data available, and other practical considerations such as the timeframe allotted for the model's creation. The main purpose of our fisher habitat model was to identify areas on the landscape that might be expected to support some level of fisher presence, both within the current range of fishers and in the portions of the historical range where fishers are rare or absent. Therefore, where reliable fisher detection data were available, we used Maxent models, which are empirically fitted models widely used to answer questions of this nature. Where reliable fisher detection data were not available, we constructed an expert model, which is another standard type of model used in situations where empirically fitted models are not feasible. We note that, contrary to the peer reviewer's comment, we did incorporate information about prey distribution and diversity into the expert models. The dynamic, detailed models of habitat development suggested by the peer reviewer would be needlessly complex for the primary purpose of our modeling effort, although they might have been helpful in analyses of vegetation management (for which we did not use our fisher habitat model) and wildfire (for which we did use our habitat model, but with some caveats). However, even if a model of the type suggested by the peer reviewer were eminently appropriate for the purposes of our evaluation, such a model was not available for us to use.

(69) Comment: One peer reviewer requested information on why the results of the habitat model used in the species report differed so widely from the model in Lewis and Hayes (2004).

Our Response: The peer reviewer did not specify any particular differences between the two models. There are a number of differences in the overall framework and

purpose for the two models, their input data, and the format of the output, as shown in maps of the two models' results. However, the differences between the two models are relatively minor. Please see our response to *Comment (220)* for more information about two specific differences (i.e., the amounts of habitat at high elevations and in the Eastern Washington Cascades), and some of the general similarities between the two models.

(70) Comment: One peer reviewer stated that the habitat model was likely over parametrized, particularly in the portions of the analysis area where data are scarce, and that there were likely too few data points per model parameter for the scale at which the habitat model was being extrapolated.

Our Response: We assume the peer reviewer may have mistakenly interpreted the methods for the expert models (used in areas where data were scarce or nonexistent) as applying also to the Maxent models (used in areas where data were available). The parameters the peer reviewer discusses were used in the expert models, but not in the Maxent models. The expert models were not fitted to data, and, therefore, the concept of over-parameterization is not applicable. We added more information about the variables used for the Maxent models to the document "*Habitat Modeling Methods For The Fisher West Coast Distinct Population Segment Species Assessment*," which is now included as Appendix B in the final Species Report.

(71) Comment: One peer reviewer was concerned that private and industrial forest lands may have been poorly sampled for the data set used as inputs for the habitat model.

Our Response: We disagree that private industrial forest lands were underrepresented in the data used as input for the habitat model. The data set we used was compiled from a number of sources, including surveys of private industrial forest

lands. We have added more information on these data sources to the document "*Habitat Modeling Methods for the Fisher West Coast Distinct Population Segment Species Assessment*," which is now included as Appendix B in the final Species Report.

(72) Comment: One peer reviewer asserted that the method of relating survey results to predicted habitat by assigning occupancy to hexagons was potentially circular and involved too many assumptions. The peer reviewer asked: If fisher survey data were used to build the habitat model, wouldn't the hexagons with high-valued habitat also correspondingly contain a high number of positive surveys? Further, the peer reviewer was unable to determine whether the results showing negative surveys in modeled habitat supported or contradicted the Service's assertion that there is considerable habitat in the NCSO region that is unoccupied.

Our Response: The peer reviewer is correct that the model was based on survey results, as was the hexagon analysis of the survey results. However, the model input data consisted of only positive detections that were filtered to a minimum nearest-neighbor distance of 3.1 mi (5 km). The data set used in the hexagon analysis was a larger dataset that contained negative survey results and additional positive survey results that were not included in the model input data set. The hexagon analysis showed that there were quite a few areas of predicted habitat that had been surveyed for fishers, but only with negative results. There are several possible interpretations of this result that we took into consideration, such as:

(1) The habitat model may have overpredicted the amount of suitable habitat in the NCSO region, and that these areas with negative surveys are not truly habitat,

perhaps due to the influence of some factor that was not included in the set of environmental inputs to the model.

(2) There may be unoccupied suitable habitat in the NCSO region, which we further discuss in the draft Species Report (Service 2014, p. 39). This possibility could, in turn, have multiple explanations, including a population that has not yet reached carrying capacity following the population reductions due to trapping in the early 20th century, or internal fragmentation preventing the population from occupying all available habitat within the NCSO region.

(73) Comment: One peer reviewer noted that the habitat model has assigned all forest lands within a Federal forest as high-quality habitat. The peer reviewer noted that this designation would make managing for fisher difficult on Federal lands.

Our Response: The habitat model used in our evaluation was intended as an analysis tool, not as a management tool. As noted in our response to *Comment (61)*, it is intended for use at the landscape scale, and should not be used at finer scales to identify forest stands to be treated or avoided.

Habitat Recruitment

(74) Comment: Two peer reviewers suggested that the Service add an analysis of the effects of habitat recruitment to the final Species Report. One peer reviewer asserted that if only habitat losses are considered without any attempt to quantify gains, then the resulting analysis will significantly overestimate the degree of threat from logging and vegetation management practices. The second peer reviewer requested more information be added, particularly with regard to when the transition from existing low-quality forest to high-quality, late-successional habitat might be expected. The peer reviewer

acknowledged the inherent difficulties in estimating recruitment, but suggested an analysis on the differences in habitat recruitment for different land ownerships and forest management regimes, and suggested some potential methods for estimating total habitat recruitment.

Our Response: We agree with the commenter regarding the need to incorporate vegetation recruitment, which we have done in our final Species Report by incorporating the results of the NWFP 20-year late-successional/old-growth monitoring results (Davis *et al*. 20XX, entire); this report, as well as additional sources, allowed us to estimate ingrowth within the analysis area. This report looks at changes in forests with old-forest structural characteristics for the past 20 years (the extent of NWFP implementation), categorizing forest loss by different disturbance mechanisms, including timber harvest, and also recording ingrowth of older forests. This analysis also records activities on non-Federal as well as Federal ownership. Based on our analysis of the best available information regarding the availability of suitable habitat for fisher throughout the west coast states, including new information, we agree with the commenter that vegetation management is not a threat to fishers in the west coast States and that, ultimately, the proposed West Coast DPS of fishers is not threatened with extinction now or in the foreseeable future.

(75) Comment: One peer reviewer believed that habitat recruitment needed to be considered for effects on fisher within the foreseeable future. The peer reviewer noted that within the period of foreseeable future detailed in the draft Species Report, many forests would develop characteristics suitable for occupation by fisher. The peer reviewer also noted that though the estimates of gross forest loss in the draft Species

Report provide information on habitat disturbance, these calculations ignore potential forest growth. The peer reviewer provided information on forest growth rates and potential calculations for how to measure volume of forest added in the foreseeable future range used in the draft Species Report, and suggested adding that method or another to quantify forest recruitment to the final Species Report.

Our Response: As stated in our draft Species Report, there is a high degree of uncertainty when modeling changes to forest conditions and the point at which the forested condition becomes suitable (Service 2014, p. 86). We recognize that forested ecosystems are not static and that, if allowed to grow, forested stands may become suitable habitat for fisher. During our comment periods, we received information and suggestions for methods to use to estimate habitat recruitment for fisher. We have reviewed this information and incorporated it into the final Species Report. Included in the new scientific and commercial data available to us was the NWFP 20-year late-successional old-growth monitoring report (Davis *et al.* 20XX, entire); this report, as well as additional sources, allowed us to estimate ingrowth within the west coast States. As described in the conclusion of the "Vegetation Management" section of our final Species Report, while historical loss of older forests through timber harvest resulted in a substantial historical loss of fisher habitat, harvest volume has sharply declined since 1990, primarily on Federal lands, but on non-Federal ownership as well. Modeling in the southern Sierra Nevada region indicates that ingrowth of fisher habitat has replaced habitat loss by all disturbances in the southern Sierra Nevada region since 1990, resulting in a net gain of habitat since that time. On Federal lands in the NWFP region, habitat

ingrowth has been greater than that lost due to timber harvest in all fisher subregions except for the western Oregon Cascades.

Maps/Sightings

(76) Comment: Three peer reviewers discussed how the regional boundaries were drawn for Western Washington. One peer reviewer asserted that if the Olympic Mountains region was defined by elevation, the Quimper Peninsula and the Coastal Plains should not be separated. A second peer reviewer was unclear on the exact boundary of the Olympic Mountains region; the reviewer noted that Table 3 and Figure 11 in the draft Species Report present conflicting information on whether the eastern side of the Olympic Mountains was included in that region. A third peer reviewer recommended including the eastern Olympic Mountains in the Washington coast region rather than the Olympics Mountains region.

The second peer reviewer also stated that the eastern Olympic Peninsula and the Kitsap Peninsula are more similar to each other than they are to the Willamette Valley–Puget Trough area, and that that portion of the peninsula has been frequently used by the reintroduced fisher population. The peer reviewer recommended that the entire Olympic Peninsula be included in the Coastal Washington subregion as outlined in the draft Species Report. The third peer reviewer recommended omitting the Kitsap Peninsula entirely due to human development.

Our Response: Our draft Species Report relied upon geographic subregions as identified in a recent threats assessment specific to fisher conducted by Naney *et al*. (2012). We acknowledge that the regional boundaries used are an approximation of ecoregions that could potentially have been delineated differently. The peer reviewers

correctly pointed out that there may be good reasons to have included portions of Puget Trough subregion into the Coastal Washington subregion instead. However, the analysis area subregions we utilized are sufficiently accurate for the purposes of our analysis. Therefore, in the final Species Report, we have retained the analysis area subregions, as originally presented.

(77) Comment: Two peer reviewers provided feedback on Figure 4 in the draft Species Report. One peer reviewer suggested that Figure 4 should be updated to clarify which of the more than 5,000 fisher records were used as the 456 verified records in the habitat model. The peer reviewer stated that a visual display of the two categories of records would also help by highlighting any potentially problematic areas on a geographic scale for the habitat model. The second peer reviewer requested that the 456 verified records be identified in Figure 4, or that a map showing just those records be added to the final Species Report.

Our Response: We developed a supplement to the draft Species Report entitled "*Habitat Modeling Methods for the Fisher West Coast Distinct Population Segment Species Assessment*" by Fitzgerald *et al.* (2014, entire), which is included as Appendix B in the final Species Report. This methodology paper describes which locality records were used to model habitat as follows: "Fisher detection points were filtered by removing non-verified detections (no physical evidence to verify fisher identification), detections prior to 1970, detections of translocated animals, and telemetry detections. Remaining localities were further filtered to ensure spatial independence by using a minimum nearest-neighbor distance of 3.1 mi (5 km). If two or more detections were within 3.1 mi (5 km) of one another, the most reliable and recent was retained, or in case of a tie, by

random selection. A total of 456 detections remained after filtering for model calibration, with 72 from the Southern Sierra Nevada, 185 from the Klamath and Southern Cascades, and 199 from the California and Southern Oregon Coast" (Fitzgerald *et al.* 2014, p. 2).

We agree that a map showing which verified records were used in the habitat model could improve understanding of our habitat modeling methodology. This would be a good addition to Fitzgerald *et al.* 2014 and will consider adding this map during future revisions to that document.

(78) Comment: One peer reviewer objected to many of the categories of reliability ratings. The peer reviewer referenced a study by McKelvey *et al.* (2008), which states that for an area from where a species is believed to have been extirpated, only the most reliable ratings should be used (those defined in the species report as reliability rating 1). The peer reviewer noted that the draft Species Report mentions these issues, and that it is confusing that maps subsequent to that discussion still include all categories of reliability rating. The peer reviewer noted that the distinction between reliability ratings is particularly important in the gap between the NCSO and SSN populations, as there have been no confirmed (reliability rating 1) records in the central Sierra north of Yosemite since the nineteenth century. The peer reviewer recommended adding or revising maps (e.g., color coding, clarifying map legends) to clarify all of the reliability ratings within the proposed DPS, and overall increasing the number of maps in the report to include more that show the most reliable fisher detections.

Our Response: We appreciate the opinion of the peer reviewer and concerns about appropriate use of reliability ratings to describe the contemporary distribution of fisher. We evaluated McKelvey *et al.* (2008), referenced by the peer reviewer, in our

draft Species Report and used it in conjunction with Aubry and Lewis (2003, entire) to minimize the potential overestimation of the species' current distribution (Service 2014, p. 28). We have appropriately described and mapped the best available data in the area of concern expressed by the peer reviewer (i.e., the "gap" between the NCSO and SSN populations). In addition, we have added new information in the final Species Report on historical detections of fishers in the "gap" (Service 2016, pp. 32, 39–40).

We included a number of maps showing reliability ratings to visually demonstrate the variation of the location data within historical and contemporary time periods. Figure 7 in the draft Species Report showed the locality records that we determined represent the best available information for the contemporary distribution of fisher (Service 2014, p. 31), and additional maps are not necessary to make this point.

Northern Spotted Owl (NSO) Habitat Surrogate

Comment (79): Multiple peer reviewers and other commenters questioned the suitability of northern spotted owl habitat as a surrogate for fisher habitat in our draft Species Report, particularly noting that although the two species may overlap in terms of habitat requirements for breeding, in general fishers are capable of using a wider variety of habitats than northern spotted owls. They stated that using the northern spotted owl consultation data on habitat removed or degraded would thus lead to a potential overestimate of habitat loss for fishers. On the other hand, some peer reviewers (and other commenters) believed that northern spotted owl habitat is an appropriate surrogate for fisher habitat and represents the best available science. These peer reviewers (and commenters) believed that although the shortcomings of the approach were acknowledged and described, the Service should provide more detail in this regard. We

received many peer review and public comments on this subject, expressing mixed opinions.

Our Response: In our final Species Report, additional data were available that allowed us to evaluate the stressor of vegetation management without using northern spotted owl habitat as a surrogate. The available data also allowed us to measure net vegetation change (that is, account for vegetation ingrowth), and address concerns raised regarding our previous analysis potentially overestimating habitat loss for fishers. The data used in our final analysis were the recently released NWFP 20-year late-successional old-growth monitoring report (Davis *et al*. 20XX, entire) within the analysis area covered by the NWFP (most of the proposed DPS except the Sierra Nevada and eastern portions of the Oregon and Washington Cascades), the Gradient Nearest Neighbor (GNN) vegetation trend analysis for that portion of the proposed DPS outside of the NWFP area, and fisher habitat trends associated with the southern Sierra Nevada fisher conservation strategy.

(80) Comment: One peer reviewer called into question the initial calculation of northern spotted owl critical habitat, and believed that the issues with the owl analysis would be exacerbated when the model was extrapolated to predict fisher occupancy. The peer reviewer stated that the GNN modeling approach used in the northern spotted owl critical habitat rule was a poor predictor of owl occupancy in several forests in the fisher analysis area, and that the owl model did a poor job of estimating nesting and roosting habitat. The peer reviewer added that it may not be appropriate to use the northern spotted owl model outside the Sierra Nevada, and cited a report that demonstrated that the owl's roosting and nesting habitat outside of the Sierras was poorly predicted by the

critical habitat model. The peer reviewer concluded that the northern spotted owl surrogate may underestimate required habitat for fisher, as northern spotted owls tend to forage in younger forest types outside of their core nesting and roosting habitat.

Our Response: The commenter appears to have misunderstood the nature of the northern spotted owl habitat data used as a surrogate for our evaluation of fisher habitat negatively affected by management activities in our draft Species Report. We did not rely on designated critical habitat for the northern spotted owl; we used documented section 7 consultations on activities that removed or downgraded northern spotted owl habitat within the NWFP area as a proxy for estimating the potential effects of vegetation management on the loss of fisher habitat on Federal lands throughout the proposed DPS (Service 2014, p. 88). In any case, our final Species Report does not rely on northern spotted owl habitat as a surrogate for fisher habitat in any form, as better data became available to us. See also our response to *Comment (79).*

Population Estimates

(81) Comment: One peer reviewer believed that the Service's use of genetic data to estimate an effective population size and then extrapolate to an actual population size was inappropriate. The peer reviewer demonstrated this belief by noting that the Service's estimates resulted in the NCSO population being substantially smaller than the SSN population, which contradicted the Service's characterization that the SSN population is vulnerable and is a smaller population than the NCSO population. Further, the peer reviewer stated that the number of fisher detections reported in the NCSO region make the Service's lower limit estimate appear flawed and unsupported.

Our Response: Species face an increased vulnerability to extinction when the effective population size is low and where there is limited genetic exchange (Kyle *et al.* 2001, p. 343; Wisely *et al.* 2004, p. 646). The effective population size is not an estimate of the entire population as a whole, rather it is an estimate of the breeding individuals in a population, often based on genetic information (Service 2014, p. 145). The current population information presented in the final Species Report is updated and presented in *Species Information*, above.

Population size estimates provided in the draft Species Report (Service 2014, pp. 37–43) and final Species Report (Service 2016, pp. 42–53) come from multiple sources and were not all derived in the same manner. We use these estimates as the best available information for overall population size and recognize the uncertainty associated with these estimates. The estimate of NCSO population size as derived from the effective population size was at the lower end of the range of estimates for that population, as presented in the draft Species Report; we note that the upper range estimate of 4,018 individuals that was also presented well exceeds all estimates of population size for the SSN population. Updated population estimate information is found in the *Species Information* section of this document.

The peer reviewer also raised a concern about an apparent disparity between the population size estimates and detections reported in the draft Species Report. We assigned a numerical reliability rating to each fisher detection and presented the locality records from 1993 to the present for detections with reliability ratings 1 and 2 in Figure 7 of the draft Species Report (Service 2014, pp. 28, 31). The locality data include information from research studies, Federal and non-Federal landowners, and members of

the public. This data set includes more records than those presented (and ultimately extrapolated to population estimates) in the scientific studies conducted within portions of the proposed West Coast DPS subregions. Therefore, we understand the concern of the peer reviewer, but we do not agree that the difference between population estimates and detection data is flawed or otherwise undermines support for our conclusions.

Throughout the draft and final Species Reports, we discuss the geographic extent of stressors potentially acting on the NCSO and SSN populations. The SSN population is at the southern extent of the species' distribution and occupies a smaller overall area than the NCSO population, which is more central to the species' distribution. The separation of the SSN population from other populations in the proposed DPS's distribution may mean that this population is less able to respond to stochastic events than other populations (e.g., NCSO) (Service 2014, p. 145). Our assessment of the SSN and NCSO populations and potential stressors is based upon the best available scientific and commercial information.

Prey

(82) Comment: One peer reviewer suggested adding a discussion of the impact of highly variable mast crops on prey variability. They also suggested further analysis on how those changes affect fisher prey in the SSN population given historical extirpation of prey species (porcupine and snowshoe hare) that are still available elsewhere in the fisher's range across the west coast States.

Our Response: The peer reviewer did not provide specific references for us to consider regarding mast crops or the historical extirpation of prey in the SSN population. The draft Species Report acknowledges the potential impacts of Sudden Oak Death on

fisher habitat and habitat for prey species (Service 2014, p. 72). As also noted in the draft Species Report, fishers are opportunistic predators and have a diverse diet (Service 2014, p. 13). Though porcupine and snowshoe hare numbers may be less abundant, as suggested by the peer reviewer, we did not find that prey were limited in the SSN population. Thus, an analysis of the impact of mast variability on fisher prey species in the SSN population is not necessary.

(83) Comment: Two peer reviewers believe that the draft Species Report overlooked the positive effects that vegetation management has on the fisher prey base. One peer reviewer referenced several studies that found a positive effect on small mammal species from a variety of timber thinning activities. The peer reviewer noted that, although data are available to quantify the effect of thinning specifically on fisher prey, the data have not been analyzed, and so the importance of this factor as compared to other requirements (denning locations, other demographic factors) is not well understood.

Our Response: We discussed the importance of a diversity of available forest conditions within fisher home ranges to increase their access to a greater diversity and abundance of prey species, as long as important habitat features supporting reproduction and thermoregulation are available (Service 2014, p. 14). We also reviewed the references cited by the peer reviewer (Verschuyl *et al.* 2011; Klenner and Sullivan 2003; Waldien 2005; Carey and Wilson 2001), and the final Species Report incorporates information from these sources where applicable.

Reintroductions

(84) Comment: One peer reviewer did not agree that there are any current indications from the Olympic National Park reintroduction (ONP population) that are

encouraging, as was stated in the draft Species Report. The peer reviewer speculated that fisher may not survive at the ONP population, similar to the near extirpation of northern spotted owl in this same area, which has similar habitat needs as the fisher.

Our Response: Based on a review of reintroduction results not referenced by this peer reviewer in his comments (Happe *et al*. 2014; Lewis 2014; Happe *et al*. 2015), we maintain our assessment that current indications from the reintroduced ONP population are encouraging. In the 7 years since animals were first translocated to ONP, researchers have found the reintroduced fishers to be widely distributed, reproducing, and in some cases long-lived. Habitat models suggest an adequate quantity of suitable habitat, and actual fisher use has included an even broader range of habitat, both in terms of elevation and age-class. We disagree with this peer reviewer's comparison to northern spotted owl survival for two reasons: first, spotted owls have experienced a severe threat from the invasion of barred owls that is not likely relevant to fishers. Second, although fishers do depend on many of the same habitat characteristics as northern spotted owls, as acknowledged in our final Species Report, fishers are not as specialized in their use of habitat and can make use of a broader range of habitats than can northern spotted owls.

(85) Comment: One peer reviewer believes that the Service presented an accurate summary of available data on fisher reintroduction efforts. The peer reviewer asserted that reintroductions throughout California, Oregon, and Washington were the best method for reconnecting these populations to those in Canada.

Our Response: The reintroduction of fishers into the west coast States is one means to augment the reestablishment of extirpated or depleted populations within their historical range. While it is too soon to determine if the new introductions are successful,

we (and our partners) continue to monitor the stability of translocated fisher in the new reintroduction areas. The final Species Report identifies a number of stressors that may be acting on fisher in the analysis area, including the reintroduced populations. Though we are withdrawing our proposal to list the West Coast DPS of fisher as threatened, we will continue to monitor stressors as we develop management strategies and work with our partners toward the conservation of fisher throughout its range.

(86) Comment: One peer reviewer noted that, although the draft Species Report cited research by Knaus *et al.* (2011), that study's main conclusion was not explicitly stated in the draft Species Report. The peer reviewer noted that mitochondrial DNA evidence supports the idea that fisher may have existed as disjunct populations rather than a metapopulation with continuous gene flow before European settlement. This molecular research may indicate that reestablishing fisher along the Sierra Nevada to allow for gene flow may not correspond with the history of the species, and has important implications for the proposed listing. The peer reviewer also noted that the conclusions from Knaus *et al.* (2011) may be in contradiction to a study by Drew *et al.* (2003), who supported reintroductions with fishers from British Columbia.

Our Response: The final Species Report incorporates information from these comments. The source of fisher for potential future reintroductions is a management issue beyond the scope of the listing process.

(87) Comment: One peer reviewer asked how a severity rating could be assigned to an area where no fishers are currently extant.

Our Response: The severity of a stressor is the "level of damage to fisher populations or their habitat that can reasonably be expected from the stressor…" (Service

2014, p. 51). The commenter is correct—a severity rating is not appropriate where the species is assumed to be extirpated (e.g., Eastern Washington Cascades, Western Washington Cascades, and Coastal Oregon subregions) based on the best available information. In the final Species Report, we moved the analysis quantifying stressors to Appendix C and we instead provide a qualitative categorization of stressors to identify each stressor's magnitude of impacts to those fisher populations that are known to occur across the west coast States. Our explanation of this change and conclusions are outlined in detail in **Background**, above.

Rodenticides

(88) Comment: One peer reviewer asserted that rodenticide exposure from illegal marijuana grow sites in northern California and southern Oregon is a significant concern, although they believe the magnitude of impacts in Oregon are far lower than California. The peer reviewer also stated that recent legalization of recreational marijuana in Washington and Oregon may reduce the scope and severity of this threat across the proposed DPS. Similarly, another peer reviewer claimed that rodenticide impacts are an emerging threat to fishers in some parts of its range, but that it is speculative to consider the use of rodenticides to be an overall threat to fisher populations by relying on numerous assumptions (e.g., density of marijuana growing operations, whether each operation uses ARs).

Our Response: We have reviewed the best scientific and commercial information available, including new information received, which enabled us to provide clarity and corrections in the final Species Report (Service 2016, pp. 141–159) and this document with respect to illegal marijuana grow sites and associated rodenticide exposure. The

extent to which the legal use of ARs occurs at agricultural and commercial sites within the range of the fisher is unknown. Two fisher carcasses from Oregon have been tested for rodenticides, both of which tested positive, and only three fishers can be confidently documented to have been exposed in Washington. None of these were in the vicinity of a known marijuana grow, and the Washington fishers were found near rural areas where rodenticides could have been used legally.

The contention that recent legalization of recreational marijuana in Washington and Oregon may reduce the scope and severity of this threat is unlikely (given the main application of this stressor has not been in Washington or Oregon), and it is too soon to tell what, if any, effect the recent legalization will have on illegal marijuana grow sites and exposure of fishers to rodenticides. There are, as yet, no rodenticide labels that allow application to marijuana as a crop; thus, any use of rodenticides within a marijuana grow, legal or otherwise, would be illegal under State and Federal laws.

We note the uncertainty as to the severity of impact that this stressor may have, given data are minimal across Oregon and Washington in particular, including the lack of information rangewide regarding potential sublethal effects of toxicants to fishers within the proposed West Coast DPS (i.e., we only have information on 15 mortalities rangewide). Therefore, the best available information does not support concluding that these impacts rise to the level of a threat, based on the insufficient evidence that ARs are functioning as an operative threat on the fisher such that the proposed DPS is experiencing significant impacts at either the population or rangewide scales.

(89) Comment: One peer reviewer asserted that the impact of rodenticides is a concern in particular to adult female fishers, although the data that demonstrate impacts

(e.g., 4 of 58 radio-tagged individuals in California for one study were found dead from rodenticides) does not appear to represent a population- or DPS-wide impact. The peer reviewer is concerned about the high rate of rodenticide residues discovered in fishers. However, the peer reviewer noted that detection of these compounds does not prove that rodenticides are an etiologic (causal) agent of mortality. Additionally, the peer reviewer stated that secondary consequences of poisons on immune response, reproductive output, etc., have some uncertainties.

Our Response: We have reviewed and added information on the potential for reproductive effects from rodenticide exposure to the final Species Report (Service 2016, pp. 156–159) and this document (see ***Exposure to Toxicants***, above). Exposure to ARs has been documented to cause fetal abnormalities, miscarriages, and neonatal mortality in mammals. The timing of AR use at cultivation sites (April–May) may also be important, because this timeframe coincides with increased energetic requirements of pregnant or lactating female fishers, and the reduction of prey has been documented at illegal grow sites where ARs were applied. We also added information to the final Species Report on the sublethal effects of rodenticides, including the symptoms of toxicosis (Service 2016, pp. 150–157), which without treatment can lead to mortality. Symptoms include lethargy, anorexia, ataxia, anemia, lameness from bleeding in the joints, and difficulty breathing. Finally, we included a summary of the literature discussing the association between liver residue concentrations, symptoms of toxicosis, other adverse effects, and mortality.

The new information we have evaluated provides clarity and corrections to some information presented in the draft Species Report, including the lack of information

rangewide regarding potential sublethal effects of ARs to fishers within the proposed West Coast DPS (i.e., we have information on only 15 mortalities rangewide (Gabriel *et al.* 2015, p. 5; Wengert 2016, pers. comm.). Despite additional information regarding potential sublethal effects, the level of exposure that would be expected to result in such effects in fishers remains unknown. The best available information does not support a conclusion that these impacts rise to the level of a threat, based on our review of the best available data, which indicates that ARs are not functioning as an operative threat on the fisher (i.e., the proposed DPS is not experiencing significant impacts at either the population or rangewide scales), currently or in the foreseeable future.

(90) Comment: One peer reviewer was unable to determine the percentage of illegal marijuana grow sites at which ARs have been detected, as presented in the draft Species Report. Further, the peer reviewer stated that, if ARs are assumed to be at all sites, the Service overestimated the scope and severity of this threat.

Our Response: We do not know the percentage of illegal marijuana grow sites where ARs have been detected. We also note the uncertainty as to the severity of impact that this stressor may have (including at illegal marijuana grow sites across the west coast States), given data are minimal across Oregon and Washington in particular. There is also a lack of information rangewide regarding potential sublethal effects of toxicants to fishers within the proposed West Coast DPS (i.e., we have information on only 15 mortalities rangewide; see our response to *Comment (91)*). Therefore, the best available information does not support a conclusion that these impacts rise to the level of a threat, our review of the best available data, which indicates that ARs are not functioning as an operative threat on the fisher (i.e., the proposed DPS is not experiencing significant

impacts at either the population or rangewide scales), currently or in the foreseeable future..

(91) Comment: One peer reviewer requested that we explain the differences in prevalence of large marijuana grow operations using rodenticide between private and public lands. The peer reviewer also articulated that there is an unrecognized benefit to fisher from private forest management operations as a result of the increased scrutiny of private land area by managers and biologists, resulting in less likelihood of illicit marijuana grow sites on those lands. Given the knowledge of grow operation locations from flight-based inventories, the peer reviewer ascertained that it could be possible to determine the proportion of large grow operations on private versus public lands, and incorporate the differences in the calculated stressors and impact categories.

Our Response: Detection of grow operations from the air does not provide any information on whether or not rodenticides are being used. In addition, if rodenticides are used, air surveys would not identify which rodenticides are used or how much may be applied and when. Furthermore, there are no rodenticide labels that allow application to marijuana as a crop; thus, any use of rodenticides within a marijuana grow would be illegal under State and Federal laws.

Stressors

(92) Comment: One peer reviewer disagreed with the Service that reduction in the amount of late-successional forest had been responsible for the extirpation of fishers in Washington. The peer reviewer stated that trapping, fur harvest, and predator control efforts were in fact responsible for the disappearance of fishers in the State, particularly in Olympic National Park where logging did not occur.

Our Response: We agree with the peer reviewer's assessment that trapping, fur harvest, and predator control efforts were predominantly responsible for the extirpation of fishers from Washington State. This situation is certainly true for areas that were not logged, like Olympic National Park, just as the peer reviewer suggests. The reduction of late-successional forests, however, is likely to have been a factor in the significant decline of fisher occupancy across some of Washington State, particularly in the Puget Trough and other areas now developed and densely populated. Our statement in the draft Species Report (p. 57) that the peer reviewer specifically disagreed with said, "a reduction in the amount of late-successional forests occurred … and has been implicated as a primary cause of fisher declines across the analysis area." We maintain that this sentence is correct; however, to clarify, this sentence is in reference to historical declines of fisher across the analysis area, because there have been numerous peer-reviewed journal articles that make this implication, and implications at the scale of the analysis area would not necessarily apply to mountainous regions in Washington State.

(93) Comment: One peer reviewer recommended including a discussion of accidents (i.e., drowning, falls, being struck by limbs or trees, lightning strikes, wildfire) as natural sources of mortality. The peer reviewer specifically described documentation of 10 fishers jumping into large, empty tanks/bins on Green Diamond property, suggesting their natural curiosity, inquisitive attitude, and potential for "accident prone" situations.

Our Response: The draft Species Report included a discussion of natural causes of mortality for fishers (Service 2014, p. 10). The discussion highlights interspecific and intraspecific conflict and starvation as non-predation and non-disease related sources of

natural mortality. While it is not feasible to provide an exhaustive list and analysis of all natural mortality sources in the final Species Report, we revised the information therein to include the data provided by the peer reviewer.

(94) Comment: One peer reviewer thought it was not logical that the proposed listing rule considered disease and predation as naturally occurring sources of mortality, but did not consider naturally occurring wildfires or climate change the same way.

Our Response: The distinction with regard to disease and predation is intended to underscore the fact that these are natural sources of mortality that are to be expected in every animal population, and to make the point that we would only consider these stressors to pose a threat to fisher if they were occurring at levels outside the range of normal variability. We agree that wildfire and climate change could potentially be considered natural processes; we did not specifically identify them as such here, however, because of the strong suggestion that these processes are synergistically intertwined and potentially elevated above natural background levels due to anthropogenic forcing. In any case, whether we call a stressor "naturally occurring" or not has no bearing on our analysis; whether naturally occurring or otherwise, we evaluate all stressors under the same standard as laid out in section 4(a)(1) of the Act to determine whether a species may meet the definition of an endangered species or a threatened species as a consequence of the effects of that stressor.

(95) Comment: One peer reviewer suggested that the draft Species Report's estimate of 90–95 percent scope for loss of late-successional forest for Coastal Washington was too high. The peer reviewer requested clarification on whether areas

such as national parks, high-elevation forests, or other remote areas were included in the calculation of scope.

Our Response: The data used to estimate scope for loss of late-successional forests from past activities and disturbances comes from Bolsinger and Waddell (1993, p. 3). The authors found that less than 10 percent of logging or other activities occurred in old-growth stands on National Forests in Oregon and Washington combined, indicating that these stands were generally undisturbed (Bolsinger and Waddell 1993, p. 8). As the draft Species Report states (Service 2014, pp. 57–58), we assumed that timber harvest occurred ubiquitously on both public and private land in the past, except for in national parks, high-elevation areas, and more remote inaccessible areas. In addition, the Coastal Washington region has been highly urbanized throughout the Puget Trough for a long time. Therefore, we disagree with the peer reviewer that an estimate of 90–95 percent scope is unreasonable. However, for reasons described earlier in this document, in the final Species Report we have changed our evaluation of scope and severity from quantitative values to qualitative values, so we no longer refer to a scope of 90–95 percent.

(96) Comment: One peer reviewer believed that the scope of the stressor for research was overestimated in Coastal Washington. The peer reviewer provided information from a study on the rates of collar shedding and mortalities, and other information on research practices (which do not include trapping or anaesthetizing fishers).

Our Response: The draft Species Report identified a number of factors that were considered as potential lethal or sublethal effects of research-related activities on fisher

(Service 2014, p. 113). We similarly acknowledged that research in Coastal Washington does not involve live-trapping, but that fishers in this reintroduced population are exposed to radio-collar related stressors. We based our scope and severity analyses on the best available information at the time, which included survival rates and population growth estimates. The information provided by the peer reviewer indicates that eight fishers shed their collars and none of the recovered mortalities in the study area were collar-related.

The draft Species Report provided the figures used to determine the scope of research-related stressors in Coastal Washington (Service 2014, p. 114). The draft Species Report used the data from ongoing research in the SSN and NCSO populations to calculate severity for research-related stressors (Service 2014, p. 114). We have updated our analysis in the final Species Report to include the information specific to Coastal Washington provided by the peer reviewer. In addition, we have changed from a quantitative to a qualitative assessment of stressors.

(97) Comment: One peer reviewer questioned why the scope and stressors focused only on negative changes in fisher populations. The peer reviewer asked if there were any forecast circumstances that were expected to result in positive changes for fishers.

Our Response: The peer reviewer is correct that the draft Species Report defined stressors as those activities or processes resulting in the "destruction, degradation, or impairment of west coast fisher populations or their habitat" (Service 2014, p. 46). Within the discussion of both wildfire and vegetation management, however, we do identify positive elements. For example, in our draft Species Report we identified

wildfire as having the potential to increase vegetative diversity and create snag and down wood habitat elements (Service 2014, p. 59). Further, we indicated that not all vegetation management activities are "detrimental to fisher habitat, depending upon their objectives and implementation" (Service 2014, p. 87). The beneficial effects of wildfire and vegetation management may be realized later in time, such as while vegetation that remains post-fire or vegetation treatment recovers, or while prey communities respond to understory treatments. Our final Species Report presents an expanded discussion on these topics.

(98) Comment: One peer reviewer asked why the scope and severity impacts for each stressor were not combined to calculate an overall numeric impact, or ranked according to severity of threat to the fisher.

Our Response: As described more fully elsewhere in this document, we found that our initial quantification of stressors required us to make assumptions or extrapolate impacts in an effort to quantify stressors in areas where stressor-specific information was not available. We believe our presentation of the scope and severity of stressors in quantitative terms may have created a false sense of precision with regard to the level of scientific accuracy underlying these estimates. To avoid this perception, in our final Species Report we use a qualitative approach to describe stressors (i.e., stressors are categorized as low, moderate, or high, as defined in that Report). We use quantitative data wherever available, but if specific data are lacking, we rely on qualitative evidence to derive a qualitative descriptor of each stressor, based on the best scientific and commercial information available, rather than extrapolating. See the introductory text to

the “Magnitude of a Stressor’s Impact” discussion under the “Review of Stressors” section of the final Species Report.

Synergistic (Cumulative) Effects

(99) Comment: One peer reviewer asserted that climate change and its secondary effects, including effects on wildfire regimes, pose the most serious long-term threat to fisher populations in California.

Our Response In our draft Species Report, we concluded that the synergistic effects of climate change and wildfire combined with forest insect and disease agents may cause widespread ecotype conversions. We similarly acknowledged that habitat loss may be greater in some subregions due to synergistic effects, and identified synergistic increases in wildfire associated with climate change as a population-level stressor (Service 2014, p. 171). However, upon review and consideration of all of the best scientific and commercial information available, including comments and new information received during the open comment periods on our proposed rule, we now acknowledge the possibility of widespread ecotype conversions, but additionally recognize the uncertainty associated with such predictions in regard to their specific effects on fishers or fisher habitat. In addition, we recognize the uncertainty surrounding the timeframe within which such conversions are likely to occur, should they do so. We do not have evidence to suggest that synergistic increases in wildfire associated with climate change are resulting in any significant impacts at either the population or rangewide scales, nor does that information suggest significant impacts at these scales in the foreseeable future. Overall, taking all of this information into consideration, we conclude that we do not have sufficient evidence to suggest that the synergistic effects of

these stressors were such that we consider fishers to be in danger of extinction throughout all or a significant portion of their range, now or within the foreseeable future. Please also see our response to *Comment (1)*, above.

(100) Comment: One peer reviewer suggested that we consider using the term "compounded effects" instead of synergistic effects, given that the analysis of stressors does not address additivity or potentiation.

Our Response: The term synergistic effect is used to describe the situation when one or more stressors exacerbate the effects of another stressor, causing effects that are greater than the sum of individual stressors. Similarly, we use the term cumulative effect to address the additive or compensatory effects of multiple stressors. These terms appropriately describe how multiple stressors may interact with one another. We appreciate the reviewer's point that synergistic effects are not necessarily the same as compounded effects.

(101) Comment: One peer reviewer requested that the Service add an analysis of the synergistic effects between human development in vegetation management, particularly in wildland/urban interfaces. The peer reviewer pointed out that, in those areas, vegetation management and fuels treatment are often especially aggressive in order to prevent wildfire. The peer reviewer asked if the Service had considered this point in its conclusion that human development is of low concern to fishers and their habitat.

Our Response: We agree with the peer reviewer and have added this consideration in the Synergistic effects section of the final Species Report (Service 2016, pp. 160–162).

Wildfire

(102) Comment: One peer reviewer suggested that it is inappropriate to present predicted habitat loss to wildfire in such definitive terms, such as a projected 8-fold increase in area burned in the Western Washington Cascades over the next 60 years, because the models on which this projection are based are subject to great variability. As presented in the draft Species Report, the peer reviewer stated the analysis implies that the Service has greater precision in our predictions than is actually available, especially in west-side forests. The peer reviewer said the same applies to projections made in the draft Species Report with regard to the projected increases of fire severity and extent in response to climate change. The peer reviewer suggested that the best analysis to date on this subject is Gedalof *et al.* (2004).

Our Response: We agree that providing a quantitative estimate of scope and severity—even with a broad range of potential values—implies that we have greater precision in our assessment than is accurate. As a result, in our final Species Report we describe what is known and what is not known about the scope and severity of each stressor in qualitative terms, as supported by the best available scientific and commercial information.

(103) Comment: One peer reviewer disagreed with the characterization of the stressor of naturally occurring wildfires. The peer reviewer stated that wildfire should be considered "an ecological disturbance that results in a potential long-term habitat enhancement rather than a short-term negative stressor." The peer reviewer also disagreed with the Service's discussion of wildfire suppression in the context of fisher habitat degradation (e.g., snag removal, fire breaks), stating it was more appropriate to

view large-scale wildfire suppression as the removal of a naturally ecological process that creates fisher habitat over the long term.

Our Response: We appreciate and understand the peer reviewer's perspective of short-term and long-term effects of wildfire to fisher habitat. Fire severity is one determinant of whether fire impacts are more likely to be short-term or long-term, as well as the potential for benefits to fisher habitat from fire. We assume that the peer reviewer, in stating that large-scale fire suppression removes fire as a naturally occurring ecological process, was really referring to decades of fire exclusion as removing a naturally occurring ecological process—that is, long-term (over the course of decades) suppression of fires to the degree that has changed forest structure and composition and has changed associated fire behaviors—not the direct effects of individual fire suppression actions that can remove fisher habitat. If this is a correct assessment of the peer reviewer's comment, we concur with the peer reviewer and recognize that wildfire is part of a natural disturbance regime and that fishers evolved in forests subject to wildfires. Similarly, we understand that western forests are highly managed and decades of suppression activities have moved some forests away from historical fire return intervals and fire severities. We have expanded our discussion of the effects of wildfire in the final Species Report to ensure it is a balanced discussion of both the potential negative and positive effects of fire.

(104) Comment: One peer reviewer disagreed with the draft Species Report's emphasis on wildfire as having a negative effect on fisher habitat, and believed that the report overemphasized the negative aspects of fire without discussing the benefits of fire. Additionally, the peer reviewer stated that ongoing wildfire suppression on public lands

and limitation of controlled burns on private lands is likely to have the greatest negative impact to fisher habitat by prohibiting the creation of late-seral habitat elements (e.g., cavities, basal hollows, and structural deformities) on which the fisher and other species rely.

Our Response: The commenter is correct—our draft Species Report does place an emphasis on the negative aspects of wildfire as it pertains to fisher habitat. There are few studies on fisher use of burned landscapes (e.g., Hanson 2013, entire) and hypotheses by others (e.g., Powell and Zielinski 1994, p. 64) that timber management may replicate the effects of small stand-replacing fires on fisher. The lack of peer-reviewed information specific to this subject limits our ability to do more than speculate on potential benefits of wildfire to fisher. We do recognize, however, that wildfire can be beneficial to forested ecosystems that fisher inhabit. For example, low-severity fires may increase understory vegetative diversity and create coarse woody debris (Service 2014, pp. 59), which are beneficial to fisher prey species and provide a source for den and rest structures for fisher.

Wildfire suppression often includes the removal of snags or other large trees, but the scales at which this happens vary (Service 2014, p. 61). On the other hand, fire also creates many of the structural elements that are of concern to the commenter. While some of these elements may be removed by suppression activities, recruitment of these elements also occurs as a result of fire. We have expanded our discussion of the effects of wildfire in the final Species Report to ensure it is a balanced discussion of both the potential negative and positive effects of fire.

(105) Comment: One peer reviewer questioned the Service's characterization in the draft Species Report that high-severity wildfire has the potential to "permanently remove suitable fisher habitat" and that wildfire is likely to remove habitat for a period of many decades. The peer reviewer disagreed with this characterization because fisher habitat should be viewed as dynamic, in part because wildfire has the potential to create ideal fisher habitat with a mosaic of older pockets of forest with ample opportunities for denning and resting, and young seral stages with an abundance of food for fishers.

Our Response: High-severity wildfire is more likely to remove forest cover from large blocks of habitat, which in the post-fire landscape, lack the canopy cover and structural elements needed by fisher (Jones and Garton 1994, pp. 380–382; Weir and Harestad 1997, pp. 257–258; Weir and Corbould 2008, p. 2). Several decades may be needed, depending upon forest type, to regrow forests that contain the canopy cover and structures associated with fisher habitat. We agree that fisher habitat is dynamic, but we recognize that there is not universal agreement regarding either the historical occurrence or potential impacts of high-severity fire with regard to fisher habitat. In our final Species Report, we have incorporated additional discussion of the various viewpoints from different researchers on this subject. For example, we note that in Sierra mixed-conifer forests, some researchers suggest that a historical fire regime characterized by mixed-severity fires, with high-severity fires occurring at moderate to long intervals, may have produced the heterogeneous forests with abundant, dense, late-successional habitat characteristics favored by fishers (Hanson 2013; Baker 2014; Cocking *et al.* 2014).

(106) Comment: One peer reviewer stated that there is no evidence in the literature that fishers need or can persist in large homogenous blocks of late-successional

or old-growth coniferous forests. Thus, the peer reviewer believed that wildfire in the absence of or limitations on salvage should be viewed as natural disturbance events that may have some short-term impacts, but overall positive, long-term impacts that help maintain a dynamic landscape that meets all the necessary habitat needs for fishers.

Our Response: The draft Species Report does not state that fishers require large homogenous blocks of late-successional or old-growth forests, nor did we mean to imply this. We agree that wildfire is a natural disturbance that may have short-term and long-term impacts to fisher habitat, some of which are likely to be beneficial. Please also see our responses to *Comments (103), (104),* and *(105),* above.

(107) Comment: One peer reviewer suggested that the standard terminology for grading severity of fire is now low, high, and mixed severity, and referred us to Halofsky *et al.* (2011). The peer reviewer noted that the term "mixed severity" allows for patches of different severities, and subsumes the terms "moderate" and "medium." Depending on the spatial scale of analysis, the peer reviewer believed it is possible that most fire in the regions of interest is of mixed severity. Finally, the peer reviewer stated that the distributions of patch sizes are important, given that large, high-severity patches may fragment habitat even if they are not the dominant severity.

Our Response: We thank the peer reviewer for this information, and have incorporated it into our final Species Report.

(108) Comment: One peer reviewer suggested that Tables 6 and 7 in the draft Species Report, which presented the estimated scope and severity of wildfire-related stressors, were faulty and overestimated the percent of available habitat likely to burn over the next 40- and 100-year time periods. They stated that this error is because the

projections were based on extrapolations from past burns, which did not account for areas that may have burned more than once. The peer reviewer suggested that these projections could be corrected by using GIS to overlay the 27 years of available Monitoring Trends in Burn severity (MTBS) mapping data and adjusting for burned areas that might otherwise be counted twice, leading to inflated future estimates. The peer reviewer also suggested the Service consider Kolden *et al.* (2012) for information on accounting for the proportion of unburned area within fires.

Our Response: The draft Species Report explained that short fire-return intervals in the Sierra Nevada, NCSO population, Eastern Oregon Cascades, and Eastern Washington Cascades could lead to the overestimation (i.e., double counting) of scope for wildfire (Service 2014, p. 63). We also noted that the area burned per year is likely to increase, causing an underestimation of scope for wildfire (Service 2014, p. 63). While not stated in the draft Species Report, this observation implies that the overestimation and underestimation offset one another.

We appreciate the suggestions from the peer reviewer regarding how we may improve our assessment of scope and severity for wildfires. As explained in the *Summary of Basis For This Withdrawal* and **Determination** sections of this document, in our final Species Report, we did not rely upon quantitative estimates of scope and severity, as we concluded they conveyed a false sense of precision. We have revised our assessment of the stressors in the final Species Report accordingly and considered the peer reviewer's comments in our assessment.

(109) Comment: One peer reviewer disagreed with the use of a study by Hanson (2013, entire) that discussed the fisher's use of landscapes post-fire. The peer reviewer

asserted that this study was unreliable and urged the Service to find other peer-reviewed literature on this subject to add to the final Species Report.

Our Response: Peer-reviewed literature on fisher use of burned landscapes is minimal. While the peer reviewer may not agree with Hanson (2013, entire), it is one of the only peer-reviewed, published research studies available documenting observations of fisher using burned areas. We received numerous pieces of information during the comment periods for the proposed rule, some of which included recent study results on fisher use of burned landscapes (both peer-reviewed and published and unpublished observations). The final Species Report has been updated to reflect this information as appropriate.

(110) Comment: One peer reviewer believed that the draft Species Report overemphasized the negative effects of fire while underemphasizing the benefits of fire. The peer reviewer recommended that the final Species Report provide a more thorough discussion of the benefits of fire, such as the creation of downed wood and other denning structures, the increase of prey abundance, and specific benefits of fire found in Oregon forests.

Our Response: We agree, and have attempted to provide a more balanced discussion of the effects of fire in the final Species Report, including both detrimental and beneficial effects with regard to suitable fisher habitat throughout the analysis area. Please also see our responses to *Comments (103), (104),* and *(105),* above.

Other Comments Received (Federal, State, Local Government, Tribal, Public)

Adult Survival

(111) Comment: One commenter presented new information that, although the overall population trend was stable to increasing in the Hoopa study (Higley *et al.* 2013), estimates were declining for male-only annual population estimates, male survival, and male-only lambda. The commenter suggested the primary reason for these declines could possibly be related to AR poisoning associated with illegal marijuana cultivation.

Our Response: We thank the commenter for pointing out this information about decreasing male population estimates, survival, and population growth rates on the Hoopa study area that had not been included in the draft Species Report. The final Species Report reflects this information but notes there is no direct evidence to support the suggestion that AR poisoning may be the cause.

Climate Change

(112) Comment: One Federal agency suggested that an explanation for the absence of fishers in the central and northern Sierra Nevada is likely due to a combination of differences in vegetation disturbance regimes (including wildfire), flat topography in the north, and extreme temperatures in the north. The agency stated that: (1) Resting sites tend to be on steep slopes in canyons rather than ridges and close to water, as reported by Zielinski *et al.* (2004); and (2) denning sites are in heavily forested areas with dense canopy cover, on steep slopes, and in areas with low summer temperatures. The agency also stated that this information supports the fisher's preference of areas with low heat loads and reduced temperature variability. The agency noted that the scope and severity of the potential threat of climate change is likely to be different as there are significant differences in vegetative ecology, topography, and climate from northern to southern Sierra Nevada. Additionally, the agency claimed that

genetic evidence points to a 1,000-year or more genetic differentiation between fishers in the southern Cascade Range and those in the southern Sierra Nevada. Thus, the agency claimed that it is reasonable to assume that there were and continue to be some vegetative or climate-based causative factors for this separation and contraction of the fisher range.

Our Response: The Federal agency's comment is contributing to the discussion in the draft and final Species Reports regarding the reason for the long-term separation between fishers in the SSN population and those in the southern Cascade Range in California. Researchers (e.g., Tucker *et al.* 2012, p. 12) found the reasons for this gap "perplexing," but postulate that the steeper terrain in the southern Sierra Nevada, which discouraged human settlement, may be a factor. The Federal agency provides some speculation as to differences between the two areas that may contribute to the gap between the two fisher populations. However, based on our evaluation of the best scientific and commercial information available at this time, we are withdrawing the proposed rule to list the DPS (see **Determination**, above). If in the future we reconsider listing fishers in the west coast States, we will consider the potential relevance of these comments regarding the causes of the separation between fishers in the Cascade Range and the southern Sierra Nevada.

(113) Comment: The State of Oregon acknowledged that climate change is an issue of global significance, stating that it is not certain whether climate change will result in negative effects to the fisher. The State claimed that more focused research is needed on the effect of climate change on many species, including the fisher, to more accurately predict the specific effects of climate change on the west coast. Thus, the State asserted that a Federal listing under the Act would not reduce the risk to fisher from

climate change. Alternatively, another public commenter requested that we specifically recognize climate change as a threat in the final rule.

Our Response: Section 4(a)(1) of the Act sets forth the factors used to evaluate whether a species meets the definition of an endangered species or a threatened species. The current and future effects of climate change were identified as a stressor to fisher (Service 2014, pp. 72–85; 148–151); in particular, changes in habitat due to wildfire are expected to be exacerbated by the effects of climate change (Service 2014, pp. 79–80). While we recognized the effects of climate change as an ongoing and future stressor, we did not in the proposed rule and currently do not identify climate change effects in and of themselves as a threat to the fisher (see ***Climate Change***, above). We do not dispute the projected changes in climate as modeled by the IPCC report; however, the best available scientific and commercial information does not allow us to make specific predictions of the changes in climate and the future response of fishers or their habitat.

(114) Comment: Several commenters claimed that climate change impacts on fishers in the west coast States are real and likely profound, and should be considered by the Service as one of many factors impacting the survival of this already threatened species. Further, two of these commenters specifically spoke to climate change's influence on wildfire, indicating that climate change will result in an increase in large, high-severity wildfires with longer and drier fire seasons.

Our Response: Please see our response to *Comment (10)* above. In addition, we have added discussion to our final Species Report of the potential synergistic effects of climate change and wildfire, and incorporated the results of new research provided to us as a consequence of peer reviewer and public comment.

Collision With Vehicles

(115) Comment: One commenter and one Federal agency expressed their concerns about fisher collisions with vehicles as a well-documented source of mortality and threat to fisher conservation, which is contrary to our conclusion in the draft Species Report and proposed rule. In cooperation with the Sierra National Forest and Yosemite National Park, the public commenter, who participates on a Vehicle Collision subgroup of the Southern Sierra Fisher Working Group, helped develop and implement mitigation measures to reduce roadkill mortality along Wawona Road/State Highway 41 (which is a location that the Federal agency noted is an example of a moderate-to-heavy traffic traverse in high-quality fisher habitat). The commenter stated that in the SSN population at least 21 known fisher mortalities from collisions with vehicles have occurred within the past 2 decades, including 9 in the Sierra Nevada Adaptive Management Project study area on the Sierra National Forest, 10 in Yosemite National Park, and 2 in Sequoia-Kings Canyon National Parks (Spencer *et al.* 2015; Otto 2015, pers. comm.). The commenter also expressed concern that fisher collisions with vehicles will likely become more severe over time as the number and size of roads increase, thereby further limiting fisher dispersal among historically connected populations.

Our Response: We agree that fisher collisions with vehicles are a stressor that causes injury and mortality. This issue appears to be localized where fisher home ranges overlap highways that have high speed limits and traffic density, which is the case with State Highway 41 within and south of Yosemite National Park. This stretch of highway is responsible for 38 percent of the 34 known fisher highway mortalities in California between 1993 and 2013 (Sweitzer *et al.* 2015b, p. 10). No other single road is known to

result in this level of fisher mortality, and we do not foresee the construction of any significant number of similar high-speed, high-density roads within the fisher's range. As a result, the current magnitude of this stressor is not likely to have an overall significant impact at either the population or rangewide scales such that the stressor rises to the level of a threat to the proposed DPS. Please see our updated discussion in the *"Collision With Vehicles"* section of this document and the final Species Report.

Completeness and Accuracy

(116) Comment: The State of Oregon indicated that the draft Species Report did a good job of summarizing known fisher detections; however, it was not clear which areas were surveyed that did not result in fisher detections.

Our Response: Figure 6 in the draft Species Report included all opportunistic and systematic surveys, as well as trapping efforts and other reports since 1993. In comparing Figure 6 and Figure 7 (which presents all locality records from 1993 to present with reliability ratings 1 and 2), the difference between these two figures represents the areas where surveys or trapping efforts have occurred, but fishers have not been detected since 1993. We have revised the legends to Figures 6 and 7 in the final Species Report to reflect this information.

(117) Comment: One commenter asserted that the Service's review process was incomplete at the time of the proposed rule because the wealth of data and knowledge available on fishers in the California portion of the proposed DPS was not incorporated in the analysis. A second commenter described the draft Species Report as incomplete with an insufficient accounting of available data, and had omissions of information that was misleading to the public. Alternatively, another commenter stated that the Service

provided sufficient information in the draft Species Report and proposed rule to demonstrate that the proposed West Coast DPS of fisher is in need of protections under the Act. One Federal agency also supported the accuracy and quality of the data used for the threats analysis (describing a sufficient description of the magnitude and overall immediacy of threats)..

Our Response: Section 4(b)(1)(A) of the Act requires the Service to use the best available scientific and commercial information in determining a species' status under the Act. We developed the draft Species Report by synthesizing and analyzing the best available data. Due to internal review processes, there was a lag time between the completion of the draft Species Report and the publication of the **Federal Register** document. Since then, we have received and analyzed a significant amount of new information, including information we obtained through the two comment periods, new literature publications, and some older publications published prior to the proposed listing rule of which we were not aware. Consequently, our final Species Report represents a review and synthesis of all of the best available scientific and commercial information.

(118) Comment: Many commenters expressed concern that the Service has delayed listing the proposed West Coast DPS of fisher.

Our Response: We have not delayed listing the fisher. We have followed the statutory, regulatory, and policy requirements that govern adding species to the List of Endangered and Threatened Wildlife. In 2004, we determined the proposed West Coast DPS of fisher warranted listing (69 FR 18769, April 8, 2004), but immediate action to list the DPS was precluded by other higher priority listing actions at that time. The proposed DPS became a candidate for listing with a listing priority number (LPN) of 6 which

reflected high magnitude but non-imminent threats. Each year after 2004, the proposed DPS was reevaluated and candidate status reaffirmed with the same LPN. We continued to closely track the status of the proposed DPS, and if an emergency situation had developed, would have moved quickly to invoke protections of the Act as appropriate. As a result of the 2010 MDL agreements (*Endangered Species Act Section 4 Deadline Litig.*, Misc. Action No. 10–377 (EGS), MDL Docket No. 2165 (D.D.C.)), the proposed listing rule for the West Coast DPS of fisher was scheduled to be, and was, submitted to the **Federal Register** in fiscal year 2014, publishing on October 7, 2014 (79 FR 60419). As a result of the comments received on the proposed rule, we have evaluated all of the best scientific and commercial information available. We have determined that the proposed West Coast DPS of fisher is not in danger of extinction now nor is it likely to become in danger of extinction in the foreseeable future. Therefore, through this document, we withdraw the proposed rule to list the West Coast DPS of fisher.

Critical Habitat

(119) Comment: Several commenters requested that the Service finalize the proposed listing rule and also designate critical habitat (some noting specific areas they believe are critical for the taxon or factors that the Service should consider). Some of these commenters specifically requested that the Service designate critical habitat concurrent with the time of listing because they anticipate additional impacts to the fisher and its habitat associated with continued logging activities.

Our Response: On October 7, 2014, the Service published a proposed rule to list the fisher and made a finding that critical habitat was not determinable for the species (79 FR 60419). A not determinable finding allows us one additional year to either propose

critical habitat or find critical habitat is not prudent. Since we are withdrawing the proposed rule rather than finalizing the listing of the West Coast DPS of fisher, we will not be designating critical habitat for the DPS.

(120) Comment: Two commenters agreed with the Service's finding that a critical habitat designation was not determinable. One commenter stated that given substantial uncertainty concerning the proposed DPS application to west coast fisher populations (e.g., potentially excluding most of Oregon and Washington and distinguishing between California populations), it is not appropriate to propose critical habitat when taxonomic, genetic, functional, geographic, and conservation boundaries are uncertain. Alternatively, the second commenter urged the Service to reconsider its "not determinable" finding, stating that critical habitat should be designated at the very least in the southern Sierra Nevada and northwestern California.

Our Response: In the proposed rule to list the species, we stated that the information sufficient to perform a required analysis of the impacts of the critical habitat designation is lacking due to the considered DPS alternatives and our request to seek public and peer review input on these alternatives (79 FR 60419). In our evaluation of the best scientific and commercial information available at this time, described in the **Determination** section, above, we have determined the proposed West Coast DPS of fisher does not meet the definition of an endangered or a threatened species. Therefore, we are withdrawing the proposed rule to list the DPS and we will not be issuing a proposal to designate critical habitat.

Current Conservation Efforts

(121) Comment: One Federal agency urged the Service's consideration of the Southern Sierra Nevada Conservation Strategy for the final Species Report and decision, including non-specific beneficial actions and fisher-specific conservation measures.

Our Response: We considered drafts of the Southern Sierra Nevada Fisher Conservation Strategy because the strategy was not finalized until shortly before our publication of this document. Unfortunately, the contents and recommendation in this strategy have not yet been adopted by the Forest Service.

(122) Comment: The State of Washington, one tribe, one Federal agency, and one other commenter declared that listing the proposed West Coast DPS of fisher in Washington is unlikely to significantly improve the recovery of the species and would instead hinder its recovery. For example, the State expressed concerns that its ongoing fisher recovery program, which is implemented with numerous conservation partners, could be hindered or slowed as a consequence of a Federal listing. The State of Washington articulated that the program is expected to recover the fisher in Washington, allow WDFW to remove the fisher from the State endangered species list, and also preclude the need to federally list the species under the ESA. The tribe and Federal agency highlighted the recovery work being conducted by WDFW, NPS, the Forest Service, and other partners, which includes addressing recovery needs associated with private timberlands and tribal governments that are willing to participate in fisher recovery. All commenters expressed concern that if a Federal listing is finalized, the current support of partners will wane or possibly fail because of the added risk of additional regulations for reintroduced fishers occupying their lands, or that future reintroductions of fishers from British Columbia (via the current strong partnership

between Federal and State agencies with the British Columbia Ministry of Environment in Canada) could be affected. Further, the Federal agency emphasized the existing monitoring and management activities that benefit the fisher could be impacted by the additional regulatory burden associated with a Federal listing. The State requested that the Service delineate a DPS boundary that does not include the State of Washington. One public commenter also championed completion of the draft CCAA in Washington to ensure the conservation of fishers in the State.

Our Response: We fully support and encourage the development of a CCAA to ensure the conservation of fisher in the State of Washington; such an agreement will provide benefits to both the proposed DPS and our conservation partners, and may help to preclude any need for listing in the future. We recognize that our conservation partners may be less likely to cooperate with reintroduction efforts once a species is listed under the Act, given previous articulated concerns related to the potential for additional regulatory burden resulting from the presence of an endangered or threatened species. We cannot, however, take such a consideration into account in a listing decision, which is statutorily required to be made based *solely* on the basis of the best available scientific and commercial information (emphasis ours). In other words, we cannot consider the potential political, social, or economic ramifications of a listing in our final determination. We solicited comments from peer reviewers and the public regarding the possibility of different DPS configurations for the West Coast populations of fisher. At this time, our end decision is to use the original DPS configuration as presented in the proposed listing rule. Consistent with our statutory standard, based solely on our assessment of the best available scientific and commercial information, we have

concluded that the proposed DPS is not currently in danger of extinction (endangered), or likely to become so within the foreseeable future throughout all or a significant portion of its range (threatened). Therefore, we are withdrawing the proposed rule to list the West Coast DPS of fisher (see **Determination**, above).

(123) Comment: The State of Washington explicitly requested recognition of the WDNR State Trust Lands HCP and its ecological benefits to the fisher in the final rulemaking process.

Our Response: The ecological benefits of the WDNR State Trust Lands HCP for fisher were recognized on pages 93, 103, and 132 of the draft Species Report and on page 60434 of the proposed listing rule (October 7, 2014; 79 FR 60419). They were fully considered in our evaluation of conservation efforts that may offset stressors to the West Coast DPS of fishers in our prior analysis, in the final Species Report, and this document.

(124) Comment: One commenter declared that listing the fisher as an endangered or threatened species would have little impact across the west coast States if wildfire and illegal marijuana cultivation on National Forest lands are not addressed. The commenter invited the Service to work with their organization to seek more funding to enhance forest management activities and increase the frequency of marijuana eradication efforts on National Forest lands.

Our Response: The proposed rule identified both wildfire and illegal marijuana cultivation as elements of the main threats to the fisher in the west coast States. Ongoing efforts to ameliorate the effects of both elements are currently being implemented on National Forest lands. Through a Section 6 Agreement, we are currently working with CDFW to fund research that investigates the effects (and conducts cleanup) of

marijuana grow sites on National Forest lands. To date, this work has resulted in the remediation of 24 trespass marijuana grow sites on Hoopa Tribal Lands and the Six Rivers, Plumas, and Shasta-Trinity National Forests, including the Trinity Alps Wilderness (IERC 2015a, Appendix A; IERC 2015b, p. 1; IERC 2015c, p. 1). We welcome the opportunity to work with the commenter to continue and expand this effort and also recommend the commenter contact the Forest Service directly to discuss management of wildfire on National Forest lands.

(125) Comment: One commenter asserted that reliance on Federal lands for the conservation of the proposed West Coast DPS of fisher, as well as other late-seral-dependent species such as the northern spotted owl, has not been sufficient to date to curtail the decline of those forest species; thus, listing the fisher is warranted. The commenter stated that recent estimates (Strittholt *et al.* 2006) show only about 36 percent of LSRs actually include late-successional forests, with the majority of the designated reserves expected to acquire such conditions over decades. For these reasons, the commenter believed that existing regulatory mechanisms are inadequate to conserve the proposed West Coast DPS of fisher.

Our Response: The final Species Report describes how State and Federal regulatory mechanisms have abated the large-scale loss of fishers to trapping and habitat loss, and how ingrowth of older forest habitat on Federal lands in the NWFP range (which has the LSR land allocations mentioned by the commenter) is increasing as predicted in the NWFP (Service 2016, pp. 164–167). Given the success of State and Federal regulatory mechanisms in reducing these threats, we determined in the proposed listing rule and reaffirm in this document that the inadequacy of existing regulatory

mechanisms is not a threat to the proposed West Coast DPS of fisher (see ***Existing Regulatory Mechanisms***, above).

(126) Comment: One commenter asserted that the past (i.e., the decade prior to 2014) likelihood of listing the fisher has had a positive effect on timberland owners voluntarily addressing numerous questions regarding the distribution and population status of fisher on their lands throughout California. The commenter claimed that if listing the fisher as a threatened species had occurred years ago, many of the voluntary research programs in existence today might be nonexistent, and those resources would have instead been channeled towards meeting the minimum regulatory guidance of a yet-to-be-determined incidental take standard. This commenter and a few other commenters declared their voluntary conservation efforts on private lands are both in response to the Service's encouragement and their desire to address the conservation needs of fishers. Two of these commenters articulated that listing the proposed West Coast DPS of fisher would not only impede future conservation efforts (e.g., completion of HCPs, CCAAs) but also appear as a punishment for the beneficial conservation actions implemented to date for the fisher and its habitat.

Our Response: We do not have discretion not to list a species if listing is warranted, which means a species meets the definition of an endangered or a threatened species. In the case of the fisher populations on the west coast, in 2004, we determined the proposed West Coast DPS of fisher warranted listing (69 FR 18769; April 8, 2004), but immediate action to list the species was precluded by other higher priority listing actions at that time. See additional discussion on this history in our response to *Comment (118)*, above.

With regard to this withdrawal of the proposed listing rule, there is an extensive amount of varied scientific, Service, other agency, and public opinion regarding the status of the proposed DPS both prior to, and following, the October 7, 2014 (79 FR 60419), proposed listing of the West Coast DPS of fisher. Given this variance and the extensive disparity in comments received (including peer reviewers) during the two open comment periods, we considered it necessary to re-evaluate all of this best available scientific and commercial information previously reviewed, and the new information received, to formulate a final decision. Upon careful consideration and evaluation of all of the information before us, we have arrived at a different conclusion regarding the status of the proposed West Coast DPS of fishers. Specifically, we conclude that the stressors acting upon the proposed West Coast DPS of fisher are not of sufficient imminence, intensity, or magnitude to indicate that that they are singly or cumulatively resulting in significant impacts at either the population or rangewide scales. Based on this current assessment, we find that the proposed West Coast DPS of fisher is not in danger of extinction currently, and is not likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Therefore, the proposed West Coast DPS of fisher does not meet the definition of an endangered or threatened species, and we are withdrawing the proposed rule to list the DPS as a threatened species (see **Determination**, above).

(127) Comment: Several commenters requested implementation of specific conservation or recovery actions (or a comprehensive strategy) for fishers in the west coast States, including management activities that would improve the overall landscape for fishers and other species. Many of these actions were recommended to the Service

because the commenters believed they would ensure the long-term conservation of the fisher. Some of the recommendations were provided by commenters who believe the taxon would go extinct without them, or by commenters who believe that the recommended actions would be sufficient to reduce the level of impact of a stressor(s) such that the associated impacts would not rise to the level of a threat.

Our Response: We appreciate the recommendations provided by commenters to continue the management and conservation of the fisher. Despite the withdrawal of the proposed rule to list the DPS (see **Determination**, above), the actions recommended by these commenters are still important to the conservation of fishers in the west coast States. We encourage ongoing monitoring and management for the benefit of fishers, although any actions undertaken will not be under a Federal regulatory context. Rather, we expect that the conservation efforts implemented by State, Federal, and private entities will continue into the future and the conservation recommendations provided by commenters may be adopted as voluntary actions by entities working to conserve the fisher in California, Oregon, and Washington.

Detection Probability

(128) Comment: One commenter suggested that the extremely low densities of fishers elude standard survey techniques on Mendocino Redwood Company's lands in coastal Mendocino and Sonoma Counties. Additionally, the commenter specifically suggested that because fishers were "probably absent" from their lands, the Service should exclude their land from the proposed DPS boundaries.

Our Response: Although not clearly articulated, it appears the commenter was referring to the absence of fisher detections from 47 track plate station locations

(surveyed between 2004 and 2008) within its holdings in Mendocino and Sonoma Counties, California. We agree with the commenter's suggestion that fishers may be present in very small numbers, but were not detected due to the survey methods employed (i.e., Zielinski *et al.* 1995, pp. 67–89). Zielinski *et al.* (1995, p. 10) state clearly that their survey methods should be used to determine "presence" of fishers, but should not be used to conclude "absence" of fishers "until additional research is conducted on the probabilities of detecting individuals known to occur in an area." Therefore, individual fishers may not be detected by Zielinski *et al.*'s 1995 survey methods if they occur in extremely low densities. We also acknowledge the commenter's note that when survey methods were subsequently changed (mainly an increase in the survey period recommended by Slauson *et al.* (2009)), a fisher was detected at two survey stations in 2013, confirming the presence of fishers on its lands.

The fisher's range in the west coast States includes many areas with suitable habitat where fishers probably do not occur, including suitable habitat areas in coastal Mendocino and Sonoma Counties. Additionally, the best scientific and commercial information, which includes that presented by the commenter, does not support the commenter's assertion that fishers are "probably absent" from their lands because: (1) A lack of detections using Zielinski *et al.*'s (1995) survey protocol between 2004 and 2008 does not confirm absence of fishers, and (2) fisher presence was confirmed in 2013 using newer survey methodology. Therefore, we disagree with the commenter's assertion that because fishers were "probably absent" from its lands, that we should exclude their land from the proposed DPS boundary.

Development

(129) Comment: One commenter stated that road construction and maintenance removes and fragments fisher habitat, thus creating barriers to dispersal, causing collisions, creating loss of cover that increases vulnerability to predators, facilitating access to poachers, and indirectly leading to logging and firewood cutting. Additionally, the commenter stated that roads bisect the fisher's habitat in the west coast States and create concerns about dispersal and mortality, which in turn lead to significant impacts to already small and isolated fisher populations.

Our Response: As described in both our draft and final Species Reports, we considered the potential effects (including fragmentation) of such activities on fishers and fisher habitat in our evaluation of stressors related to development, linear features (highways and other infrastructure), and fisher collisions with vehicles (see associated discussions under **Summary of Factors Affecting the Species**, above). Although the activities mentioned by the commenter can have a negative effect on fisher individuals, we found no evidence to suggest that such stressors are of sufficient imminence, intensity, or magnitude singly or cumulatively resulting in significant impacts at either the population or rangewide scales, currently or in the foreseeable future.

(130) Comment: One commenter stated that development is the greatest threat to the proposed West Coast DPS of fisher. A second commenter stated that development often results in direct conversion of forested lands that would otherwise provide suitable fisher habitat. Conversely, the State of Oregon declared that development is unlikely to be a significant stressor to the proposed West Coast DPS of fisher [in Oregon] given the substantive amount of Federal ownership, Oregon's land use planning system, and low

human population growth in rural areas, all of which prevent or limit human development within fisher habitat.

Our Response: No additional information was provided to support the public comment that development is the greatest threat to the proposed West Coast DPS of fisher; based on this statement alone, our analysis and conclusion that human development does not pose a significant threat to fishers in the proposed West Coast DPS remains unchanged. We concur with the comment that forest conversion can be a result of development, and we acknowledged this possibility in the draft Species Report and the proposed rule, as well as in the final Species Report and this document. We also concur with the comment that development is unlikely to be a significant stressor. We reviewed the information regarding Oregon's Land Use Planning system and incorporated that information in our description and analysis of the development stressor; we also evaluated and included this information in the existing regulatory mechanisms section of the final Species Report and this document. The range of comments received regarding potential impacts of human development either support our original conclusion that this stressor is not a threat, or do not provide additional information or data contesting our prior conclusion. We have reaffirmed that conclusion in this document.

Disease or Predation

(131) Comment: One commenter stated that although they agree with the Service's conclusion that disease or predation are important stressors on the West Coast DPS of fisher, more information is needed to better understand the relationship between these stressors and fisher viability. Specifically, the commenter found that the statement in the draft Species Report that predation and disease appear to be the most significant

cause of mortality is not consistent with other statements regarding the uncertainty of the effects of disease on wild populations of fishers. For these reasons, the commenter concluded that disease and predation should not be significant threats that lead to listing the proposed DPS, and that this factor should not alone, or in combination, lead to the listing of the proposed West Coast DPS of fisher.

Our Response: Consistent with our determination in the proposed listing rule, we do not consider disease or predation to be threats to the proposed West Coast DPS of fisher, now or in the future. Our finding in the draft Species Report that disease and predation are the most prevalent sources of direct mortality of fishers should not be construed to mean that these factors present significant threats to fishers in the west coast States. Thus, the proposed listing rule concluded that "although they are the most prevalent sources of direct mortality among individual fishers within the study areas for which we have information, it is unknown how disease and predation rates influence fisher population trends in general" (79 FR 60431). Disease and predation are naturally occurring sources of mortality, and we do not have data that indicate either of these stressors has increased beyond the levels in which fishers have evolved; we make this clarification in the "Disease or Predation" section of the final Species Report.

(132) Comment: One commenter noted that disease and predation are natural processes that affect all wildlife populations, and it is in those areas where populations are extremely low (such as the SSN population) that the risk of random disease events may be most significant.

Our Response: We agree with the commenter that in general, small populations are more susceptible to disease outbreaks that may result in population declines. The

"Cumulative and Synergistic Effects of Stressors" sections of the draft and final Species Reports discuss the cumulative and synergistic effects of many stressors, including disease, acting on small, disjunct populations (Service 2014, pp. 144–172; Service 2016, pp. 128–132). Our current analysis reveals that for both disease and predation, impacts are affecting individuals to a minor degree within the various populations as opposed to significant impacts to entire populations or significant impacts rangewide. Thus, we reaffirm our position that the scope and magnitude of impacts resulting from disease or predation are not considered threats to the fisher, now or in the future. Please see the "Disease or Predation" sections of this document and the final Species Report for additional discussion.

Distinct Population Segment (DPS)

(133) Comment: Many commenters expressed support for the Service to list the entire range of fishers in the west coast States as a single DPS throughout its historical range (we also note that many others supported listing in general). Alternatively, numerous commenters supported either one of the potential alternative DPS configurations as presented in the proposed rule, or suggested additional potential DPS configurations for consideration as more appropriate for listing, for a variety of reasons. Others offered the opinion that the evidence presented does not support the need to list the proposed West Coast DPS of fisher under the Act.

Our Response: We appreciate the depth of thought and consideration given by many commenters to the question of which DPS configuration may be most appropriate for fishers in the west coast States. We may list as endangered or threatened any species, which includes, as defined by section 3(16) the Act, "any distinct population segment of

any species of vertebrate fish or wildlife which interbreeds when mature." In order to interpret this phrase in a clear and consistent fashion, the Service and NOAA issued a joint Policy Regarding the Recognition of Distinct Vertebrate Population Segments Under the Endangered Species Act (61 FR 4722; February 7, 1996). The policy is clear that, in accordance with the statutory requirement to use the best available scientific data in determining the status of a species, our application of the DPS policy must follow sound biological principles (thus questions of whether or not a particular DPS may be politically acceptable, or other non-biological considerations, do not enter into our deliberations). The policy stipulates that in order to qualify as a DPS, the population in question must be both discrete and significant to the taxon to which it belongs. As demonstrated by the great variety of potential DPSs suggested by commenters here, the policy creates the possibility for any number of possible different varied configurations, and many of these could possibly be argued to meet these criteria. At the same time, Congress has instructed the Service and NOAA to utilize the authority to designate DPSs "sparingly and only when the biological evidence indicates that such action is warranted" (61 FR 4722; February 7, 1996). Taking all of these considerations into account, after thorough consideration and deliberation, at this time our end decision is to use the original DPS configuration as presented in the proposed listing rule.

(134) Comment: One commenter requested that the Service look more closely at fisher populations within and outside of the proposed West Coast DPS of fisher to see whether distinctions within the proposed DPS are equal to or stronger than distinctions between West Coast fishers and other North American fishers. The commenter theorized that there would be significant implications for fisher conservation if the Service lumps

into a single DPS fisher populations and habitat that are naturally separated and which the commenter believes should not be combined.

Our Response: We appreciate the commenter's concerns, and we received many comments on the degree of genetic separation between the different populations of fishers (both native and reintroduced) within the boundaries of the proposed West Coast DPS. Some commenters encouraged us to undertake actions that would allow for connectivity and gene flow between some or all of these populations. Other commenters cautioned against the harm that might result from reconnecting populations that may potentially have remained naturally isolated from each other for hundreds if not thousands of years, and have thus diverged genetically (e.g., this argument was made in support of maintaining separation between the SSN and NCSO populations). Notwithstanding these arguments, we note that the potential delineation of a DPS that combines multiple subpopulations within a single administrative boundary does not preclude the separate management of those populations or habitats for different purposes or needs, as appropriate. In any case, we have concluded that the West Coast DPS of fisher as described in our proposed listing rule and in this document does not warrant listing; therefore, our proposed rule to list the DPS as a threatened species is withdrawn (see **Determination**, above).

(135) Comment: One commenter stated that the 2004 DPS was derived on the premise that fisher populations in Oregon and Washington are isolated remnants of a larger west coast fisher population that became contracted and isolated by human activity. The commenter stated that this premise is not consistent with Tucker *et al.* (2012), which suggests that the existing populations of west coast fishers are the result of

natural and evolutionary isolation that was not caused by human activity and is not amenable to remedy by human management under the Act. Additionally, because the Service found fishers extirpated in Washington and Oregon, and Tucker *et al.* (2012) suggests that extirpated fishers were naturally distinct from fisher populations currently residing in California, the commenter asserted that it may not be appropriate to list non-existent populations. Further, the commenter questioned whether existence of naturally isolated populations in California should serve as justification for listing of fishers in Oregon and Washington based on a false premise that reintroduced Oregon and Washington fishers are a stepping stone for reconnecting interbreeding populations in British Columbia and California that were naturally isolated long before anthropogenic influence. Multiple commenters questioned the inclusion of Oregon and Washington in the boundary for the West Coast DPS of fisher, given that native fishers are apparently absent from the majority of their former range in these two States, despite an abundance of moderate- and high-quality habitat available.

Our Response: The DPS as proposed was based on the overall historical distribution of fishers throughout Oregon, Washington, and California. We did not mean to imply that there is universal agreement regarding the historical distribution of fishers within across the west coast States. In our draft Species Report, we specifically noted the differences of opinion regarding the question of whether fisher distribution was formerly relatively continuous within across the west coast States, or naturally more disjunct (citing, for example, to differences between the view expressed by Grinnell *et al.* (1937), versus Knaus *et al*. (2011) or Tucker *et al*. (2012) [noting the work of Tucker *et al*. (2012) is specific to the California populations, and did not address the larger west coast

population as suggested by the commenter]). Furthermore, the delineation of a single DPS boundary around multiple populations does not necessarily mean that we must manage toward the unification of those populations into one single, continuous population. A DPS boundary is an administrative construct, within which we maintain the flexibility to manage populations separately, as appropriate and necessary for conservation.

We appreciate the depth of thought and consideration given by many commenters to the question of deriving a DPS configuration that may be most appropriate for West Coast fishers. Please see our response to *Comment (133)* for an explanation of our DPS policy and how it determines the DPSs we can develop. In applying our DPS policy, and after thorough consideration and deliberation, at this time our end decision is to use the original DPS configuration as presented in the proposed listing rule. Per section 4 of the Act and its implementing regulations, we have carefully assessed the best scientific and commercial data available regarding current and potential future threats to the West Coast DPS of the fisher and are withdrawing our proposal to list this DPS (see **Determination**, above). Although fishers are not located in large portions of Oregon and Washington, ongoing research and monitoring within the west coast States will inform how best to manage the various fisher populations given their different genetic compositions.

(136) Comment: Many commenters stated that there may be connectivity between the SSN and other populations of fishers in the west coast States, thus implying that the proposed DPS boundaries are appropriate. Alternatively, one Federal agency stated that the NCSO, SOC, and SSN populations of fisher are geographically separated and genetically distinct (reproductively and functionally isolated), and that there is no

information regarding the contraction or extirpation of populations. Therefore, the agency suggested the Service reconsider its rationale for considering the aggregate of all three populations as a single DPS. A second Federal agency specifically suggested that, should the Service determine that the SSN population merits listing, it should be listed as a DPS in and of itself (and managed as such) because there is no functional relationship between these other populations and the SSN population that has been isolated for hundreds of years (Tucker *et al.* 2012). The second Federal agency also recommended extreme caution with respect to reconnecting the longstanding 261-mi (420-km) gap in the species' historical range, which could result in unintended consequences from the mixing of divergent genomes.

Our Response: We received many comments regarding the potential for connectivity between the SSN population and other fisher populations within the west coast States; some saw the "restoration" of connectivity as critical to the long-term viability of fishers, and some cautioned against trying to "reconnect" divergent populations when the evidence suggests they have been naturally separated for a very long period of time. In either case, we note that any final decision on managing fisher populations with regard to potential connectivity is neither precluded nor mandated by the identification of these populations as a DPS. We solicited comments from peer reviewers and the public regarding the possibility of different DPS configurations for the West Coast populations of fisher. However, at this time, our decision is to use the original DPS configuration as presented in the proposed listing rule. Please also see our responses to *Comments (23) and (134).*

(137) Comment: Assuming one or more populations of fishers in Oregon become listed under the Act, one Federal agency requested clarification regarding the management of fishers in Oregon based on genetic considerations, particularly those fishers that occur in the NCSO population. Specifically, the commenter inquired whether fishers in Oregon and Washington outside of the NCSO population should be managed separately from those in the NCSO population that may be genetically different. The Federal agency also stated that (from a regulated agency standpoint) there is little utility in attempting to manage the NCSO population separately from the SOC population, in part because current information indicates it is likely that interbreeding is occurring and there is not a practical way to separate the two populations for the section 7 consultation process.

Our Response: According to section 4 of the Act and its implementing regulations, we have assessed the best scientific and commercial data available regarding the past, present, and future threats to the proposed West Coast DPS of fisher and are withdrawing our proposal to list this DPS. Because there are conservation issues that, while of concern, do not rise to the level of meeting the standards for listing the proposed West Coast DPS of fisher under the Act, we will closely follow the management of fishers and their status within the west coast States. Ongoing research and monitoring within the west coast States will inform how best to manage the NCSO and SOC populations; the issue of appropriate management taking into account genetic considerations is independent of a DPS delineation under the Act. See also our response to *Comment (135)*.

(138) Comment: The State of Oregon asserted that for multiple reasons listing the proposed West Coast DPS of fisher as threatened under the Act may not be appropriate at this time. However, if the Service does list fishers in the west coast States as threatened, the State encouraged the Service to consider DPS Alternative 2 as described in the proposed listing rule, which focused on extant native populations with unique genetic characteristics and excludes reintroduced populations established with non-California/Oregon fishers. Among the alternative DPSs listed in the proposed listing rule, the State indicated that Alternative 2 appears to minimize the Federal regulatory "overlay" and recognizes the need (as much as possible) to develop and maintain positive working relationships among Federal and non-Federal landowners to achieve fisher conservation goals.

Our Response: Per section 4 of the Act and its implementing regulations, we have assessed the best scientific and commercial data available regarding the past, present, and future threats to the proposed West Coast DPS of the fisher and are withdrawing our proposal to list this DPS. We solicited comments from peer reviewers and the public regarding the possibility of different DPS configurations for West Coast fishers. However, at this time, our decision is to use the original DPS configuration as presented in the proposed listing rule.

(139) Comment: The State of Washington supported conservation of fishers in the west coast States, although they suggested an alternative DPS configuration that included only populations within Oregon and California, with the Columbia River as the northern boundary. They stated that this DPS configuration is appropriate for conservation of fishers in California, where conservation has already been initiated, and

Oregon, where the Act's protections would likely assist in the development of an active fisher recovery program. The State indicated that providing the Act's protections would significantly complicate the ongoing State conservation program being implemented for the reintroduced population in Washington. Further, the State argued that fishers in Washington are discrete from the other populations, and are not significant in the same way that the native California populations are. Specifically, the State argued that fishers in Washington should not be included in the proposed West Coast DPS of fisher.

Our Response: Please see our response to *Comment (133),* and our response to *Comment (149)* for an explanation of our DPS policy. We solicited comments from peer reviewers and the public regarding the possibility of different DPS configurations for the West Coast populations of fisher. However, at this time, our end decision is to use the original DPS configuration as presented in the proposed listing rule. We have determined that the proposed West Coast DPS of fisher, as previously defined, does not meet the Act's definition of an endangered or threatened species throughout all or a significant portion of its range. Therefore, we are withdrawing the proposed rule to list the West Coast DPS of fisher (see **Determination**, above), and the question of whether the DPS should include Washington State or not is moot.

(140) Comment: One Federal agency stated that any DPS listed by the Service that includes the NCSO population and also excludes the SOC population would be counter to the *Alsea Valley Association* v. *Evans* court ruling (*Alsea Valley Alliance* v. *Evans*, 161 F. Supp. 2d 1154 (D. Or. 2001), *appeal dismissed*, 358 F.3d 1191 (9th Cir. 2004). The Federal agency asserted that movement of fishers occurs between the NCSO population and the SOC population (supported by data) demonstrating that these two

populations cannot meet the Service's discreteness policy as two separate DPSs. They stated that mature individuals within the NCSO and SOC populations can interact and interbreed; it is unknown if that is occurring currently, but they emphasized that interbreeding should be expected in the future.

Our Response: Please see our response to *Comment (133)*. We have chosen to retain the DPS configuration as published in our proposed rule for our evaluation (79 FR 60419). At this time, we are withdrawing the proposed rule to list the West Coast DPS of fisher under the Act (see **Determination**, above). If in the future we consider listing of an alternative DPS that includes the NCSO population and excludes the SOC population, we will thoroughly evaluate the *Alsea Valley Association* v. *Evans* court ruling and other considerations raised in this comment. However, we note that we did not propose to list the SOC population as a separate DPS.

(141) Comment: One Federal agency suggested that fisher populations in the State of Washington are not at risk, relative to populations in other portions of the three-State range under consideration, implying that the population in Washington should not be included in any DPS, should fishers in the west coast States be listed under the Act. They pointed out that based on WDFW's evaluation of fisher habitat in the State of Washington, the primary factors attributed to extirpation of the species from that State (e.g., loss and fragmentation of forested habitats, overtrapping) were no longer operative, citing to Lewis and Hayes (2004). Further, they pointed out the following regarding other potential threats:

- With regard to the more recently identified stressor of ARs, the NPS does not administer rodenticides in the Olympic, North Cascades, or Mount Rainer National

Parks and works with cooperators and concessions to preclude the use of these agents (although the level of potential illegal use in park areas is unknown). In addition, the Federal agency noted that only one of five of the recent fisher mortalities recovered in the Olympic peninsula recovery area (2013–2014) showed AR exposure, and as that individual was recovered just outside the city limits of Port Angeles, they surmise it most likely was exposed at a residential setting. The Federal agency suggested that more recent data indicate the key risk factor of AR exposures for fisher in California may not be as relevant in Washington.

- The high-quality fisher habitat in Washington's national parks and adjacent national forests is minimally threatened by wildfire due to the hyper-oceanic climate with relatively high rainfall, as compared to the more arid eastern slope of the Cascade Mountains and south into portions of Oregon and California.
- The reintroduced Washington population does not share the unique genetic characteristics of the California populations.

Our Response: See our responses to *Comment (133)* regarding our consideration of a final DPS. In addition, we thoroughly discussed and considered the regional variability in stressors to fisher populations and habitat in the west coast States in both our draft and final Species Reports and this document. This evaluation has led us to the conclusion that the proposed West Coast DPS of fisher is not in danger of extinction throughout all or a significant portion of its range, nor is it likely to become so within the foreseeable future. Therefore, we are withdrawing our proposed rule to list the West Coast DPS of fisher.

(142) Comment: One Federal agency disagreed with the Service that the SSN population of fishers may warrant consideration for listing because that population is small and isolated from other fisher populations. They questioned whether the SSN population is actually imperiled, for the following reasons:

(1) There is no evidence that the distribution of the SSN population has contracted from historical levels, and there is no reason to believe that there has been any change in abundance of this population. The locality records presented in the draft Species Report indicated a stable distribution over the last century, and the findings of Tucker *et al.* (2012) indicated that the SSN population has been isolated from other fisher populations since well before European settlement. The weight of evidence suggested that either: (a) The SSN population responds to stressors differently than other fisher populations that have experienced range contractions, or (b) stressors within this population are less severe than they are elsewhere in the species' range.

(2) There is no evidence that fishers have declined in abundance in contemporary times. Current estimates of abundance are similar to estimates of carrying capacity, suggesting that the current distribution and abundance of the SSN population remain similar to historical levels. Recent estimates of population growth in the SSN population from the Sierra Nevada Adaptive Management Project suggest it has ranged from stable to positive; there have been no studies indicating negative growth.

(3) There is no evidence that the potential stressors identified in the listing proposal have negatively impacted population dynamics of the SSN population.

Without at least correlative evidence of an association between stressors and population decline, it is difficult to argue that the stressors are indeed operative threats that act on the species. As an example, it is acknowledged in the draft Species Report that the impact of AR exposure on vital rates at the population level is unknown. Therefore, although there may be an underlying cause and effect relationship, it is premature to rely on the existing evidence to support a listing.

Our Response: We have included consideration of the Federal agency's comments and other information suggesting that the SSN population may or may not be imperiled, as outlined in the three points above. Many of the considerations pointed out by the agency played a role in our final decision; ultimately, we have concluded that the stressors acting on fishers in the West Coast DPS are resulting in population level or rangewide declines, such that fishers in the DPS are in danger of extinction or likely to become so within the foreseeable future. Therefore, at this time, we are withdrawing the proposed rule to list the West Coast DPS of fisher under the Act (see **Determination**, above).

(143) Comment: One tribe questioned and disagreed with the Service's inclusion of Washington as part of the proposed West Coast DPS of fisher. Specifically, the tribe suggested DPS Alternatives 1 or 2 (as described in the proposed listing rule) to provide a more reasonable basis for the species listing because the Washington population of fishers is discrete based on distance and the barrier of the Columbia River, both of which provide a low likelihood of genetic interchange, as shown by genetic research. Further,

the tribe asserted that the historical Washington fisher population is more related to fishers from central British Columbia, as reported by Lewis and Hayes (2004).

Our Response: See our response to *Comment (133).*

(144) Comment: One local government stated that lands within Lincoln County (Oregon) should be removed from the proposed DPS boundary because fishers have never been seen in the county historically or currently.

Our Response: There is a recorded observation of a fisher in Lincoln County, Oregon, from the 1990s. There are also observations of fishers in adjacent Tillamook County to the north and coastal Lane County to the south. Although none of these records provide verifiable evidence (i.e., no evidence that can be subject to independent review such as photos, tracks, genetic material), they were recorded by observers estimated to be of fair or good reliability in the Oregon Biodiversity Information Center database. Given the historical habitat in the coast range of Oregon, the current distribution of fishers based on verifiable records, and the existing unverifiable observations scattered through the central and northern coastal counties, it is reasonable to conclude that fishers were likely historically present in the northern Oregon Coast Range, which includes Lincoln and Tillamook Counties, and the western end of Lane County. While there may not be any verifiable records that fishers occurred in Lincoln County, we must make conclusions based on the best available information, which in our view, indicates that fishers were likely historically present in the northern Oregon Coast Range. Because our proposed DPS boundary was derived in part based on the historical range of fishers in the west coast, we consider it appropriate to include Lincoln County within the DPS boundary. At any rate, based upon our assessment of the best scientific

and commercial data available regarding the past, present, and future threats to the proposed West Coast DPS of the fisher, we are withdrawing our proposal to list this DPS (see **Determination**, above); therefore, the point is moot.

(145) Comment: One commenter stated that the proposed DPS boundary for the listable entity should be solely within California (i.e., native populations only that include a DPS for the SSN population, and a DPS for the remainder of California that excludes all lands and nonnative fisher populations that may occur in Oregon). Additionally, this commenter asserted that listing should not be warranted for both of their suggested DPSs (with another commenter supporting a not warranted finding for the SSN population area) based on the health of the suggested DPSs, lack of threats to each DPS, and the conservation measures in place for these populations.

Our Response: Regarding potential DPS delineations, please see our response to *Comment (133)*. We solicited comments from peer reviewers and the public regarding the possibility of different DPS configurations for the West Coast populations of fisher, and considered many potential variations. However, at this time, our end decision is to use the original DPS configuration as presented in the proposed listing rule. Furthermore, based on our evaluation of the best scientific and commercial data available, we have concluded that the proposed DPS does not meet the definition of an endangered or threatened species under the Act (see **Determination**, above).

(146) Comment: Two commenters stated that fishers are extirpated in Washington and Oregon, and that reintroduced fishers in these two States are genetically distinct from native fishers in California, which argues against combining all native fishers into a single DPS.

Our Response: See our response to *Comment (133).*

(147) Comment: Two commenters asserted that a DPS including native fisher populations in Oregon and California should not be expanded to include lands within the remainder of Oregon and Washington that are inhabited by reintroduced fishers. The commenter stated that genetic research demonstrates that reintroduced fishers in Oregon and Washington are not closely related to native fishers in California. A third commenter stated that these genetic differences explain why NCSO should be managed separately between these two regions (i.e., Washington and Oregon populations managed separately than the NCSO population), also citing Aubry and Lewis (2003) as support for two disjunct, genetically isolated populations in the southwest portion of Oregon and the southern Cascades portion of Oregon (the latter of which is reintroduced). Additionally, one of these commenters specified that the State of Washington considers fishers likely extirpated (Lewis and Stinson 1998). Therefore, with the exception of native fishers in southwestern Oregon (i.e., south of the Rogue River and west of Interstate 5), the Service should exclude most of Oregon and all of Washington from any DPS.

Additionally, one commenter articulated that if fishers in the west coast States and other fisher populations are genetically divergent, morphologically distinct, or specially adapted to diverse habitats for prehistoric, natural, or evolutionary reasons, then it is logical and scientifically consistent for the Service to reconsider whether the fishers in the west coast States actually contain (within its geographic range and populations) the same natural, prehistoric, and evolutionary separation that the Service relies on to distinguish the proposed West Coast DPS from other fishers.

Our Response: Regarding the delineation of DPSs, please see our response to *Comment (133).* We solicited comments from peer reviewers and the public regarding the possibility of different DPS configurations for the West Coast populations of fishers. However, at this time, our decision is to use the original DPS configuration as presented in the proposed listing rule and based on our assessment of the best scientific and commercial data available we have withdrawn our proposal to list this DPS (see **Determination**, above). Although fishers are not located in large portions of Oregon and Washington, ongoing research and monitoring within the west coast States will inform best management practices for the various fisher populations given their different genetic compositions. See also our responses to *Comments (135)* and *(137).*

(148) Comment: Two commenters asserted that the lack of fisher in Oregon and Washington (other than the reintroduced populations) supports the premise that fishers are extirpated from the majority of their former range in these two States, despite an abundance of moderate- and high-quality habitat, and it also supports an argument that fishers were likely not well distributed historically within the Service's analysis area. Additionally, the commenter stressed that the contiguous population that occurs in northern California and the extreme southwestern portion of Oregon should not be included with the remainder of coastal Oregon, the Oregon Cascades, or the State of Washington as a DPS. Further, the commenter believed this assumption is supported by Knaus *et al.* (2011), which indicates that genetic distinction exists between the two California fisher groups and all other groups in their study.

Our Response: We disagree that the current lack of fishers in large parts of Oregon and Washington supports an argument that fishers were likely not well

distributed historically within the proposed West Coast DPS. Present-day distributions are not necessarily a reflection of historical distributions, particularly given the tremendous trapping pressures fishers underwent in the early 1900s. These effects, combined with additional mortality from predator control efforts, followed by subsequent habitat loss in the mid to late 1900s, have substantially reduced the numbers and distribution of fishers. Although the record is not sufficient to fully describe the specific historical distribution, given the past distribution of forest conditions that likely supported fishers, and the well-established record of fisher population and distribution declines through trapping records and other sources, we conclude fishers were historically distributed throughout much of the proposed DPS, although populations may not have been fully contiguous.

We solicited comments from peer reviewers and the public regarding the possibility of different DPS configurations for the West Coast population of fishers. We recognize and appreciate that there are many possible approaches to delineating potential DPSs, and that there may be valid arguments in support of (or against) aspects of each (see our response to *Comment (133)*). However, at this time, our decision is to use the original DPS configuration as presented in the proposed listing rule. Although fishers are not located in large portions of Oregon and Washington, ongoing research and monitoring within the west coast States will inform how best to manage the various fisher populations given their different genetic compositions.

(149) Comment: One commenter contended there is little evidence that an extant population of fisher remains in Oregon and Washington, and that there is little hope that any fishers found or reintroduced into Oregon and Washington would reconnect with the

NCSO population of fishers. Therefore, the commenter believed the Service should evaluate an alternative DPS as the listable entity.

Our Response: The commenter is incorrect in stating that there are no extant fishers in Oregon. On the contrary, fishers in the NCSO population occupy southwest Oregon. In addition, a reintroduced population (SOC population) has persisted in the southern Oregon Cascades for well over 30 years. With respect to Washington, fishers from a recent reintroduction on the Olympic Peninsula are reproducing, and though it is too early to say whether this population will persist, results from monitoring are encouraging. Additionally, fisher reintroductions are both ongoing and planned in the Washington Cascades.

The commenter did not provide any support for their statement that fishers in Oregon, at least, would not reconnect with the NCSO population. Recent data shows spatial overlap of individuals from the NCSO and SOC populations, suggesting that these two populations are beginning to intersect. There has been limited monitoring of fishers in Oregon to robustly describe their distribution, but recent and ongoing surveys in the Cascades will better inform our understanding of the distribution of the reintroduced SOC population and its relationship with the NCSO population. Given our current understanding of suitable fisher habitat, it appears that there may be adequate habitat to support fishers in the northern Cascades of Oregon and allow connectivity with extant fishers in the reintroduced SOC population and south to the NCSO population.

We acknowledge the commenter's point that Washington fishers are not likely to reconnect with the NCSO population. The Columbia River is almost certainly a considerable barrier to fisher movement in the proposed DPS. While it may restrict

populations from substantially intermingling, it is likely not impenetrable, allowing some genetic mixing of fisher populations over the long term. Please see our response to *Comment (133)*).

At this time, our decision is to use the original DPS configuration as presented in the proposed listing rule. Per section 4 of the Act and its implementing regulations, we have carefully assessed the best scientific and commercial data available regarding the past, present, and future threats to the proposed West Coast DPS of the fisher and are withdrawing our proposal to list this DPS (see **Determination**, above).

Distribution

(150) Comment: One Federal commenter stated that the NCSO and SOC populations of the proposed West Coast DPS of fisher are interconnected, suggesting an increased probability of genetic exchange between the two populations into the foreseeable future. The commenter provided information to the Service in response to our request for information (as outlined in the proposed rule) as to whether the Klamath River, the Rogue River, and Interstate 5 may act as filters or barriers to fisher movement between the NCSO and SOC populations.

Our Response: The commenter provided information that was previously considered and incorporated in the draft Species Report (Farber and Schwartz 2007 *in* Service 2014, p. 100). Recent information from ongoing survey and monitoring efforts in the native NCSO and reintroduced SOC populations indicates that two native fishers were documented within the area of reintroduced fishers. One of these native fishers was part of a radio telemetry study initiated within the NCSO population; data collected from this animal indicate that it crossed Interstate 5 and continued into areas occupied by the

reintroduced SOC population. The second native fisher detection in the reintroduced SOC population occurred through a hair snare and remote camera study initiated within the SOC population. It is unknown if the second native fisher dispersed from the NCSO population or if it is part of an unknown remnant native population that historically occupied the area now considered the reintroduced SOC population. While there is evidence that fishers may cross Interstate 5, we do not have information on how often this activity may or may not occur. We also do not have information about the likelihood of increased genetic exchange between the two populations into the foreseeable future, although these observations demonstrate that it is certainly possible, or about the relative success fishers have when attempting to cross features such as interstates or rivers.

(151) Comment: One commenter stated that although surveys for the presence or absence of fishers in the proposed West Coast DPS have not been completed for its entire range, they believe that the best available data indicate that the proposed DPS is in danger of extinction. The commenter stated that a lack of survey information should not prevent the Service from making a listing decision, particularly given the proposed DPS is "struggling to survive" and "is considered likely to be extirpated throughout a significant portion of its historic range." Additionally, if more survey information becomes available, the commenter indicated that the Service should closely analyze that new information and any potential bias from the submitters of that new information.

Our Response: Section 4 of the Act requires that we assess factors that may contribute to a species meeting the definition of an endangered or threatened species. In our evaluation of all the best scientific and commercial information available, we find no evidence of significant impacts at either the population or rangewide scales for fishers in

the proposed DPS (see **Determination**, above). We have not based our decision on a lack of survey information. A compilation and analysis of survey records alone would not likely be sufficient to evaluate the response of populations to biological stressors that act upon the populations. We welcome any new information regarding the biological status of fishers in the west coast States, including any new survey information that may come available.

(152) Comment: One commenter stated there is ambiguity when comparing historical and contemporary localities of fisher detections and states that, compared to the historical distribution of fishers, there does not appear to be any contemporary range contraction in California. The commenter requested clarification of whether Figure 4 in the draft Species Report represents all reliability ratings. Further, based on a comparison of Figure 7 and Figure 8 in the draft Species Report, the commenter stated that fishers are currently distributed over a larger geographical area in California and with a far greater number of locality records on the northern California coast in recent times (after 1993).

Our Response: We agree with the commenter's assertions that there has not been any range contraction in the contemporary time period in California. For clarification, Figure 4 in the draft Species Report depicts locality information from reports of the species in the analysis area from 1896 to the present (Service 2014, pp. 22, 26) and therefore, represents all reliability ratings from high reliability to unreliable records. We included all records in this figure because it provides the best picture of all of the data informing us as to the likely historical distribution of fisher within the west coast States; we have clarified this in the Figure 4 legend. Regarding comparisons of Figures 7 (high-reliability recent records) and 8 (all historical records) from the draft Species Report,

records prior to 1993 indicate a wider historical distribution to the east in the NCSO population. While the furthest extent of the north-south distribution in California is similar to the historical distribution, there are more records of fishers throughout the length of the Cascade and Sierra Nevada Ranges of California than there are in the historical distribution. Therefore, the current distribution of fishers is not described as being greater than it was historically. We agree that there are a greater number of locality records from the California coast in recent times than there are in the historical record. These recent records reflect the significant amount of research that has been conducted along the California coast in recent times.

(153) Comment: One commenter stated that data for the proposed West Coast DPS of fishers indicate stable occupancy in the coastal redwoods and Sierra Nevada areas with no statistical support for population declines. The commenter stated that while the draft Species Report acknowledged these studies undertaken on the northern California coast, and should take note of new information in Sweitzer *et al*. (2015a, entire) and the CDFW fisher status review, there is little discussion of the implications of fisher use of managed forests or how that information can be used to predict suitable reintroduction sites in Oregon and Washington.

Our Response: There is an extensive discussion in the Habitat Associations section of the draft Species Report (see especially pages 17 and 18) of fisher use of managed lands, and this discussion has been further expanded in the final Species Report (Service 2016, pp. 15–21) in response to comments and new information received during the comment periods. The commenter acknowledges the discussion in the draft Species Report summarizing the results of research on the status (Service 2014, pp. 37–46) of

fisher populations; this section has also been revised and expanded to reflect new information received since the draft Species Report was released (Service 2016, pp. 42–53). Reintroductions are currently under way in the Washington Cascades, but only Forest Service and NPS lands were considered for reintroduction sites. While our draft and final Species Reports do not specifically address how fisher use of managed lands can be used to determine suitable reintroduction sites in Oregon and Washington, such an evaluation is beyond the scope of our listing determination. However, the information summarized in the final Species Report, our experience with the Northern Sierra Nevada Reintroduced Population in California, and the information provided by the commenter will all be considered as future reintroductions onto managed lands are planned.

In addition, the lack of evidence for fisher population declines in the west coast States, in conjunction with our assessment of the stressors to the species, was an important consideration in our final determination that the proposed West Coast DPS of fisher does not meet the definition of an endangered or threatened species under the Act (see **Determination**, above).

(154) Comment: One commenter stated that the fisher populations in the proposed West Coast DPS have expanded effectively by almost a half million acres in the past 20 years (since 1990), including fisher presence now documented in places such as east of Interstate 5, around the perimeter of Shasta Lake, and south of the Fountain fire area on private lands. The commenter asserted this information supports not listing the proposed West Coast DPS of fishers as an endangered or threatened species.

Our Response: Section 4(a)(1) of the Act directs us to determine whether any species is an endangered species or a threatened species because of factors affecting its

continued existence. The presence of fishers in locations not previously documented in recent years is not necessarily indicative of increasing fisher populations and population expansion; for example, an increase in fisher detections may be indicative of increased survey effort in recent years.

The commenter does not present data indicating what methods were used to determine that the fisher population area across the proposed West Coast DPS has expanded by a half million acres since 1990, nor are any negative survey data for prior years presented. We have no evidence to suggest that any range expansion has occurred such as described by the commenter. Finally, no new data are presented that indicate that fishers are evenly distributed throughout this expansion area. The comment does not present evidence sufficient to support a listing determination. However, based on our assessment of the best scientific and commercial data available, we have concluded that the proposed West Coast DPS of fisher does not meet the definition of an endangered or threatened species under the Act, and we are withdrawing the proposed rule to list the DPS.

(155) Comment: One commenter stated that there is no indication that the range of the proposed West Coast DPS of fisher east of Interstate 5 has contracted (as indicated in the draft Species Report and proposed rule), and suggests that it may even be expanding. The commenter concluded that recent survey results suggest the present range is continuous from the Interstate 5/Sacramento River corridor and Shasta Lake east through the Pit River area, the Fountain Fire area, and further south into eastern Tehama County.

Our Response: Please see responses *to Comments (152)* and *(154)*.

(156) Comment: One commenter stated that the proposed West Coast DPS of fisher does not occur in the coastal region of Mendocino County. The commenter provided negative survey information from multiple survey efforts that included extensive, systematic survey efforts across much of the Mendocino coastal redwood region, resulting in only one detection on the easternmost border of the dominant coastal zone in Mendocino County. The commenter suggested their lands should not be included in the proposed DPS due to the absence of fishers.

Our Response: We disagree that fisher do not occur in the coastal region of Mendocino County and that the proposed DPS's range should not include the commenter's lands in coastal Mendocino County due to the apparent absence of fishers. Our position aligns with the information provided by the commenter and in our files, specifically: (1) The internal report that included a verifiable fisher detection on their lands, and (2) positive survey results from CDFW surveys conducted within coastal redwood habitat in Mendocino County immediately adjacent to their lands. Figure 1 of the proposed rule (79 FR 60419) and Figure 7 of the draft and final Species Reports (Service 2014, p. 31; Service 2016, p. 34) show verifiable fisher detection locations in northern coastal Mendocino County. These two [identical] maps were created using highly reliable fisher detection records from 1993 to present. We do agree, however, that based on the lack of suitable fisher habitat within the commenter's lands (due to extensive timber harvest over the past 100 years), fishers probably occur in very small numbers on their lands. Our DPS policy does not exclude lands from a DPS's range based solely on the current rarity or perceived absence of the target species. In addition, portions of coastal Mendocino County are under Federal ownership and contain relatively

large amounts of suitable fisher habitat. Therefore, excluding all of coastal Mendocino County from the proposed DPS's range boundary would exclude large tracts of suitable habitat (some occupied and some unoccupied) that occur outside of private timber company holdings.

(157) Comment: One commenter both agreed and disagreed with the best available information that we presented regarding distribution of the proposed West Coast DPS of fishers on their lands. The commenter stated that their managed timberlands in northern California are inhabited by a large, healthy population of fishers, and their managed timberlands in Oregon and Washington are not inhabited by native populations of fishers. A second commenter also articulated that fishers are well documented on their timber lands in California (i.e., lands that are managed for commercial timber harvest), asserting that the population (based on wording in the comment letter, we assume the commenter is referring to the population as a whole in California and not just the fisher population on their lands) is stable or expanding.

Our Response: We agree there is direct physical evidence that fishers occur on the first commenter's lands in north coastal California (Hamm *et al.* 2003, p. 203), but disagree that sufficient scientific or commercial information exists that suggests fishers occur on their lands as a "large, healthy population." Regarding whether the fisher population on their lands is "large," the commenter provided a single fisher density estimate from a 77-mi^2 (200-km^2) portion of their lands in north coastal California, which if extrapolated across their entire holdings would suggest a relatively large population. However, the commenter did not provide a fisher population size estimate for their lands in north coastal California, possibly because of the difficulty of extrapolating a density

estimate of a rare forest carnivore from a relatively small study area to an entire extant population area. Several fisher studies have been conducted since the early 1980s within the NCSO population. However, as we stated in the draft and final Species Reports (Service 2014, p. 37; Service 2016, p. 42), no published population or density estimates are available for the entire [emphasis added] NCSO population, especially as currently defined. The lack of such estimates suggest the researchers do not believe valid population size estimates can be generated by extrapolating density estimates from relatively small study areas to the much larger NCSO population area. The same commenter also did not present data on demographic parameters (e.g., sex ratio, age structure) or vital rates (e.g., birth and death rates) that would support a conclusion that the population is currently "healthy." Therefore, the commenter's assertion that the fisher population on their lands is large and healthy is not supported by the best scientific or commercial information available.

While we agree with the second commenter's assertion that fishers may be "well documented" on the commenter's lands, the lack of abundance estimates over time, which are required for a population trend analysis, make it impossible at this time to conclude that the fisher population is stable. However, using the survey methods employed by the commenter, we do agree it is possible to detect *a relative* "expansion" of a fisher population on their lands; that is, an expansion that may suggest an increase in fisher distribution.

Economics

(158) Comment: One local government asserted that listing the proposed West Coast DPS of fisher would result in significant socioeconomic and cumulative impacts,

and that conservation actions for endangered or threatened species should be balanced with potential impacts to humans. Two additional public commenters stated that a listing would significantly impact rural communities, with one commenter specifically addressing Southern Oregon's rural communities, timber producers, family farmers, and other natural resources industries.

Our Response: Section 4(a)(1) of the Act lists the factors we use to determine whether or not a species is endangered or threatened; such a determination is to be based solely on the best scientific and commercial data available. While the Act provides for the consideration of potential economic impacts in the course of designating critical habitat, it does not provide for any such consideration when determining whether a species meets the statutory definitions of an endangered or a threatened species. Per section 4 of the Act and its implementing regulations, we have carefully assessed the best scientific and commercial data available regarding the past, present, and future threats to the proposed West Coast DPS of the fisher and are withdrawing our proposal to list this DPS (see **Determination**, above). Consequently, no Federal protections under the Act will be put in place for the proposed DPS, and, therefore, no real or perceived socioeconomic or cumulative impacts referred to by the commenter will be realized. We note that extensive conservation actions for fishers in the west coast States have been implemented and will continue to be implemented at the Federal, State, and local levels in the future. We are committed to monitoring the biological status of fishers in the west coast States, and will continue to do so in the future.

(159) Comment: Two commenters stated that for this listing evaluation for the proposed West Coast DPS of fisher, the listing process should not be rushed, and the

Service should allow the public and affected stakeholders additional time to review given that a potential listing of the fisher will have significant, adverse impacts to forest management activities on both Federal and private timberlands in California. A second commenter stated that a slow Federal listing process would assist the State of California to complete their final decision on whether the fisher should be State-listed in California.

Our Response: We opened a 90-day comment period with the publication of the proposed listing rule, and prior to the close of the comment period, we extended the comment period for an additional 30 days (79 FR 76950). Additionally, we held one public hearing and seven information meetings between November 17, 2014, and December 4, 2014. On April 15, 2015 (80 FR 19953), concurrent with our announcement of an additional 30-day comment period, we invoked a 6-month extension of the due date of our final decision due to the substantial disagreement regarding available information related to toxicants and rodenticides (including law enforcement information and trend data) and related to surveyed versus unsurveyed areas (including data on negative survey results) to help assess distribution and population trends and in our notice, we specifically sought information relating to these issues. In all, the public had a total of 120 days to provide comment on the proposed listing rule and with the 6-month extension of our final decision, we have used the maximum time allowed by the Act to complete this listing process. With regard to the listing process undertaken by the State of California, they implemented their decision-making process (which resulted in listing of the SSN ESU under CESA), and we have not (and, by law, could not) slowed our process to accommodate the State's decision-making process. Our evaluation and

that of the State are separate, independent processes governed by separate regulatory processes and timeframes.

(160) Comment: One commenter asserted that listing the proposed West Coast DPS of fisher would likely adversely affect their organization's members' supply of public timber. Additionally, the commenter was concerned about spread of insect, disease, and wildfire from poorly managed public lands to their member's lands, and there would be a potential "take" liability that would constrain private land management.

Our Response: Section 4(a)(1) of the Act lists the factors we use to determine whether or not a species is endangered or threatened; such a determination is to be based solely on the basis of the best scientific and commercial data available. The consideration of the potential economic implications of listing a species is not a consideration when determining whether a species meets the statutory definitions of an endangered or a threatened species (although the Act does allow for the consideration of such impacts when designating critical habitat). It is also not clear to us how the commenter's concern regarding the potential spread of insect, disease, and wildfire would result from listing. Following our assessment of the best scientific and commercial data available, we have withdrawn our proposal to list this DPS (see **Determination**, above). Therefore, no Federal protections under the Act will be implemented for the species. However, we note there are still programs in place that are actively engaged in conservation of fishers in the west coast States.

Existing Regulatory Mechanisms

(161) Comment: The State of Washington argued that there are many existing regulatory mechanisms that provide a benefit to fishers and their habitat. For example,

the State stressed that trapping regulations have substantially reduced fisher mortality in the analysis area, although they argue that incidental captures may still have a meaningful influence on fisher populations, and the Service should not underestimate the severity of this threat (i.e., trapping).

Our Response: We evaluated the existing regulatory mechanisms in Washington State for fisher in both our draft and final Species Reports, including trapping regulations. We also evaluated trapping as a stressor for fisher (Service 2016, pp. 125–127). Trapping for fishers is not legal in Washington, and most uses of body-gripping or leg-hold traps, which are largely responsible for injury or mortality as a result of incidental capture, are also prohibited. Based on our analysis, we agree that existing trapping regulations have led to a substantial reduction in fisher mortality. However, we found no evidence to suggest that incidental captures are having a meaningful influence on fisher populations in Washington State, and maintain that in the absence of data, any inference in this regard would be speculative. Therefore, based on our analysis of the best available scientific and commercial information, we conclude that the severity of trapping as a stressor for fisher populations in Washington State has not been underestimated, and that all existing regulatory mechanisms have been given appropriate consideration (see ***Trapping and Incidental Capture*** and ***Existing Regulatory Mechanisms***, above).

(162) Comment: The State of Washington stated that, with regards to regulatory mechanisms, they expect to restrict the use of pesticides in Washington State if pesticide poses a threat to the environment. The State asserted that they are willing to use their authority to address illegal use or minimize off-target impacts of pesticides through administration of a Pesticide Management Strategy and annual cooperative agreements

with the U.S. Environmental Protection Agency. If it is found that illegal or off-target use of rodenticides is negatively impacting fishers, the State asserted that their implementation of the Pesticide Regulatory Program and Natural Resource Assessment Section would prevent pesticide use from remaining a threat to the fisher in Washington.

Our Response: We discussed the known effects of illegal and off-target rodenticides on fishers in the State of Washington in the draft Species Report (Service 2014, pp. 152–169) and in our final Species Report (Service 2016, pp. 141–159). As described in our final Species Report, the best information we have about rodenticide exposure in Washington comes from 13 dead fishers from the reintroduced ONP population whose carcasses were recovered and tested. Three of the 13 had been exposed to ARs, and were either born on the Peninsula or had resided there for longer than the persistence time for the ARs detected (given that the original reintroduced individuals came from British Columbia and exposure to toxicants could have occurred at that location); the sample size was too small to extrapolate. However, these three were found in or near residential areas, suggesting that exposure may have resulted from legal use of rodenticides. We appreciate the State's commitment to contribute to the conservation of fishers in Washington, but at this time we do not have evidence to suggest that pesticide use poses a threat to fishers in Washington (see the "Toxicants" sections of this document and the final Species Report for additional discussion).

(163) Comment: The State of Oregon asserted that listing the fisher would do little to protect the taxon, and that a Federal listing would likely result in unintended consequences or disincentives for private landowners to engage in voluntary actions that may promote the conservation of the proposed DPS, including habitat protections.

Additionally, the State indicated that they are already implementing conservation actions that address many of the threats described in the draft Species Report and proposed rule (e.g., managing to reduce the risk of high-intensity wildfire, identifying key wildlife crossing points on roads to reduce mortalities from vehicle collisions). Finally, the State indicated that listing would not address impacts from climate change, disease, or predation, the latter two of which are natural processes that affect all wildlife populations.

Our Response: Listing a species under the Act takes into consideration specific factors listed in section 4(a)(1) of the Act which may, singly or in combination, contribute to a species meeting the definition of an endangered or a threatened species. This determination is to be made solely on the basis of the best scientific and commercial data available; whether or not listing the species will have a beneficial effect in terms of reducing or eliminating identified threat factors is not a lawful consideration in this determination. We described conservation measures that are currently being implemented to ameliorate the stressors to the species in both our final Species Report and in this document, including important conservation contributions by the State of Oregon.

(164) Comment: The State of Oregon, plus one other commenter, asserted that the draft Species Report misrepresented the requirements of the Oregon Forest Practices Act. The commenter stated that while the report acknowledged no-cut buffers, it failed to account for Oregon's basal area and tree count requirements in riparian areas ranging from 50 to 100 ft (15 to 30 m) on each side of the stream. The State of Oregon also provided descriptions for additional protections afforded by the Oregon Forest Practices Act for wildlife sites and other protected resources.

Our Response: As described by the commenter, we have included the Oregon Forest Practices Act riparian regulations and other information in the Existing Regulatory Mechanisms section of the final Species Report.

(165) Comment: The State of Oregon stated that listing the fisher may do little to address threats such as loss of fisher habitat given existing management on Federal lands. Specifically, they stated that declines in late-successional forests in western Oregon occurred largely during 1880–1990. They reiterated from the NWFP that: (a) A primary goal is the restoration and maintenance of late-successional and old-growth forests and old-growth dependent species; and (b) that the NWFP projected that, over a time horizon of 100 years, the area of late-successional and old-growth forest that was depleted by timber harvest could be restored and maintained at or near historic levels.

Our Response: Section 4(a)(1) of the Act sets forth the factors used to evaluate whether a species meets the definition of an endangered species or a threatened species. Listing a species under the Act requires the identification of factors affecting the species such that it meets the definition of an endangered or threatened species. The analysis is strictly a biological analysis; whether the Act can make a difference in ameliorating specific threats is not a consideration in a listing determination. We acknowledge the commenter's statement that habitat on Federal land may recover through management under the NWFP, and indeed in our final Species Report we were able to incorporate ingrowth that has occurred within the NWFP area over the past 20 years, based on the recent NWFP 20-year late-successional old-growth monitoring report (Davis *et al*. 20XX, entire). Ultimately, we have determined that habitat loss through vegetation management, though historically contributing to fisher declines, does not currently

threaten the proposed West Coast DPS of fisher, nor is it likely to do so in the future (see ***Vegetation Management***, above). According to section 4 of the Act and its implementing regulations, we have carefully assessed the best scientific and commercial data available regarding the past, present, and future threats to the proposed West Coast DPS of the fisher and are withdrawing our proposal to list this DPS (see **Determination**, above).

(166) Comment: Several commenters stated that existing regulatory mechanisms are adequate for the long-term protection of fishers in the west coast States; thus, listing the proposed DPS is not warranted. One of these commenters specified that existing Forest Service and BLM "sensitive status" protections and CDFW's "candidate status" protections are sufficient, and that additional ESA protections would only result in added administrative costs and delays in operating and management activities. Two other commenters stated that existing regulatory mechanisms are adequate based on the beneficial management prescribed through the NWFP (reserves, LSRs, and the survey and management standards and guidelines for matrix lands) and the Sierra Nevada Forest Plan Amendment (SNFPA), both of which reduce areas available for timber management and halted the significant impacts associated with destruction/loss of late-successional forests, as well as other protective land use designations that benefit fishers and their habitat (e.g., Sierra Fisher Conservation Area, Giant Sequoia National Monument, and other National Park Service lands). Another commenter highlighted the Forest Service and BLM's extensive planning efforts to consider sensitive species for every project, which contributes substantially to fisher conservation.

In contrast, four commenters asserted that the existing regulatory mechanisms are inadequate because federally protected lands do not provide sufficient suitable habitat (or protection of essential habitat elements) for fishers. One of these commenters argued that significant timber harvest acreage in California occurs via clearcutting or similar alternative methods, with other acreage also planned for sanitation-salvage logging operations and group-selection silviculture (Haines 2014), none of which (the commenter asserts) benefits the fisher. The second commenter stated that an ESA-listing would help address the lack of adequate pesticide (specifically rodenticide) regulatory mechanisms in Oregon and Washington. The third commenter asserted that reliance on the Federal lands LSR system, which provides conservation targeted at northern spotted owls and other late-seral-dependent species, is not sufficient to ensure conservation and recovery of the fisher because current LSR restrictions allow significant alteration and degradation of fisher habitat.

Our Response: We have thoroughly considered all existing regulatory and other mechanisms in place that are relevant to stressors identified for the proposed West Coast DPS of fisher, as described in our final Species Report and in this document. Our evaluation of all best scientific and commercial data available leads us to conclude that the stressors acting upon the proposed West Coast DPS of fisher are not of sufficient imminence, intensity, or magnitude to indicate that that they are singly or cumulatively resulting in significant impacts at either the population or rangewide scales. As this finding leads us to conclude that the stressors acting on the species are not functioning as operative threats on the fisher's habitat, populations, or the proposed DPS as a whole, we cannot further conclude that existing regulatory mechanisms are inadequate.

Furthermore, our assessment of fisher habitat throughout the analysis area indicates that there are large areas of currently unoccupied habitat that are of moderate to high suitability for fishers; this is particularly true on Federal lands.

(167) Comment: One commenter proclaimed that reliance on the Federal lands LSR system to provide for conservation of the northern spotted owl and other late, seral-dependent species has not been sufficient to curtail the decline of the owl, and will not be sufficient to ensure conservation and recovery of the fisher. The commenter also alleged that recent estimates show only about 36 percent of LSRs include late-successional forests, with the majority of the designated reserves expected to acquire such conditions over decades (Strittholt *et al.* 2006). Finally, the commenter claimed that current LSR restrictions still allow significant alteration of fisher habitat and do not provide protection of elements essential to fisher habitat, such as large trees, snags, downed wood, and high canopy closure, and that the lack of direction to protect these habitat elements results in degradation and destruction of late-successional habitat utilized by the fisher.

Our Response: Please see responses to *Comments (125)* and *(166)*.

(168) Comment: One commenter stressed that existing regulatory mechanisms are inadequate for addressing illegal and egregious trespass marijuana agriculture and associated use of ARs. The commenter noted that State and Federal wildlife officials (law enforcement) currently have few legal or regulatory mechanisms to ensure best management practices for both trespass and cottage industry marijuana growing operations.

Our Response: We agree with the commenter that some existing regulatory mechanisms are not effective in addressing illegal trespass marijuana agriculture and

associated use of ARs. By definition, illegal activities are not compliant with regulations. While the draft Species Report indicates that Federal law enforcement agencies have been very successful in eradicating (see for example Figure 19 (Service 2014, p. 156)), and in some cases, remediating illegal marijuana trespass grow sites, the draft Species Report (Service 2014, p. 142) stated that "[t] he primary regulatory issue for rodenticides and fishers is the availability of large quantities of rodenticides that can be purchased under the guise of legal uses, which can then be used illegally in marijuana grows within fisher habitat." In addition, we do not know how well existing regulatory mechanisms protect fishers from exposure to legal uses of rodenticides (Service 2014, p. 144). However, since we do not have evidence to suggest that fisher populations within the west coast States are exhibiting any significant impacts at either the population or rangewide scales as a consequence of exposure to ARs, we cannot conclude that the inadequacy of regulatory mechanisms to control illegal marijuana grow operations poses a threat to the proposed DPS. In addition, please see our response to *Comment (166)*.

(169) Comment: One commenter requested that the Service strongly consider CDFW's comments, information, and recommendations in the final decision given that approximately 95 percent of the extant fisher populations are located in California.

Our Response: We have reviewed and considered all comments and information provided, including information provided by CDFW, and we have incorporated relevant information in this document and the final Species Report, where applicable. Our final determination is based upon our thorough consideration of all of the best scientific and commercial information available to us, including the information provided by CDFW.

(170) Comment: One commenter requested that the Service urge the Forest Service and BLM to create and implement forest plan standards for fishers, under section 7(a)(1) of the Act.

Our Response: Section 7(a)(1) of the Act states, in part: "All other Federal agencies shall, in consultation with and with the assistance of the Secretary, utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species listed pursuant to section 4 of this Act." Section 7(a)(1) applies only to listed species, and we have determined that listing the proposed West Coast DPS of fisher is not warranted (see **Determination**, above). Therefore, the Act does not require that conservation programs for fishers be implemented. However, we will continue to monitor the status of the fisher in the west coast States through monitoring associated with the various forest and management plans and other conservation efforts that occur within the fisher populations or other unoccupied, suitable habitat areas and provide recommendations to the Forest Service and BLM, as appropriate.

(171) Comment: One commenter stated that the Service referenced the Oregon Forest Practices Act in the existing regulatory mechanisms section of the proposed rule but mischaracterized the regulation description and the State's associated program in the Species Report. Specifically, the commenter asserted that although the Oregon FPA provides for the retention of habitat components that may not be explicitly designed to protect fishers, the protected habitat is the type of late-successional habitat that the Species Report asserts the fisher requires. The commenter also added that the draft Species Report included a "myopic view toward old-growth habitat" by ignoring a large

body of science recognizing that fisher thrive in a mosaic of habitat conditions. Finally, the commenter contended that the Oregon FPA is a sophisticated statute that drives a robust and dynamic regulatory environment in Oregon that consistently produces high-quality wildlife habitat on private lands, including habitat suitable to fisher success, and that the draft Species Report's assertion to the contrary is in error.

Our Response: We disagree with the commenter's assertion that the Oregon FPA protects the type of late-successional habitat characteristics that fishers require. At the structure-specific scale, the retention of trees and snags as required by the Oregon FPA will not meet the needs of denning fishers based on our understanding of their use of these structures. As an example, minimum diameters for retained snags and green trees under the Oregon FPA are smaller than the inside diameter of hollow trees used by denning females. Furthermore, the smaller green trees that are retained likely will not have the decay that is required for use by denning females, and there is no requirement to retain these trees on the landscape for the time needed to develop the appropriate size, nor to retain them through multiple harvest rotations to allow sufficient time to develop the degree of rot necessary to form a hollow stem that provides a den site. Thus, while the Oregon FPA requires retention of green trees and snags in harvested areas, these retained trees and snags most likely will not meet the needs of denning females given the minimum size allowed for retention, and the likely loss of these remnants during the next harvest rotation.

While fishers may use a mosaic of habitat conditions for which some level of younger industrial forests may be sufficient at the landscape scale, the Oregon FPA requirements for retaining older forest stands are limited to specific conditions such as

no-cut retention buffers around streams and protection of specific wildlife sites. These retention areas may or may not be late-successional, depending on what forest stand exists at the time they are put in effect. Even if these stands are late-successional, they occur on a substantially small part of the non-Federally managed landscape compared to the heavily managed portion of industrial forest where little structure is likely to occur.

We have stated in the draft Species Report and in the final Species Report that fishers use and even reproduce in managed forest landscapes if there are sufficient amounts and an adequate distribution of key habitat and structural components important to fishers, noting that younger and mid-seral forests may be suitable for fishers if they retain the necessary structural complexity and features. While this habitat could be provided by timber managers on a discretionary basis, as noted above, the minimum size requirements and lack of long-term retention under the Oregon FPA will not necessarily result in meeting the structural habitat needs of fishers.

(172) Comment: One commenter declared that the draft Species Report is too dismissive of NEPA benefits to fishers. The commenter asserted that NEPA, along with other existing regulatory mechanisms, significantly contributes to the conservation of fisher, which further supports that listing is not warranted. The commenter acknowledged that NEPA does not have substantive requirements, but stated that its procedural requirements often result in carefully designed, agency actions that minimize or mitigate project effects to specific species and resources, including fisher. Further, the commenter asserted that combining the Forest Service’s policy with NEPA requirements makes NEPA an action-forcing statute that guides the agency's analysis and implementation of all projects that could affect fishers. The commenter referenced the

Bybee Vegetation Management project on the Rogue River-Siskiyou National Forest as an example that provides substantial conservation benefit to fishers.

Our Response: We consider NEPA to be an important environmental disclosure statute. Our discussion of NEPA in the draft Species Report, the proposed rule, and this document (see "Existing Regulatory Mechanisms" sections) clearly states that the evaluation of projects under NEPA does not regulate or protect fisher nor does it require or guide potential mitigation for project impacts. The individual actions analyzed under NEPA are the projects that may or may not benefit species.

(173) Comment: One commenter asserted that current regulatory processes and landowner management practices protect fisher populations and habitat; thus, the taxon does not require Federal protection under the Act.

Our Response: Per section 4 of the Act and its implementing regulations, we have carefully assessed the best scientific and commercial data available regarding the past, present, and future threats to the proposed West Coast DPS of the fisher, and we have determined that the threats we identified in the proposed rule are not now and will not in the foreseeable future act on the species in such a way that the fisher meets the definition of an endangered or a threatened species. Consequently, we are withdrawing our proposal to list this DPS (see **Determination**, above). Current landowner management practices that benefit fisher and its habitat are important for the conservation of fishers in the west coast States, and we encourage those activities to continue, as they will contribute to the maintenance of fishers in the west coast States and may preclude the need to reconsider listing fisher in the future.

Foreseeable Future

(174) Comment: One commenter noted that in the proposed rule we stated, "we considered 40 years to be a reasonable estimate of the foreseeable future for fisher because it falls within the spectrum of predictions into the future and is supported by habitat model and climate model predictability." However, the commenter noted that the Service, in both the draft Species Report and the proposed rule, declined to use such models to support conclusions, speculating that the Service's conclusion was too uncertain to substantially inform the threats evaluation. Similarly, the commenter noted that the draft Species Report acknowledged that habitat ingrowth will occur, but concludes, "While we attempt to quantify habitat loss, we were unable to quantify habitat recruitment or silvicultural treatments that may offset some habitat loss over our 40-year analysis window." The commenter stated that the draft Species Report made numerous other references to uncertainty in modeling and prediction of ingrowth and basically refuses to account for ingrowth due to this uncertainty. The commenter asserted that the speculative nature and inconsistent treatment of the "foreseeable future" has ramifications throughout the draft Species Report and proposed rule, and suggested that the Service acknowledge the degree of uncertainty in projecting all stressors across the foreseeable future. Finally, the commenter requested that the Service revise the definition of "foreseeable future" for its final determination to one that is supportable by substantial predictive information.

Our Response: The concept of the "foreseeable future" comes into play under section 3 of the Act in the definition of a threatened species. The Act defines a "threatened species" as any species (or subspecies or, for vertebrates, distinct population segment) that is likely to become an endangered species within the foreseeable future

throughout all or a significant portion of its range. The Act does not, however, define the term "foreseeable future." Furthermore, the concept of the foreseeable future is an inherently nebulous construct; there is no mathematical formula capable of providing a quantitative solution to identifying a precise moment in time when the status of the species would transition from threatened status to endangered status.

We interpret foreseeable future as that extent of time over which the Secretary can reasonably rely on predictions about the future in making determinations about the future conservation status of the species. In the context of the definition of a threatened species, the foreseeable future is the period of time over which events can reasonably be anticipated. Our references to "reliable predictions" are not meant to refer to reliability in a statistical sense of confidence or significance; rather the words "rely" and "reliable" are intended to be used according to their common, non-technical meanings in ordinary usage. In other words, we consider a prediction to be reliable if it is reasonable to depend upon it in making decisions, and if that prediction does not extend past the support of scientific data or reason so as to venture into the realm of speculation. Our approach to defining the general period of time that may be considered to constitute the foreseeable future is in accord with the Department of the Interior Solicitor's opinion on foreseeable future (M–37021, January 16, 2009; p. 9), available on the Internet at *https://solicitor.doi.gov/opinions/M-37021.pdf*.

As suggested in the Solicitor's opinion for our analysis of the stressors to the proposed West Coast DPS of fisher, we are relying on an evaluation of the foreseeability of those stressors and the foreseeability of the effect of the stressors on the proposed DPS, extending this time period out only so far as we can rely on the data to formulate

reliable predictions about the status of the proposed DPS, and not extending so far as to venture into the realm of speculation. In this case, many of the stressors fell into a foreseeable future timeframe within which we concluded the effects of stressors on the proposed DPS could be reliably projected out over a time period of approximately 40 years. For the stressor of climate change, for example, many different models project changes in temperature, precipitation, or other climatic variables over a period of at least 100 years (see "Climate Change" sections of this document and the final Species Report). As described in the final Species Report, the predicted changes in climatic conditions are generally in agreement under the variety of different emissions scenarios considered until mid-century; after that point, the trajectory of projected changes begin to diverge. For this reason, we conclude that we can reasonably rely on predictions regarding future climate changes over a period of roughly 40 years, up to that mid-century point. Similarly, we conclude it is reasonable to predict changes in forest conditions as a result of vegetation management over approximately the same period of time, based on forest planning horizons and time needed to observe changes in forest conditions (see "Vegetation Management" sections of this document and the final Species Report). For these reasons, we conclude 40 years constitutes a reasonable approximation of that period of time over which we can reliably predict the effects of several of the stressors acting on the proposed West Coast DPS or fisher.

We agree that for some stressors we do not have sufficient data to reliably predict effects on fishers over any specific period of time (for example, disease). For these stressors we could only state that they are "ongoing." In our final Species Report, we have attempted to be more explicit in our acknowledgment of uncertainty regarding

timeframes and effects of such stressors, and to clearly avoid speculation with regard to the potential future effects of a stressor if we do not have sufficient scientific data to provide us with a basis for projection.

Finally, we received many comments regarding the failure of the draft Species Report to account for habitat ingrowth within the 40-year timeframe considered for habitat stressors. We were able to do so in our final Species Report within the area covered by the NWFP (which covers most of the analysis area, with the exception of the southern portion of the proposed West Coast DPS and the area east of the Cascade mountains), using the recent NWFP 20-year late-successional old-growth monitoring report (Davis *et al.* 20XX, entire). This analysis looks at changes in forests with old-forest structural characteristics for the past 20 years (the extent of NWFP implementation), categorizing forest loss by different disturbance mechanisms, including timber harvest, and also recording ingrowth of older forests. This analysis also records activities on non-Federal as well as Federal ownership. It is the only large-scale vegetation trend analysis available that classified vegetation loss to type of disturbance (i.e., vegetation management activities versus wildfire or some other disturbance type). Thus, our final Species Report accounts for ingrowth wherever we had data available.

Forest Management

(175) Comment: Two commenters declared that the Service's analysis of vegetation management in the draft Species Report and proposed rule is incomplete and improperly biased towards negative impacts, including an overall impact that appears overestimated. One commenter asserted that this may be true for historical logging

practices, but modern forest practices (e.g., limiting clearcutting, creating riparian buffers, implementing green tree and wildlife tree retention requirements, replanting, and implementing green-up requirements rules) are now ameliorating the negative impacts of historical logging practices. The second commenter requested that the Service identify a foreseeable future time period for the final rule for which potential effects of vegetation management activities are reasonably demonstrable, and more carefully analyze the trend in timber harvest into the future, noting the accompanying uncertainty when applicable.

Our Response: The draft Species Report discusses the timeframe of the analysis into the future (see introductory text under the "Review of Stressors" section (Service 2014, pp. 46–50) and points out the different timeframes that we took into account to address stressors that may impact fishers directly and those that may impact habitat. We considered vegetation management over a timeframe of 40 years based on the projected management activity that we were aware of at that time, and because habitat loss has both an immediate and ongoing effect on fisher populations and public and private land-management regimes are planned on a multi-decade to 100-year (e.g., Sustained Yield Plans under the California Forest Practice Rules) timescale (Service 2014, p. 50). This 40-year period of time was what we could reasonably rely on for predictions about the future in making determinations about future conservation status of the proposed DPS. We continue to use this timeframe for vegetation management in our final Species Report. For the final Species Report we have changed the approach to reporting scope and severity to qualitative terms (whereas our uncertainty in the draft Species Report was represented as a range of values), our vegetation management analysis in the final Species Report continues to identify areas of uncertainty. Representing scope and

severity as qualitative values is a further acknowledgement of this uncertainty. Please also see our responses to *Comments (43), (58), (99), (181),* and *(215)*.

(176) Comment: Six commenters asserted listing is warranted primarily due to mismanaged forested areas. Three commenters stated that logging activities in the Sierra Nevada have stripped large portions of the landscape, large trees, downed logs, and multi-layered canopies that shelter animals, including the fisher, all of which have led to a steep fisher decline. Further, commenters proclaimed that logging has destroyed specific fisher habitats while favoring generalist species such as grey fox and striped skunk, which compete with fishers. One of the commenters proclaimed that habitat is not managed to benefit fishers (especially in the interspersed "checkerboard" areas of Forest Service and private lands) and the Forest Service is over-thinning (as opposed to light thinning from below of smaller trees, which appears to have no effect on fisher). Two of the four commenters also asserted that listing is warranted because fisher sightings are fewer than normal, with one of the commenters further articulating that well-documented studies (no citations) indicate that the logging of late-successional forests on private and Federal lands (the preferred habitat of fishers) is the chief culprit behind the species' steep decline, and that managing fisher habitat as if it were spotted owl or wolverine habitat would be good for fishers.

Our Response: Many fisher researchers have suggested that the magnitude and intensity of past timber harvest is one of the primary causes for historical fisher declines across the United States (Douglas and Strickland 1987, p. 512; Powell 1993, pp. 77–80, 84; Powell and Zielinski 1994, p. 41) and is one of the main reasons fishers have not recovered in Washington, Oregon, and portions of California (Aubry and Houston 1992,

p. 75; Powell 1993, p. 80; Powell and Zielinski 1994, pp. 39, 64; Lewis and Stinson 1998, p. 27; Truex *et al.* 1998, p. 59). We note in the final Species Report and in this document (see ***Vegetation Management*** above), however, that timber harvest volume has sharply declined throughout the west coast States since 1990, with rates substantially less than that described by most of the above-cited researchers. In the Sierra Nevada there has been a net gain of potentially suitable fisher habitat in recent years (Service 2016, p. 108). Vegetation management is not always detrimental to fisher due to many factors including differences in forest types and land ownership, silvicultural practices, project-specific objectives, and regulatory mechanisms, which vary by State and by Federal agencies. For example, private forests typically are not managed for features of fisher habitat, whereas the loss of intermediate- and high-quality fisher habitat on Federal lands due to management actions has declined substantially (at least within the NWFP area since its implementation) (Kennedy *et al*. 2012, p. 128). Habitat loss and fragmentation may be compounded by a number of factors, which may include competition for prey and suitable den and rest sites as suggested by the commenter.

We disagree that habitat for fisher should be managed as if it were spotted owl or wolverine habitat. While northern spotted owl and fisher habitat may be similar in some respects, how they use the habitat is different. For example, fisher travel widely within their home ranges while spotted owls are central place foragers (i.e., foraging is restricted to a narrow area associated with a nest or roost structure). Wolverines occupy higher elevation, sub-alpine habitats than fisher; therefore, we do not find the comparison between fisher and wolverine habitat as valid.

Finally, several of the commenters point to the "steep decline" in fishers as evidence of the negative impacts of forest mismanagement. We agree that fishers have been lost throughout much of their historical range, but indications are that these past losses were largely due to threats that are no longer functioning as operative threats on the landscape. In our evaluation of all best scientific and commercial data available to us, we do not have evidence that fishers in the proposed West Coast DPS, although reduced from their past abundance and range, are currently experiencing declines.

(177) Comment: One commenter stated that fishers are not threatened by habitat loss. This commenter spoke of substantial areas of unused habitat throughout its range, which will continue to increase through Federal management, private conservation plans, and forest practice rules. The commenter also stated that not listing the fisher as threatened is further supported by continued presence of fishers in commercial forests. Similarly, another commenter stated that fishers continue to be found in areas that have a long history of timber harvest and road building (and no old-growth).

Our Response: As discussed in our response to *Comment (182)*, past habitat loss is clearly implicated in the historical range contraction of fishers. In addition, any ongoing loss of suitable fisher habitat will act as a stressor on remaining fisher populations. Fishers require forests that provide high canopy cover and complex structural elements to provide denning, resting, and foraging opportunities; the continued loss or fragmentation of these forest types is therefore expected to have a negative effect on fisher reproduction and survival. Although the commenters are correct that fishers have on occasion been observed in areas with a long history of timber harvest, our understanding of how fishers respond to forest management is limited given the wide

variety of forest treatments that occur, the scales at which fisher response is measured (e.g., at the landscape level versus a den site), and the specific fisher activity being observed (e.g., denning, foraging, travel). Furthermore, there are no data indicating how specific forest management activities may affect demography and long-term persistence of fishers in a given area. Our final Species Report has been updated to incorporate available information with regard to fisher use of managed or commercial forests.

As described in our draft Species Report, a significant amount of moderate- and high-quality habitat remains available but unoccupied by fishers within the analysis area, for example, within the NCSO population (Service 2014, p. 39). According to the results of our habitat model (presented in Appendix A in the draft Species Report), roughly 16 million acres of intermediate- to high-quality fisher habitat is present in the analysis area, and approximately 11 million acres of lands are currently under some form of protection (NWFP reserves, National Parks, Southern Sierra Fisher Conservation Area, etc.; Service 2014, pp. 122–126). Recent information from the NWFP 20-year late-successional and old-growth monitoring report (Davis *et al*. 20XX, entire) demonstrates that loss of suitable habitat in recent decades (as represented by OGSI–80 forests) has slowed dramatically, particularly on Federal lands, compared to pre-1990 levels (Service 2016, pp. 101–105). As projected, ingrowth is occurring and the NWFP appears to be on track to meet its targets for maintaining or increasing forests in late-successional condition in its reserve areas (Service 2016, pp. 100–102). Suitable habitat in the area of the SSN population has increased (Spencer *et al*. 2016, pp. 42–44). In addition, Federal, State, and private actions are expected to further contribute to the preservation and management of suitable fisher habitat in the west coast States, although several agreements are still in

the preliminary stages, and we have not relied upon them in making our final determination here.

Although some ongoing level of habitat loss and fragmentation is anticipated through vegetation management activities, we have no information to suggest that it will be so great as to result in likely significant impacts to fisher habitat at either the population or rangewide scales. Based upon our evaluation of all the best scientific and commercial data available, in this final determination we have concluded that although past habitat loss was undoubtedly a key factor in the historical declines in range and abundance of fishers throughout the proposed DPS, it is not currently an operative threat on the proposed West Coast DPS of fisher, nor do we have information to indicate that it is likely to become so within the foreseeable future.

(178) Comment: One commenter stated that when considering the combined amount of private commercial timberlands, NWFP lands, and other public lands with suitable fisher habitat, these areas provide more than enough suitable habitat for the fisher. Furthermore, the commenter stated that the Service's decision to use northern spotted owl habitat as a surrogate for evaluating stressors to fisher habitat is arbitrary, capricious, and not based on the best available science.

Our Response: Please see our response to *Comment (176)* regarding our evaluation of habitat loss as a potential threat to the proposed West Coast DPS of fisher. In reaching our conclusion that the proposed West Coast DPS of fisher does not meet the definition of a threatened species, we found that the amount of suitable habitat for fisher is sufficient to maintain viable fisher populations now and in the foreseeable future.

In our final Species Report, additional data were available that allowed us to evaluate the stressor of vegetation management without using northern spotted owl habitat as a surrogate. Our final analysis relies instead on the recently released NWFP 20-year late-successional old-growth monitoring report (Davis *et al.* 20XX, entire) within the analysis area covered by the NWFP (most of the proposed DPS except the Sierra Nevada and eastern portions of the Oregon and Washington Cascades) and GNN vegetation trend analysis for the remainder of the analysis area.

(179) Comment: Two commenters (including one local government) stated that the Service did not address the adverse effects of mechanical thinning on fishers, when considered at the forest-stand scale. One of these commenters specifically stated that the draft Species Report neglected to show research results that demonstrate adverse effects of mechanical thinning on fishers, and that fishers actively avoid thinned areas, citing to the dissertation of Garner (2013). Another commenter cited Truex and Zielinski (2013, entire) as an example of how fisher react negatively to mechanical treatments.

Our Response: We agree with the commenters that the draft Species Report did not specifically address the adverse effects of mechanical thinning in the discussion of forest management techniques that adversely affect fishers. We appreciate receiving the references, as this is new information for us. Although the draft Species Report discussed the possible negative effects of understory treatments in general on fishers, we have updated the final Species Report to specifically address the issue of mechanical thinning and its effect on fishers.

(180) Comment: One commenter asserted that the Forest Service over-thins their managed forests, which causes conditions that are counter to the heavily forested habitat

that fishers prefer. Therefore, the commenter asserted that the fisher is most harmed by logging. In addition, the commenter observed that understory thinning does not affect fishers. However, the commenter did not present any new data to support either of these observations.

Our Response: Both our draft and final Species Reports provide a comprehensive discussion of forest management effects on fishers on public and private lands. We have no evidence, nor did the commenter provide any evidence to support their generalization that the Forest Service thins too heavily to maintain fisher habitat. Our final Species Report discusses the fact that timber harvests focused on restoration are more likely to retain and develop habitat structures important to fishers, and tend to be more prevalent on Federal lands and some other public (e.g., State) lands because of agency missions and regulations (Service 2016, p. 119). Regarding the effects of understory thinning, such effects to fishers can vary greatly by the ecosystem type, the intensity and scale of treatments (Naney *et al.* 2012, pp. 29–37), and the response of the prey communities being affected by the treatments" (Service 2016, p. 107). Therefore, in general, we do not agree that the commenter's assertions can be supported as a broad generalization.

(181) Comment: Several commenters stated that ongoing forestry practices on private lands are resulting in conservation for the taxon, especially through fisher habitat improvement, which supports the likelihood that the proposed DPS does not need Federal protection as a threatened species. One commenter articulated that studies in northern California have found fishers using landscapes managed primarily for timber harvest as opposed to fishers exclusively using late-successional forests. Another commenter asserted that landowners can and are managing for fisher habitat without significant

economic harm, such as by using working forest conservation easements and establishing stream protection zones. Another commenter highlighted Mendocino Redwood Company's continued work with the Service on an 80-year joint Federal/State multi-species HCP/NCCP as demonstration for private industry conservation efforts. One commenter specifically stated that forest management in Siskiyou County is beneficial, as demonstrated by fishers from this area being used for reintroductions to other areas. Another commenter specifically stated that multiple pieces of evidence exist (e.g., Weaverville study, Green Diamond's two study areas, SPI Stirling translocation area, and Michigan-California EKSA study) that demonstrate how managed industrial timberlands provide habitat for stable fisher populations. Finally, one commenter stated that, in general, fishers extensively use managed landscapes, and the importance of continuing retention under sustainable forests initiatives/councils contributes to keeping important habitat elements on the landscape.

In contrast, several commenters asserted that private lands forestry practices are having a negative effect on fisher habitat, including the perspective that these forestry practices (primarily clearcutting) are the primary issue impacting fisher habitat. Two of these commenters specifically highlighted impacts in the Sierra Nevada, including one that presented photographs of habitat loss adjacent to Forest Service lands in the central Sierra Nevada area, and two others who discussed clearcutting concerns near Castle Crags State Park/Dunsmuir in California. Another commenter specifically stated that the practice of clearcutting is occurring on some private lands, and combined with herbicide application to prevent understory competition, is causing a lack of diversity with very few animals present in these areas.

Our Response: We agree with the commenters from both opposing viewpoints that some ongoing private forestry practices across the proposed West Coast DPS are consistent with fisher conservation, and some are detrimental. Forest conservation easements, multi-species HCPs/NCCPs, sustainable forest initiatives, and working with Federal and State agencies across the proposed West Coast DPS to fund research projects and reintroduction efforts all contribute to fisher conservation on private lands. However, forestry practices such as clearcutting and broad-scale herbicide application remove understory shrubs required by fisher prey species and degrade fisher habitat. Though we are withdrawing our proposal to list the West Coast DPS of fisher as threatened (see **Determination**, above), we will continue to monitor stressors and work with private landowners to develop management strategies that will allow us to work toward the conservation of fisher throughout the west coast States. See also our responses to *Comments (174) and (176)*.

(182) Comment: One tribe asserted that the draft Species Report over-emphasizes the importance of late-successional forest to fishers, while a separate commenter stated that fishers are not as reliant on late-successional old-growth forests as the draft Species Report indicates (further stating that fishers use a wider range of habitat than recognized by the Service), suggesting that fishers are not "habitat limited." The tribe stated that they recognize the importance of older forest stands for rest and den sites (which were found to be important for female fishers in Washington (Lewis 2014)); however, numerous studies have found fishers to use a variety of forest stands including managed forests (citing Klug 1997, Thompson 2008, Self and Kerns 2001, Aubrey and Raley 2006, Clayton 2013, Lewis 2014 as examples for this comment).

Our Response: We agree that fishers in the west coast States rely on a variety of forest types and we have clarified discussion in the final Species Report regarding the fisher's dependence/needs regarding late-successional forests and managed forests (Service 2016, pp. 15–25). Please see our responses to Comments *(28)*, *(37)*, *(39)*, and *(57)*.

(183) Comment: Regarding overall forest management, one commenter requested that the Service address herbicide application as a potential threat to the fisher. The commenter stated that broad (aerial) application can render entire patches of forest unsuitable for fisher and their prey. Additionally, on private lands, removal of deciduous trees and shrubs that favor conifers is likely a larger stressor on fisher habitat than the species report recognizes.

Our Response: The draft Species Report addressed herbicide application as an example of a silvicultural or fuels reduction treatment that may reduce the overall complexity of forest understory (Service 2014, p. 109). The effects of understory treatment to fishers can vary greatly by the ecosystem type, the intensity and scale of treatments (Naney *et al.* 2012, pp. 29–37), and the response of the prey communities being affected by the treatments. We recognize that herbicide application, on a broad scale, may alter the ways in which fishers use landscapes. The final Species Report includes additional discussion on herbicide application and the effects to fisher and their prey.

(184) Comment: One commenter, citing Raley *et al.* (2012), stated that the lack of overarching patterns of selection by fishers for particular forest types or seral stages may be due to differences in management histories among locales and subsequent

influences on forest structure. The commenter asserted that the draft Species Report views these differences in management histories as static and fails to consider associated temporal dynamics, particularly with regard to downed large trees and residual trees left post-harvest following early 20th century forest management practices. These remnant woody structures are no longer provided under current management operations, and the commenter suggests that the Service's analysis failed to take into account the fact that such structures are no longer provided for fishers under modern even-aged management practices.

Our Response: We understand that forest management is not a static process; please see the response to *Comment (75)* for further discussion in this regard. We do not deny that some legacy structures used by fishers for denning or other activities may be lost in some areas due to timber harvest or other activities. However, there are safeguards in place on many lands to conserve these structures, as described below. In addition, the cavities and other important forest structures used by fishers are not only remnants of earlier forest management, but are also a result of wildfire and other natural disturbances such as forest-related insect and disease outbreaks. These natural events continue to occur within the west coast States. Federal lands are managed for natural resources and sustained yield of forest products under land and resource management plans. The majority of Federal lands within the fisher's range in the west coast States are within the NWFP boundary and include a network of reserved land use allocations. In addition, both the Federal resource management plans and the NWFP contain standards and guidelines for snag and coarse woody debris retention. Even-aged forest management practices, as mentioned by the commenter, are more common on non-

Federal lands. State regulations provide for the retention of some snag and down woody debris as well as other retention areas associated with riparian features, for example (Service 2014, pp. 131–141). While the State regulations do not all specifically address fisher, structurally important elements of fisher habitat will be present, at least minimally, on non-Federal lands. In other words, FPRs in all three west coast States do not specifically address fishers and their habitat requirements, although some management practices will benefit fisher habitat, particularly in the SSN population area given the state of California's recent listing of this population as an ESU. Future recruitment of cavities and forest structures used by fisher will occur through natural and non-natural processes within the fisher's range in the west coast States, though land ownership will likely determine their rate of recruitment and overall abundance.

(185) Comment: One commenter requested more information regarding the Service's assertions that fisher conservation requires extensive late-seral forest conditions and that logging practices generally pose a threat to fishers. The commenter stated that while this may be true for historical logging practices and at large scale of analysis, a current and accurate status review requires that the Service evaluate all current forest practices, which are vastly improved over historical timber harvest activities.

Our Response: We recognize that fishers use a variety of habitat types and are not limited to late-seral forest types. Please see our response to *Comment (57)* for additional discussion in this regard. Regarding the potential impacts of past, ongoing, and projected future impacts of vegetation management on the proposed West Coast DPS of fisher, we received a substantial amount of new information in this regard, which is incorporated into our final Species Report. Please see our responses to *Comments (176)*

and *(177)* regarding our updated assessment of all of the best scientific and commercial data available regarding vegetation management, including logging practices, as a stressor to fisher in the proposed West Coast DPS.

(186) Comment: One commenter stated that it is evident that fisher have expanded their range or become more abundant in the coastal redwood and Douglas-fir forests, noting that much of this area is in managed private timberlands. The commenter referred to recent information from north coastal California collected by their company—Green Diamond Resource Company (Diller *et al.* 2015, Hamm 2013), which indicates that fisher detection rates or occupancy appear to be stable on their lands. The commenter also referred to data from the Hoopa Reservation, which indicates generally stable trends in the population on those tribal lands (Higley *et al.* 2013). The commenter noted that the draft Species Report acknowledges these studies, and also stated that there is little discussion of the implications of fisher use on managed forests in California and how that information may be useful in predicting suitable sites for reintroduction.

Our Response: We agree that fishers do use managed timberlands, but whether populations can persist long-term (i.e., for several decades) on managed lands is currently unknown. The commenter's lands (i.e., Green Diamond Resource Company in north coastal California) are surrounded by Federal lands that contain large patches of occupied, high-quality fisher habitat. Therefore, these private lands may contain more fishers than expected for many managed industrial timberlands because the surrounding Federal lands could be a constant source of fishers that may or may not persist on the commenter's land. The commenter did not present information that suggests fishers can persist over the long term on their lands, nor information on the overall health of the

fisher populations that occupy their lands. However, from 2009 to late 2011, fishers were translocated from the NCSO population to unoccupied habitat within the fisher's historical range in the northern Sierra Nevada and Southern Cascade Mountains, within industrial timberlands, and have successfully reproduced (Powell *et al.* 2014, entire). Population modelling, however, showed that short-term population stability cannot be confirmed before year-10 of the project, or 2020 (Powell *et al.* 2014, abstract).

(187) Comment: One commenter stated that fishers are abundant on their managed forest lands in north coastal California, based in large part on camera sightings and incidental sightings reported by employees and contractors, the validity of which are determined through conversations between the person that sights the fisher and commenter's biological staff. The commenter stated that this approach lends credibility and increases the confidence level of the incidental sighting information, although they recognize obvious limitations to the use of incidental sightings. Regardless, the commenter believed the incidental sighting data should be considered because they corroborate the results from rigorous survey methods used throughout the same sighting areas during the same time periods, and further supported that fishers appear to be abundant and thriving within the commenter's managed timberlands (which are not characterized as late-seral forests).

Our Response: The commenter asserts that fishers are abundant on their lands in north coastal California based in part on incidental sightings by employees and contractors. Incidental fisher sighting data can be used for simple, coarse-scale comparisons made between geographic areas, to guide systematic survey efforts, or for coarse mapping of fisher distribution for internal use by the commenter. Incidental

sighting information generally is not used by scientists for mapping species distribution for peer-reviewed literature, and is not used to estimate species abundance. The scientific standard for estimating fisher relative abundance and distribution excludes anecdotal sighting data and only uses verifiable detection data such as physical specimens, photographs, video, tracks, or captures by researchers or trappers. Therefore, we have not used incidental sightings in our evaluation of abundance estimates. Figure 7 in the draft Species Report (Service 2014, p. 31) and final Species Report (Service 2016, p. 34) illustrates fisher occurrence on the commenter's lands in north coastal California, based on fisher detections of high reliability using the types of verifiable detection information listed above. We have updated our final Species Report, however, to note credible observations reported to us of fishers in forests managed for timber harvest.

(188) Comment: One commenter stated that private industrial and managed State forest lands represent 33 percent of forest land area in the State of Washington. The commenter asserted that much of the State's forest land within the historical range of the fisher is managed. The commenter also stated that State FPRs govern harvest and include provisions for retention and riparian buffers in Washington, Oregon, and California. However, the commenter questioned why the draft Species Report and proposed rule offered no consideration of habitat recruitment from riparian buffers and leave trees, which are expected to promote habitat connectivity and develop necessary habitat features over time.

Our Response: We did consider the protections offered by the FPRs (and HCP) in Washington, Oregon, and California (Service 2014, pp.103–105, 132–137). We agree that some areas of privately managed forests may provide habitat for at least a portion of

the fisher's life-history needs (i.e., foraging, and possibly denning where legacy trees persist) now or in the future. However, habitat recruitment on private forest lands per the FPRs in Washington does not protect the specific structures associated with late-successional habitat that fishers require, and is unlikely to support an area equivalent to the entire home range of a successfully denning female fisher. At the structure-specific scale, the retention of trees and snags as required by the Washington FPRs will not meet the needs of fishers based on our understanding of fisher use of these structures. As an example, minimum diameters for retained snags and green trees under the Washington FPRs are smaller than the inside diameter of hollow trees used by denning females. Furthermore, the smaller green trees that are retained likely will not have the decay that is required for use by denning females, and there is no requirement to retain these trees on the landscape for the time needed to develop the appropriate size and to allow for the development of rot to the degree that a hollow stem occurs. Thus, while Washington FPRs require retention of green trees and snags in harvested areas, they most likely will not meet the needs of denning females given the minimum size allowed for retention.

While fishers may use a mosaic of habitat conditions that some level of younger industrial forests may provide at the landscape scale, the Washington FPR requirements for retaining older forest stands is limited to specific conditions such as no-cut retention buffers around streams and protection of specific wildlife sites. These retention areas may or may not be late-successional, depending on what forest stand exists at the time they are put in effect. Even if these stands are late-successional, or are allowed enough time to become late-successional, they occur on a substantially small part of the landscape compared to the heavily managed portion of industrial forest where little

structure is likely to occur. Please see *Comment (171)* above regarding Oregon FPRs. In addition, the draft Species Report states that the broad objectives of the California FPRs leave uncertainty as to the adequacy of habitat protection for fisher denning, resting, and reproduction (Service 2014, p. 139). Based on these considerations, we could not anticipate a significant amount of habitat recruitment for fishers from riparian buffers and leave trees under State FPRs.

(189) Comment: One commenter asserted that most of the non-Federal forest landscape will likely never regain suitable habitat conditions for fisher, and that logging will reduce stand density, and reduce dead wood abundance and complexity, thus degrading fisher habitat. Additionally, the commenter pointed to recent literature (Aubry *et al.* 2013) that documents how fishers specifically focus on dead wood for resting sites, which is counter to Federal land's aggressive prescriptions ("widespread fuel reduction logging" and "shifts from thinning young stands to logging in mature native forests and/or regeneration harvest") that reduce dead wood recruitment. Therefore, the commenter stressed that listing the fisher under the Act will aid in the appropriate, critical management of Federal lands, especially given the Federal agencies' recent "push toward more regeneration harvest."

Our Response: We appreciate the commenter's views, however, we respectfully disagree that non-Federal lands will never be suitable for fisher in the future. Our final Species Report provides an evaluation of conservation methods and existing regulatory mechanisms on Federal and non-Federal lands (Service 2016, pp. 115–122, 162–189). While there is clearly more potential impact to fisher habitat from timber management practices on non-Federal land, HCPs, CCAAs, and interagency conservation

strategies (to the extent these are in effect), for example, include measures that provide for important aspects of fisher life history and habitat needs. We recognize that objectives for timber management on non-Federal lands generally provide fewer protections for fishers. However, management on State and private lands for older-forest or for retention of habitat blocks for other species may facilitate fisher movements across the landscape or provide future habitat as some areas are allowed to develop into older stands.

We do not have information that indicates Federal agencies are implementing more regeneration harvest, and the commenter does not provide references or other sources to support this claim. To the contrary, and as noted in the final Species Report (Service 2016, pp. 60–62), timber harvest levels on Federal lands have dropped substantially over the past two and one half decades (Gale *et al.* 2012, pp. 4, 10,11, 17; Kennedy *et al.* 2012, p. 128; Charnley and Long 2014, pp. 631–632; WDNR 2016, entire). Federal land managers operate under land and resource management plans that guide and set standards for natural resource management including protections for sensitive species such as the fisher. With regard to concerns about the recruitment of dead wood on Federal lands, please see our response to *Comment (184)*, above.

(190) Comment: One commenter disagreed with our statement in the draft Species Report (Service 2014, p. 87) that the fisher analysis area habitat model was used "as a reference point from which to evaluate current habitat conditions across the analysis area and estimate the future losses due to ongoing vegetation management activities." The commenter asserted that this is only partially true and that the backbone of the analysis is based on using "several differing sources of information" in the

evaluation of the scope and severity of vegetation management because there are no available data sources tracking changes specific to fisher habitat across the analysis area.

Our Response: The commenter is correct. The habitat model was used as a reference point from which to evaluate current habitat conditions across the analysis area; however, it was not used in our analysis of habitat loss from vegetation management. The final Species Report has been corrected to reflect this point.

(191) Comment: One commenters noted that the habitat model seemed off for a portion of the Olympic Peninsula. The commenter suggested reexamining those data and comparing the habitat model to fisher home ranges and locations of fisher detections.

Our Response: We acknowledge that the habitat model is an approximation of fisher habitat on the Olympic Peninsula, and that actual fisher use of the landscape may suggest different areas that are or are not likely to be used by fishers. However, fisher home range data on the Olympic Peninsula is based on the habits of the first reintroduced animals over an approximately 5-year period, and may not reflect all of the habitats that will be used by fishers in the future. Therefore, the habitat model has an appropriate level of accuracy for the purposes of our analysis.

Fragmentation

(192) Comment: One Federal agency stated that although the Redwood National and State Parks preserve the largest remaining contiguous section of ancient coastal redwood forest within the original range of the fisher, the parks are configured in a linear strip along the coast. The agency suggested that listing the proposed West Coast DPS of fisher throughout western Oregon rather than just the NCSO population would afford protection to those animals that disperse north from the extant range into Oregon and

maximize protection of the NCSO population. The agency also suggested that fishers are in need of additional protections by reducing the potential for habitat loss and increased fragmentation caused by intensive forest management on adjacent private timber lands that are not covered in an HCP.

Our Response: Specific to lands mentioned by the commenter in western Oregon outside of the NCSO population, the vast amounts of Federal lands managed under existing plans provide long-term assurances of habitat retention and future habitat development. Also, threats from such factors as climate change and rodenticides appear to be less here than in the California and perhaps southern Oregon portions of the proposed DPS. In spite of multiple stressors identified and evaluated, fisher populations do not appear to be in decline, suitable unoccupied habitat is available, and no specific threats were identified as having significant impacts at either the population or rangewide scales. As a result of our assessment of the best scientific and commercial data available, we have withdrawn our proposal to list this DPS, as we could not conclude that the DPS meets the definition of an endangered or threatened species under the Act (see **Determination**, above).

(193) Comment: One Federal agency noted existing habitat fragmentation in the area of Redwood National and State Parks and Prairie Creek Redwoods caused by U.S. Highway 101 and the Newton B. Drury Scenic Parkway. The commenter also provided information regarding the proposed relocation of sections of U.S. Highway 101 to areas of old-growth and mature second-growth forest within Del Norte Coast Redwoods State Park and Redwood National Park. The commenter asserted that such relocations could

result in the permanent removal of fisher denning habitat, increased fragmentation, and increased mortality risk from vehicle collisions.

Our Response: The commenter appears to be referring to the Last Chance Grade project proposed by the California Department of Transportation (Caltrans), which would reroute U.S. Route 101 away from the coastline into more interior areas within State and National redwood parks that contain habitat suitable for resting and denning fishers. The Service agrees with the commenter that the Last Chance Grade project would result in the permanent loss of suitable fisher habitat and, like all roads, would increase habitat fragmentation and potentially increase fisher mortality rates from vehicle collisions. Notably, all of the Last Chance Grade bypass routes are primarily 2-lane road segments unlike the existing 4-lane Prairie Creek Bypass to the south on U.S. Route 101 (referred to by the commenter). Therefore, the amount of suitable fisher habitat removed would be reduced and the probability of roadkill mortality would likely be lower on the relocated sections compared to the existing 4-lane Prairie Creek Bypass. We will be working with Caltrans to avoid and minimize potential impacts to the fisher and suitable fisher habitat from the Last Chance Grade project, regardless of the fisher's Federal status.

(194) Comment: One commenter stated that the proposed rule significantly overstates the contribution of logging to forest fragmentation. The commenter explained that fishers frequently use managed landscapes, and the draft Species Report's assertion that fragmentation due to timber harvest can last more than 80 years is in error and is not supported by literature (citing Lewis and Stinson 1998, and Klug 1997). The commenter also stated that even if logging creates a short time-window during which fisher prefer other lands, individual harvest units are not so large as to negatively affect fisher, in part

because (a) Fisher female and male home ranges are approximately 38 times and 108 times the maximum legal clear-cut size in Oregon, respectively; and (b) fishers are highly mobile, and fragmentation created by logging in compliance with modern forest practice rules is unlikely to have a material effect on the species' continued survival. The commenter stressed that this assumption is substantiated by Lewis and Stinson (1998) and Klug (1997).

Our Response: We agree that fishers use managed landscapes; we discussed this fact in the draft Species Report (Service 2014, pp. 15, 17, 56, 88), and provide an expanded discussion based on new information received in this regard in our final Species Report (Service 2016, pp.19–21, 60) We evaluated all of this new information, in addition to all information already in our files (including Lewis and Stinson 1998 and Klug 1997), in our final determination for the proposed West Coast DPS of fisher. As stated in the draft Species Report (Service 2014, p. 55), fragmentation from timber harvest or fire (depending on harvest method, fire intensity, and site potential) ranges in time, from one fisher lifetime (about 10 years) after low-intensity disturbances in forested systems that regenerate quickly, to more than 80 years in the drier areas of California and southern Oregon (Agee 1991, p. 32; Franklin and Spies 1991b, p. 108). While we understand the points made by the commenter, the types of forest and spatial arrangement of clear cut units plays a large role in how fishers may use fragmented landscapes. In the redwood region, growing conditions are more conducive to quicker vegetative ingrowth than conditions in drier forests. Similarly, the topography and spatial arrangement of an area may influence the degree to which fragmentation affects fisher. For example, there may be fewer clear cuts in steeper topography, resulting in less overall fragmentation and

lesser impacts to fisher movement. Our 80-year estimate is derived from the literature, and refers to the transition age from young to mature forest (Franklin and Spies 1991b, pp. 91, 108; Davis *et al*. 2015, p. 16) and as an estimate of the time it takes forests to exhibit important structural features for fisher habitat following fire or other natural disturbances. However, neither of these time frames can be applied ubiquitously across the entire fisher's range in the west coast States to estimate fisher habitat regeneration time after clear cutting. Therefore, we disagree with the commenter that a definitive statement can be made about the length of time it takes to regenerate fisher habitat across the entire proposed West Coast DPS of fisher's range. Furthermore, we disagree that a definitive statement can be made that negative effects caused by fragmentation are ameliorated by fishers' mobility and home range size. See additional discussion on this topic in our response to *Comments (59)*, *(176)*, and *(177)*, above.

(195) Comment: One commenter asserted that we should rely on the Zielinski *et al.* (2010) model to ensure correct classification of fisher habitat as opposed to the Carroll *et al.* (1999) model, which they believe overstates the level of habitat fragmentation and isolation that the fisher may be experiencing.

Our Response: We appreciate this comment and suggestion. We received numerous comments on habitat modeling. Please see our responses to *Comments (60)* through *(73)*, above, and *(219)* through *(227)*, below, for more information in this regard. The analysis of habitat fragmentation and isolation within the proposed West Coast DPS of fisher is based on numerous pieces of literature (e.g., Service 2016, pp. 58–62) and is not limited to those specific to habitat models. We have reviewed the

references suggested by the commenter and taken that information into consideration in our final analysis.

(196) Comment: One commenter stated that fisher habitat has been fragmented due to logging, highways, and urban/industrial development. The commenter reasoned that this, in combination with a high male mortality rate due to rodenticide toxicosis, will make it difficult for fishers to find mates and reproduce.

Our Response: We agree with the commenter that some fisher habitat has been fragmented by roadways, logging, and urban or industrial development. We also agree that there has been mortality associated with ARs. However, our analysis of the best available scientific and commercial information does not indicate that there is a decline in the populations of fisher across the landscape as a result of these stressors such that they meet the definition of an endangered or threatened species pursuant to the Act (see **Determination**, above). The best available information does not support the assertion that fishers are having difficulty finding mates to reproduce because of habitat fragmentation or the toxic effects of rodenticides.

Fuels Treatments

(197) Comment: One Federal commenter and one local government noted that fuels treatments on public lands were not examined in the draft Species Report. Further, they articulated that strategic fuels treatments are necessary to return stands to their historical condition, which will benefit the conservation of fisher habitat within California, particularly in high fire hazard areas on Forest Service lands, or other lands that are currently overstocked with trees and consequently drawing too much groundwater.

Our Response: We briefly discussed fuels treatments under the "Current Vegetation Management" stressor and "Summary of Effects of Habitat Stressors" in the draft Species Report (Service 2014, pp. 85–96, 108–110), and have added a section specific to Fuels Reduction Treatments in the final Species Report. As we note in these sections, vegetation management is a broad term that encompasses many types of activities that impact fisher habitat. Fuels treatments are an example of vegetation management. We did not differentiate fuel treatments by land ownership for the same reason that we did not differentiate the different types of vegetation management activities, because data were not available to differentiate acres of those specific treatment types across the proposed DPS.

We recognize that fuels treatments, when appropriately applied, may reduce habitat quality at the local scale in the short term to facilitate reducing the scale and severity of future fires in the landscape. We have added a section to our final Species Report titled **Conservation Measures That May Reduce Impacts of Fire Effects** that discusses some of the key fuels reduction programs being implemented on public lands within the analysis area. An analysis of impacts to groundwater from fuels treatments is outside the scope of this action.

(198) Comment: Many commenters opposed a final rule that weakens the Endangered Species Act protections for the fisher in favor of "fisher-friendly forestry." One commenter stated that not listing the fisher would result in the Service lessening the obligation of the ESA upon industries that degrade habitat in pursuit of a greater profit margin.

Our Response: Section 4 of the Act requires that we make a decision as to whether a species warrants listing based *solely* on the basis of the best available scientific and commercial data information (emphasis ours). We cannot consider the potential political, social, or economic ramifications of a listing in our final determination. Consistent with our statutory standard, based solely on our assessment of the best scientific and commercial data available, we have concluded that the proposed DPS does not meet the definition of an endangered or threatened species throughout all or a significant portion of its range; therefore, we are withdrawing the proposed rule to list the West Coast DPS of fisher (see **Determination**, above). Our decision should not be construed as lessening the need to conserve fishers in the west coast States and their habitat. We intend to continue monitoring fisher populations and managing for their conservation, in partnership with other Federal, State, and private entities in the States of Washington, Oregon, and California.

(199) Comment: Two commenters emphasized the benefits of fuels treatments (one commenter provided research information showing that fishers can tolerate some level of fuel treatment activity). One of these commenters specified that the benefits of fuels treatments in reducing the risk of destructive wildfire outweighs the short-term negative effects to habitat of reductions in canopy cover and numbers of downed logs and snags. A third commenter stated that logging has been stymied, fires have been suppressed, and lawsuits have prevented implementation of necessary fuel treatments. One of these commenters also voiced that fuel treatments should be addressed "first, before focusing on any particular species." Should the Service list the proposed West Coast DPS of fisher, one of the commenters expressed trepidation that associated

regulations would impose new restrictions on the Forest Service's ability to carry out fuel treatments on ridgetops.

Our Response: We understand the concerns and frustrations of the commenters and recognize that fuels treatments may have beneficial effects to fishers (see our responses to *Comments (44)*, *(45)*, and *(197)*, above). We are not entirely certain what the commenter means by focusing on fuels treatments prior to any particular species. If the commenter is suggesting that we need to remedy the situation between logging, wildfire suppression, and litigation prior to evaluating a species for listing, then that is outside the scope of the current action and the process by which the Service reviews species for listing under the Act.

Genetics

(200) Comment: One public commenter and one Federal agency indicated that reconnecting the SSN and NCSO populations may not be important, as suggested by recent research that says these two populations are genetically distinct. The Federal agency also suggested that the two populations could be managed separately as long as the SSN population is independently viable.

Our Response: We appreciate the concerns expressed by the commenter and Federal agency; however, the question of whether or not to try to connect the SSN population to the NCSO population is a management issue beyond the scope of this listing determination.

(201) Comment: One commenter asserted that the Service should describe the NCSO and SSN population size and isolation separately because there is no information

in the draft Species Report to support the NCSO population being genetically isolated or contracting.

Our Response: We are unsure as to what further distinction the commenter is asking for, as we discuss the NCSO and SSN populations separately throughout the entirety of the draft Species Report, as well as in our final Species Report. See also our response to *Comment (242*).

(202) Comment: Two commenters disagreed with our characterization of the SOC population as being reintroduced because the source population was not west coast fishers. The commenters asserted that this population comprises fishers that are descendants of fishers introduced from Minnesota and British Columbia and, therefore, have genetic stock that is not native to Oregon or California. To further the conservation and ensure recovery of fishers in the west coast States, the commenters suggested that a recovery team evaluate and propose how to contend with this subpopulation, with a recognition that further genetic research may be necessary.

Our Response: Per section 4 of the Act and its implementing regulations, we have carefully assessed the best scientific and commercial data available regarding the past, present, and future threats to the proposed West Coast DPS of the fisher, and we have determined that the threats we identified in the proposed rule are not now, and will not in the foreseeable future, act on the species in such a way that the fisher meets the definition of an endangered or a threatened species. Consequently, we are withdrawing our proposal to list this DPS (see **Determination**, above). We understand the point made by the commenter. The genetic distinctions between the SOC and NCSO populations

will continue to be considered as we move forward with their management, regardless of Federal listing status.

(203) Comment: One commenter expressed concern regarding the idea that the Klamath River or the Klamath River Highway could potentially serve as a barrier to dispersal. The commenter noted that Farber and Schwartz (2007) did not find that fishers north of the Klamath River were genetically different from fishers to the south.

Our Response: We stated in the draft Species Report that there is information from one study in northern California indicating that fishers have crossed both the Klamath River and a two-line paved highway to interact with fishers on the other side of these features, thus maintaining genetically homogenous populations on either side of these features (Farber and Schwartz 2007, Tab 6)" (Service 2014, p. 100). We presume that the commenter misinterpreted information in the draft Species Report, which indicates the Klamath River and Klamath River Highway do not serve as barriers to dispersal.

(204) Comment: One commenter stated that the Olympic Peninsula is not a unique population, and suggested that this population does not meet the criterion for significance in the Service's 1996 DPS policy. Specifically, the commenter asserted that the genetic stock was not unique on the Olympic Peninsula when it was introduced to the area and that the stock exists from the fisher's origin in Canada.

Our Response: We did not assess whether the fisher population on the Olympic Peninsula, if analyzed alone, would or would not be significant as defined in our 1996 DPS policy. The subject of the present evaluation is the proposed West Coast fisher DPS, as delineated in 2004 (April 8, 2004; 69 FR 18770). The reintroduced Olympic

Peninsula population falls within the boundaries of this proposed DPS, and we do not disagree that the Olympic Peninsula fisher population has a genetic origin from British Columbia. However, this fact has no bearing on our conclusion that the proposed West Coast DPS of fisher does not meet the Act's definition of an endangered or threatened species throughout all or a significant portion of its range (see **Determination** and *Significant Portion of the Range*, above).

Habitat

(205) Comment: One Federal agency commented that our characterization of available habitat for the SSN population was incorrect. Specifically, the agency stated that habitat amount and distribution are not a limiting factor because there is unoccupied habitat north of the Merced River and that demographic factors are likely preventing fishers from expanding into that available habitat.

Our Response: Sampling and modeling efforts have not detected significant increasing or decreasing trends for fisher in the SSN population (Sweitzer *et al.* 2015a, p. 785). The fisher in the SSN population appears to be limited by available habitat throughout a majority of its range. The exception is the region north of the Merced River, which at present is unoccupied (Service 2016, pp. 40, 48–50). It is not known why fisher have not colonized into their former range north of the Merced River in Yosemite National Park. Lack of sufficient recruitment (demography) for the population to expand may be a factor (Sweitzer *et al.* 2015a, p. 785). The short juvenile dispersal distances documented for the species may also be a factor (Service 2016, pp. 13–14). A s noted in our final Species Report, new information suggests that potential suitable habitat is increasing in the SSN population area (Spencer *et al*. 2016, pp. 42–44). Based upon our

evaluation of all of the best scientific and commercial data available, we have concluded that the availability of suitable habitat is not a limiting factor for the proposed West Coast DPS of fisher (see **Summary of Factors Affecting the Species**, above).

(206) Comment: The State of Washington agreed that there are significant portions of the fisher's historical range in Washington that contain large areas of contiguous high-quality habitat, most notably the National Forests and National Parks on the Olympic Peninsula and in the Cascade Mountain Range. While these areas are only part of the fisher's historical range, the State considered these areas as adequate to support self-sustaining fisher populations in Washington, and suggested that restoring fishers to these areas would constitute substantial recovery of the species. The State mentioned that there are other areas that were part of the historical range (much of the Puget Sound) that could no longer support fisher populations and portions of the historical range (southwest Washington, south of Grays Harbor and the Chehalis River, and west of Interstate 5) where fisher populations could be restored if forest management targeted the development of habitats that support reproductive females (see Lewis 2014). The State also articulated that the maintenance of southwest Washington as managed timberland (as opposed to urban or agricultural areas, for example) allows for land management actions (e.g., longer rotations, increased production of large snags and down logs, protection cavity trees, designation and protection of reserve areas and habitat corridors of older forests) that can improve habitat conditions for fishers and support fisher population expansion into these areas.

Our Response: As noted in our evaluation of habitat-related stressors in this document (see **Summary of Factors Affecting the Species**, above), based upon our

evaluation of all of the best scientific and commercial data available, we have concluded that the availability of suitable habitat is not a limiting factor for the proposed West Coast DPS of fisher.

(207) Comment: One commenter stated that the draft Species Report implies that retained vegetation is not valuable unless it is retained in perpetuity, which is a position not supported in the literature. The commenter continued by stating that the report acknowledges protection requirements for northern spotted owls, bald eagles, and great blue herons, but discounts their contribution to fisher success with the statement, "[W]ith the exception of the no-cut riparian buffer, these are not intended to be retained long-term. Furthermore, these areas, at best, would only provide individual structures and small pockets of habitat in a landscape that is otherwise typically managed for industrial timber harvest with short rotations and limited opportunity to grow into suitable fisher habitat." The commenter asserted that the Service's statement mischaracterizes both the magnitude of the retained habitat and its importance to fisher. Finally, the commenter explained that landowners must retain a 70-ac (28.3-ha) core of habitat around northern spotted owl nests, a 330-ft (100.6-m) buffer around bald eagle nests, and a 300-ft (91-m) buffer around great blue heron nests, all of which remain in place for the length of time the nests are being used by the protected species and coincidentally provide potential fisher habitat.

Our Response: We respectfully disagree with the commenter's perception that we mischaracterized the retention of habitat and its importance to fisher. When any of the nests of the species mentioned are no longer active, there are no longer protections for that habitat under the FPRs (e.g., Oregon FPRs, OAR 629–665–0010). Therefore, these

areas may be subject to future vegetation management, including harvest and removal of habitat suitable for fishers. Further, while we recognize that forests are dynamic, the current management regimen on much of the industrial forest land base precludes the likely development of these types of patches once they are lost. Finally, given that a female fisher's home range averages 18.8 km^2 (7.3 mi^2), the size of these patches of potential fisher habitat are clearly not sufficient on their own to sustain fisher life-history needs (Service 2014, pp. 11, 135). Therefore, we maintain our position that such small areas protected for the benefit of these other species would result in little benefit to fishers in terms of protecting the structures and large areas of habitat they require, although, depending on the surrounding landscape and the configuration of these patches, they may facilitate movement of fishers between more suitable habitat patches.

(208) Comment: One commenter asserted that their observations of fisher have not been in "classic old-growth of late-successional reserves," and noted that canopy closure is important but other factors are at play.

Our Response: We acknowledge that fisher are known to use a variety of forest types if they are structurally complex and have relatively high canopy cover. As described in our final Species Report, multiple studies have independently and consistently identified high canopy cover as one of the most important variables associated with fisher occupancy (Service 2016, pp. 65, 68, 77, 86, 89). The commenter did not articulate what the "other factors at play" are so we are not able to provide further response in that regard. Please also see our response to *Comment (57)*, above.

(209) Comment: One commenter asserted that fisher have been detected at open sites (i.e., water holes with no trees in sight, or areas that burned 40–50 years ago with

high canopy) as opposed to just heavily forested areas. Relatedly, two additional commenters stated that the Service overemphasized the importance of the late-seral stage of forested areas when describing fisher habitat in the draft Species Report and proposed rule. A fourth commenter stated they detected fishers in areas with little late-successional habitat but complex structures and a variety of seral stages, thus highlighting why the Service should reemphasize that fisher use a wide variety of habitats when complex forest structures are present.

Our Response: We assume the commenter's statement about "high canopy" refers to the height to live crown distance, and not that the actual percent canopy cover was high. Generally speaking, fisher avoid non-forested habitats as they are more susceptible to predation when there is a lack of hiding cover; this is not to say, however, that fisher may not be observed in such areas on occasion. An abundance of coarse woody debris, boulders, shrub cover, or subterranean lava tubes sometimes provide suitable overhead cover in non-forested or otherwise open areas for daily movements, seasonal movements by males, and juvenile dispersal (Buskirk and Powell 1994, p. 293; Powell *et al.* 2003, p. 641). We received many comments regarding our perceived overemphasis on fisher use of late-successional forests; please also see our response to *Comment (57)*, above regarding fisher use of multiple forest types.

(210) Comment: Many commenters asserted that habitat loss has led to the fisher's extirpation in all but a few areas, including destruction of natural resources that it depends upon. Some commenters were more specific in the locality where they believe habitat loss is greatest (i.e., Sierra Nevada) or the mechanism for the loss (i.e., logging activities, illegal marijuana grows). One commenter described that the habitat loss now

favors generalist species (such as grey fox or striped skunk), which displace and compete with fishers. Another commenter requested the Service address the importance of the loss of structural habitat elements in fisher habitat in the final rule.

On the other hand, many commenters claimed that there is an abundance of habitat throughout the fisher's range. Several asserted that there is substantial suitable habitat that benefits fishers on Federal lands (LSRs and other NWFP reserves) and outside of the NWFP area, including on private lands and public lands managed under the SNFPA (e.g., Southern Sierra Fisher Conservation Area, Giant Sequoia National Monument). One of the commenters noted the Service's recognition of the existing reserves and limitation of timber management to Matrix areas in the NWFP, and application of other minimization measures (e.g., Survey and Manage standards and guidelines), all of which, according to the commenter, resulted in marked decline of timber harvest activity in the Pacific Northwest. Another asserted that habitat loss does not appear to be the primary reason that fishers are absent throughout Oregon and Washington, given the historical and current abundance of suitable habitat that was never or minimally modified (particularly in Oregon and Washington), and evidence from historical records that fishers were rare or not well distributed throughout western Oregon and Washington. One of the commenters asserted that overharvesting through fur trapping is the most plausible hypothesis for why fishers are absent from large areas of suitable habitat in these two States (as expressed by Aubry and Lewis (2003) who concluded that over-trapping appears to have been the primary initial cause of fisher population losses in the Pacific States). Several commenters also asserted that the currently unused suitable habitat areas on both Federal and non-Federal lands will be

augmented by a long-term increase in availability of fisher habitat under Federal management plans, private conservation plans, and forest practices regulations applicable to non-Federal timberlands. Finally, one of the commenters concluded that, given the vast acreage of late-successional and old-growth habitat within the NWFP area (10.6 million ac (4.3 million ha), the fact that fisher habitat is not limited to these older forests, and evidence of frequent occurrence of fishers on managed landscapes, shows that habitat availability is not an impediment to fishers.

Our Response: Our draft Species Report identified habitat loss as the result of one or more stressors to fisher, and acknowledged that the scope and severity of habitat-related stressors differ across the analysis area, as noted by the commenters. Habitat loss and fragmentation may be compounded by a number of factors, which may include competition for prey and suitable den and rest sites. Habitat components important to a fisher's use of stands and the landscape can be identified broadly as structural elements (for example, snags, down wood, live trees with cavities, and mistletoe brooms), overstory cover (dominant, co-dominant, and intermediate trees), understory cover (vertical and horizontal diversity), and vegetation diversity (floristic species) (Lofroth *et al.* 2010, pp. 119–121). Both the draft and final Species Reports provide an appropriate emphasis on the importance of structural elements of fisher habitat in our discussions of fisher biology and our assessment of stressors.

While both the draft and final Species Reports document past and ongoing activities that contribute to habitat loss for fisher, we agree that there are large areas of apparently suitable but unoccupied habitat for fisher across most of the proposed West Coast DPS, although to a greater extent in the northern portion of the proposed DPS's

range. The current distribution of fisher, based on the best available scientific and commercial information, is noticeably less than its historical distribution (Service 2014, p. 25, Figure 5). However, evidence suggests that a number of factors, not limited to relative habitat abundance, may explain why fisher are not known to fully occupy its historical range (e.g., other historical stressors such as past trapping and intentional poisoning) (Service 2014, pp. 39–40; please also see our response to *Comment (40)* regarding historical trapping and distribution of fisher and fisher habitat, as well as our responses to *Comments (176)* and *(177)*.

Regarding reduced timber activity since implementation of the NWFP, we note in our final Species Report the overall decline in timber harvest throughout the proposed DPS, not just the NWFP area, since 1990, acknowledging that the high rates of timber harvests that historically affected fishers has dramatically declined. However, we wish to clarify timber management is not limited to Matrix land use allocations under the NWFP. Timber management may occur within Riparian Reserves and late-successional reservess when it is consistent with Aquatic Conservation Strategy objectives and for the development and conservation of late-successional conditions, respectively.

We received multiple comments on fisher use of managed forests and have addressed this in our final Species Report (see our response to *Comments (57) and (217)*). We also received multiple comments on the recruitment of fisher habitat on Federal and non-Federal lands, and the extent to which regulatory mechanisms may provide for fisher habitat. We agree that many of the current management plans in place (e.g., NWFP, SNFPA) will contribute to the protection and further recruitment of additional suitable habitat for fisher within the west coast States, and have expanded this

discussion in the "Vegetation Management" section of our final Species Report. Please see our responses to *Comments (38), (42), (75),* and *(229)*. We have ultimately determined that stressors resulting in habitat loss do not pose a threat to the proposed DPS.

(211) Comment: One commenter requested that we address the need for field verification of snag retention in the final rule because "structural habitat components are likely missing or at a lower density than required within habitats that are part of greater planning efforts."

Our Response: Snags, in addition to other structural elements, are key components of fisher habitat that are used for denning and resting. The final Species Report cites multiple references demonstrating the importance of these features. Field verification of snag retention could be important to determining the potential for denning or resting areas by fisher, but certainly should not be the only factor used to determine habitat suitability. That being said, it is important to understand that we cannot require Federal land management agencies or non-Federal land managers to field verify whether their own regulations are or are not being met.

(212) Comment: One commenter expressed concern that the Service did not adequately discuss the quality of fisher habitat on NPS lands. The commenter stated that the Service should more carefully evaluate the potential suitability of NPS lands as fisher habitat to better understand the severity (or lack thereof) of habitat as a stressor given NPS's focus on conservation and preservation.

Our Response: NPS lands account for a relatively small portion of the proposed West Coast DPS, approximately 4.53 percent of the area (Service 2014, p. 239). Of the

NPS lands within the proposed DPS, approximately 36.5 percent were modeled as intermediate- and high-quality habitat (Service 2014, p. 239). While this may appear to be a relatively low percentage given their natural resource management objectives, much of the National Park Service ownership in the analysis area is classified as alpine and above the elevations expected to provide habitat for fishers. The draft Species Report discussed the contribution of NPS lands to fisher habitat and stressors potentially present on those lands (see Service 2014, pp. 125–126, 239, and Appendix A). Similarly, our discussion of stressors potentially acting on fisher by subregion considers all lands within that subregion, including NPS lands.

(213) Comment: One commenter asserted that the Service's analysis of habitat-related stressors was significantly overestimated. The commenter stated that the analysis: (1) Did not use a habitat layer representing the total amount of fisher suitable habitat (as described in the "Habitat Association" section of the draft Species Report (Service 2014, pp. 13–18)); (2) used spotted owl habitat as a surrogate for fisher habitat; (3) overstated the amount of fisher habitat that would be lost or rendered significantly less suitable for fisher use due to the habitat-related stressors; and (4) arbitrarily assigned a 60–80 percent severity index to current management activities on Federal lands.

Our Response: In response to the commenter's first point, we used the best available scientific and commercial information to develop a seamless habitat model to approximate habitat conditions within the proposed West Coast DPS of fisher. We encourage the commenter to read the white paper describing how the habitat model was developed (*Habitat Modeling Methods for the Fisher West Coast Distinct Population Segment Species Assessment*, which is available as Appendix B in the final Species

Report). Also, please see our other responses to habitat model *Comments (60)* through *(73)*, and *(219)* through *(227)*.

We received numerous comments regarding our use of northern spotted owl habitat as a surrogate for fisher habitat and our assessment of the habitat loss stressor. We were able to utilize other datasets for our analysis in the final Species Report, and did not use northern spotted owl habitat as a surrogate; please see our responses to comments related to northern spotted owl habitat as a surrogate (*Comments (79), (80), (233)* through *(235)*.

We received numerous comments on our quantitative calculations of scope and severity of stressors potentially impacting the proposed West Coast DPS of fisher (see explanation in *Summary of Basis for This Withdrawal* and **Determination** sections, above). In response to those comments, we no longer rely on quantifying stressors in our final Species Report, as in many cases they required extrapolations where specific data were not available, and may have implied a false sense of precision in our assessment. In our final Species Report, we instead provide a qualitative categorization of stressors to better explain the degree of impact a stressor may have on fishers or their habitat (Service 2016, pp. 57–58). Our assessment of the severity and scope of stressors from the draft Species Report is preserved in Appendix C of the final Species Report.

(214) Comment: Two commenters asserted that fishers have been detected in areas consisting of ponderosa pine plantations, scattered pine Douglas-fir and white fir remnants, and scarce hardwood habitat areas. A second commenter also stated that fishers have been detected in 15–20-year-old plantations. The commenters concluded that fishers use a wider variety of habitats than those described in the Species Report.

Our Response: The draft Species Report reported fisher use of a wide variety of habitat types including managed landscapes and stands that are not mature or late-successional (Service 2014, pp. 13–18). We did receive additional information in this regard, however, and have revised and expanded our discussion of this topic in the final Species Report (Service 2016, pp. 15–21).

(215) Comment: One commenter stated that the draft Species Report and proposed rule assessment of the potential impacts of vegetation management is flawed in several ways, including failure to clearly describe and incorporate the results of habitat modeling, failure to discriminate between effects in occupied versus unoccupied portions of the analysis area, failure to evaluate potential ingrowth of habitat, and failure to rigorously assess the potential amount of vegetation management in the future.

Our Response: The draft Species Report (Service 2014, pp. 18–19) provides an overview of habitat models we reviewed, and how and why we developed our own habitat model. We developed a white paper to provide additional information on the development of the model (see *Habitat Modeling Methods for the Fisher West Coast Distinct Population Segment Species Assessment*, available as Appendix B in the final Species Report). Please also see our responses to comments related to the Habitat Model.

We based our assessment of future vegetation management upon the best available scientific and commercial information. As described in the draft Species Report, we considered habitat information completed by others and we used harvest rates over the past 10 years to provide reasonable projections of ongoing and future vegetation management (Service 2014, pp. 85–96). We also acknowledged that there is much

variation in harvest rates by landowner and forest type, which lead to assumptions about the scope and severity of future vegetation management (Service 2014, pp. 92–95).

In our final Species Report, in response to peer review, public comment, and new information received during the comment period, we have again evaluated the potential impacts of vegetation management throughout the proposed West Coast DPS of fisher. New data that became available to us allowed us to estimate habitat recruitment throughout most of the analysis area, and address many of the concerns expressed by the commenter. Please also see our responses to *Comments (75)*, *(229)*, and *(230)*. Finally, we received numerous comments on our quantitative calculations of scope and severity of stressors potentially impacting the proposed West Coast DPS of fisher in our draft Species Report. In response to those comments, we no longer rely on such quantitative assessments in our final Species Report as they implied a false sense of precision in our assessment. For this reason, in our final Species Report we provide a qualitative assessment of stressors to better explain the degree of impact a stressor may have on fishers and/or their habitat.

(216) Comment: One commenter asserted that fisher recovery depends on protection of habitat connectivity to facilitate genetic exchange. The commenter stated that there is a lack of exchange between Oregon's Siskiyou Mountains and the introduced populations in the southern Oregon Cascades, suggesting there is not enough suitable habitat to facilitate dispersal. Likewise, the commenter stated that there is no exchange between the northern California population and SSN population. The commenter provided several suggestions for areas in need of habitat connectivity/corridors to facilitate genetic exchange, both within populations (e.g., Southern Sierra Nevada) and

between populations (Southern Cascades up to the introduced population in the Olympics).

Our Response: Contrary to the commenter's statement, there is evidence of individuals from the NCSO population occurring in the same geographic area as SOC individuals. Recent and ongoing camera surveys have and are informing our understanding of the distribution of these two populations. There is mixed opinion on the degree to which genetic exchange should occur between the NCSO population and either the SSN or the SOC populations, both of which are genetically distinct and have been separated from the NCSO population. We will be considering the value and risks of genetic exchange and genetic isolation among these populations as we move forward with their management. See also our response to *Comment (136)*.

(217) Comment: One commenter stated that the scope and severity analysis for habitat significantly overstated the past and future effects of habitat destruction, modification, or curtailment. The commenter asserted that the common thread for fisher habitat association is diversity; fishers need diversity of successional stages and forest structures to provide for varied life functions, whereas the draft Species Report and proposed rule overemphasized fisher reliance on older forests. The commenter acknowledged that fishers need some older forest stages for den sites, but a full range of successional stages and forest structures for its prey base, and that these varied habitat structures should be arranged in a mosaic across the landscape in areas sufficient to support fisher home ranges. In a similar vein, one Federal agency offered the Ashland watershed study area of the Rogue River-Siskiyou National Forest as an example of an area where fishers use a wide variety of habitats, although denning activity is constricted

to where denning habitat, characterized by the presence of suitable denning structures (snags, hardwoods), occurs. The Federal agency suggested that this denning habitat is one of the key limiting factors for fisher.

Our Response: Please see our responses to *Comments (28)* and *(57).* We have ultimately determined that stressors resulting in habitat loss do not pose a threat to the proposed DPS. Per section 4 of the Act and its implementing regulations, we have carefully assessed the best scientific and commercial data available regarding the past, present, and future threats to the proposed West Coast DPS of fisher and are withdrawing our proposal to list this DPS (see **Determination**, above).

Habitat Conservation Plans (HCPs)

(218) Comment: One commenter stated that the Service must make it a priority for the conservation of fishers in the west coast States to provide resources and action to assist Green Diamond in completing the Forest HCP in a timeframe that rewards Green Diamond for more than 20 years of investments in conservation, making it one of the best private land conservation partners in the history of implementing the Act. The commenter also stated that not supporting Green Diamond (either intentionally or by neglect) would appear as a punishment given their management of timberlands to provide a healthy population of fishers. The commenter stated that without a Forest HCP in place, it will become a liability if the fisher is listed and Green Diamond has no incidental take permit coverage for fishers.

Our Response: We commend the dedication of Green Diamond for the conservation of fisher and other natural resources on its land holdings. While we are withdrawing the proposed rule to list the DPS under the Act (see **Determination**, above),

this decision does not mean that no conservation actions are needed for fisher and its habitat within the west coast States. Rather, we acknowledge stressors acting on fisher and its habitat will continue now and into the future, and will still require management by all interested parties, including Federal, State, and private entities. We will continue to work with Green Diamond and other landowners and managers for the conservation of fisher.

Habitat Model

(219) Comment: One Federal agency stated that the habitat model did not accurately identify a substantial amount of suitable habitat available in Crater Lake National Park that could be important for the recovery of the fisher, particularly in light of concerns related to climate change that may reduce fisher habitat into the future. Although the map included in the draft Species Report suggests that nearly 90 percent of the Park is not considered fisher habitat, the Federal agency (National Park Service) claimed that they have information (from both observations and collared fishers) indicating the presence of fishers in areas that the model describes as "selected against." In addition, the Federal commenter stated that two of three fisher sightings in the Park were in winter, suggesting fisher utilize habitat in the park year-round.

Our Response: Fisher use of areas that receive high amounts of annual snowfall, such as Crater Lake National Park, is variable across the range of the species (Service 2014, p. 14). The two fishers detected in the Park in winter represent a small sample size and do not provide a statistically viable dataset. While the detections may demonstrate use of an area that often receives high snowfall, the best available scientific and commercial information does not provide sufficient information to determine if these

observations are typical or are anomalies. We also note that relatively few of the fisher detection locations provided to us were in areas classified as "selected against." The habitat model for Crater Lake National Park was fitted using reliable fisher detection locations collected within and near the park, as well as other reliable fisher detection locations from the Klamath and Southern Cascades regions. However, much of the area of the park was classified as habitat that, at the landscape scale, fishers would be likely to select against. If this classification is correct, it does not mean that fishers would never travel through such a landscape, but rather that fishers would generally use landscapes like these at a much lower rate than would be expected if fishers used all types of landscapes in proportion to the availability of each type of landscape. It is also possible that any future revisions of the model might benefit from a refinement of the modeling regions so that fisher habitat use in the Southern Cascades might be examined separately. However, given the small number of fishers known to use landscapes categorized as "selected against" by the habitat model, we do not anticipate that any such refinement would alter our conclusions about the status of the proposed West Coast DPS of fisher.

(220) Comment: The State of Washington claimed that the habitat model used by the Service overestimates the amount and extent of high-quality habitat in southwestern Washington (south of State Highways 8 and 12 and west of Interstate 5), and the western coastal portion of the Olympic Peninsula. The State articulated that these landscapes are dominated by early-seral and young mid-seral stands, and are unlikely to provide sufficient high-quality habitat to support reproductive females. The State also asserted that the habitat model used for the fisher analysis underrepresents the extent of high-quality or moderate-quality habitat in the Washington Cascades, in particular at higher

elevations and on the east side. The State declared that these comments regarding the accurate representation of the Service's model are based on the findings of the habitat analysis provided by Lewis and Hayes (2004), and the resource selection findings presented by Lewis (2014, chapter 3). If the model is used for the final rule, the State requested that more details are provided for readers that describe how the model was developed and what measures were used.

Our Response: For information about the development of the habitat models used in the Species Report, we encourage the commenter to read the white paper describing how the habitat model was developed (*Habitat Modeling Methods for the Fisher West Coast Distinct Population Segment Species Assessment*, available as Appendix B in the final Species Report). The development of habitat models for Washington was a challenge, given that we were unable to gain access to location data from the fishers reintroduced to the ONP, and there are no other recent, reliable fisher location data for Washington. Therefore, for southwestern Washington and coastal areas of the Olympic Peninsula, we used a projection of a model developed for the Northern California and Southern Oregon Coast, and for the Washington Cascades and Olympic Mountains, we developed expert models.

We agree with the State's characterization of the lands in southwestern Washington and the western coastal portions of the Olympic Peninsula, and we also agree that the habitat model likely overestimated the suitability of these landscapes for fishers. Although there was high environmental similarity, in terms of the variables used in the model, between this region and the region for which the model was developed, the relationship between the model variables and the landscape suitability for fishers

apparently differs between the two regions (see also our responses to *Comments (63)* and *(68)*). However, a reevaluation of the quantity and quality of suitable fisher habitat in this area of Washington, where fishers are generally rare or absent, would be very unlikely to change the determination to withdraw the proposed rule. Therefore, we have not revised the habitat model for this area.

Regarding differences between the habitat model used in the draft Species Report and the model presented by Lewis and Hayes (2004), as we noted in our response to *Comment (69)*, it appears to us that the differences between the two models are relatively minor. We agree that there are some differences between the two models in the quantity of habitat shown at high elevations and on the east side of the Cascades. Since both models are expert models, and fishers are only now being reintroduced to the Washington Cascades, it is impossible to know at this time whether one model is more correct than the other.

Regarding the use of resource selection functions derived from reintroduced fishers on the Olympic Peninsula, please see our response to *Comment (68).*

(221) Comment: Two commenters expressed concerns regarding the habitat variables used for the model that defined the three habitat categories (low, intermediate, and high), and they requested more explanation/detail from the Service as to the number of acres associated with each of the three categories by the different subregions, and (in general) more clarity and explanation of the methods to better understand the modeling process, definitions, assumptions, validation, and applicability of the results.

Our Response: The explanation/detail requested by the commenters is outlined in the updated white paper describing how the habitat model was developed (*Habitat*

Modeling Methods for the Fisher West Coast Distinct Population Segment Species Assessment, included Appendix B of the final Species Report).

(222) Comment: One commenter stated that it was unclear how the habitat model could be used to determine habitat selection and suitability given that it appears the model is based on presence-only data. The commenter asserted that habitat selection analysis typically requires an assessment of habitat use versus availability, and it does not appear that the Service collected information on unused/available habitat.

Our Response: Presence-only data are commonly used to fit models of habitat suitability and habitat selection. Maxent, which we used to fit models for the modeling regions within California and Southern Oregon, is a particularly widely used presence-only habitat suitability modeling platform that is well-accepted in the scientific community. Both Maxent modeling and strength-of-selection evaluation rely on comparisons between used and available habitat. "Available habitat" refers to all areas within the modeling region, whether they are used, unused, or unsurveyed. Data describing available habitat come directly from the environmental data layers used in the model, and no additional data are required to identify "available" habitat. In contrast, presence-absence habitat suitability and selection models require input data identifying locations where the species is absent. Although we did have data on locations with negative survey results for fishers, these could not be used as model input in the presence-only Maxent models. However, after the models were developed we did compare the negative survey results with the model results. This comparison is described in the final Species Report.

(223) Comment: One commenter requested more clarity and explanation of methods to better understand the modeling process, definitions, assumptions, validation, and applicability of results. The commenter stated that given the large uncertainty with the model, it is difficult to assess the validity of assertions used in the report. Additionally, the commenter stated that there is no description of model assumptions or how they may affect model projections, and the uncertainty over the model also limits evaluation of the scope and severity of effects of many of the fisher habitat stressors.

Our Response: We encourage the commenter to read the updated white paper, which addresses the commenter's concerns and describes how the habitat model was developed (*Habitat Modeling Methods for the Fisher West Coast Distinct Population Segment Species Assessment*, included as Appendix B of the final Species Report). In addition, we recommend the commenter to review the other responses to comments on the habitat model in this section.

With regard to the evaluation of scope and severity of stressors, the habitat model was used only in the evaluation of habitat stressors related to wildfire and linear features. Furthermore, the final Species Report has been revised to emphasize qualitative analyses of these stressors, and the quantitative analyses that relied on the habitat model have been moved to Appendix C. Because the habitat model played such a limited role in the evaluation of stressors, especially in the final Species Report, any uncertainties inherent in the model results had little influence on our conclusions about the effects of the stressors.

(224) Comment: One commenter stated that the Service did not tie together the analysis completed to create the fisher habitat model with the analysis process used for a

northern spotted owl consultation, which they believe is necessary to do given the Service's use of northern spotted owl habitat as a surrogate for fisher habitat (denning and nesting sites), and because of the fisher's use of a mosaic of habitat types. The commenter also stated that the Service's claim that the removal or modification of northern spotted owl nesting-roosting-foraging habitat is equivalent to tracking the removal or modification of fisher habitat is unsupportable by the best available science.

Our Response: The commenter may have misinterpreted our use of northern spotted owl consultation data, which was used as a rough index to estimate the scope of fisher habitat loss to vegetation management activities on Federal lands throughout the analysis area in the absence of quantitative data specific to fisher habitat trends across the proposed DPS. In any case, in our final Species Report, we did not rely upon documented section 7 consultations on northern spotted owl suitable habitat as a surrogate for evaluating the effects of vegetation management on fisher habitat. The NWFP 20-year late-successional old-growth monitoring report (Davis *et al.* 20XX, entire) provided us with an excellent source of information specific to changes in forests with old-forest structural characteristics throughout the majority of the analysis area; this report, in conjunction with other data specific to the Sierra Nevada, formed the foundation of our final evaluation of fisher habitat in the final Species Report. Please also see our response to *Comment (79)*.

(225) Comment: One commenter stated that the Service's habitat analysis model provided an important foundation for several of the analyses in the draft Species Report. However, while the methodology for the habitat model itself was made available for public input in advance of the proposed listing rule, the commenter stated that

important portions of the results were not provided. Thus, the reviewer questioned what the characteristics were for forests of high- and intermediate-quality habitat, how the definitions were derived, and how habitat definitions and quantities and fisher use compare to the other habitat quantification method used for the northern spotted owl.

Our Response: We encourage the commenter to read the updated white paper describing how the habitat model was developed (*Habitat Modeling Methods for the Fisher West Coast Distinct Population Segment Species Assessment*, included as Appendix B of the final Species Report). Additional information is now included in the white paper regarding the variables used to generate the model in regions where Maxent modeling was used. (Information regarding the variables used to generate the expert models was included in the earlier version, and is still included.)

We are unable to answer the commenter's question about comparisons between our fisher habitat model and the northern spotted owl habitat surrogate. The quantification of northern spotted owl habitat downgraded or removed on Federal lands was derived from a non-spatial database, so the locations of these areas of downgraded and removed habitat cannot be precisely identified in relation to the fisher habitat map. Furthermore, a variety of methods were initially used to identify the northern spotted owl habitat, including professional judgment by local biologists working in the area of each action. It is likely that most of these designations were made at the scale of a single forested stand or treatment unit, whereas our fisher habitat model was developed at the landscape scale. Even if we knew all of the methods used to designate northern spotted owl habitat and had all of the maps depicting the locations of the now-removed

habitat, it would be inappropriate to compare the two directly, because of the difference in scales.

However, we have now developed other methods to determine how much fisher habitat has been altered by vegetation management on Federal land (see the "Vegetation Management" section of the final Species Report (Service 2016, pp. 98–111)), and we are no longer relying on the northern spotted owl habitat surrogate. Therefore, it would no longer be relevant to attempt such a comparison between fisher habitat and the northern spotted owl habitat surrogate, even if it were possible to do so. Please also see our responses to *Comments (79)* and *(224)*.

(226) Comment: One commenter stated that the habitat model would be inappropriate for use in describing habitat and species distribution of forestlands with moderate to open canopies where complex forest structures are present. This commenter claimed that both habitat fragmentation and isolation were overstated by the Carroll *et al.* (1999) model, and found the Zielinski *et al.* (2010) model to have a correct classification of fisher habitat. The commenter was concerned that the habitat model used for the proposed rule appears to rely on forest canopy closure and would not be able to predict forest structures needed by fisher.

Our Response: Although previous research has repeatedly shown that fishers are associated with landscapes with a high proportion of dense forest cover, there have been fewer studies of fisher habitat use in drier regions were canopy cover and closure are relatively low, such as the Eastern Cascades or the Kern Plateau, and we acknowledge that canopy cover or closure may not be associated with fisher habitat use in the same

way in these regions as in those regions where fisher habitat use has been more thoroughly studied.

We disagree with the commenter's characterization of our habitat model as "relying on canopy closure." Although canopy cover was one component of the fisher habitat model used in the draft Species Report, it was not the only component, and it was only used in some of the modeling regions. In the expert models used for the Washington and Oregon Cascades, canopy cover was handled differently on the eastern and western sides of the Cascade Crest, in light of the more open forest conditions that prevail on the east side. The expert models also included a measure that was related to the likely presence of structures that fishers could use for denning and resting, and was not related to canopy cover.

The commenter is correct that the model does not, and is not intended to, predict the specific locations of forest structures needed by fishers, especially given that the model is useful on the landscape scale and not on the scale of individual trees. However, at least in regions where the expert model was used, it does incorporate the likely presence of these structures on the landscape into the assessment of fisher habitat suitability.

For more information, we encourage the commenter to read the updated white paper describing how the habitat model was developed (*Habitat Modeling Methods for the Fisher West Coast Distinct Population Segment Species Assessment*, included as Appendix B of the final Species Report).

(227) Comment: One commenter asserted that habitat quality (as shown in the legend label in Figure 2 of the draft Species Report) is typically based on an association

with a demographic parameter, and it is not evident that the Service used demographic information in their analysis. Therefore, the commenter suggested that the Service avoid any conclusions regarding habitat quality.

Our Response: There is no single, standardized definition of the phrase "habitat quality." We acknowledge that some scientific researchers and authors prefer a definition that refers to demographic or fitness effects associated with habitat characteristics, but this usage is not universal. Our use of the term was meant in a more generic way, and we did not intend to imply any conclusions regarding the effects of the habitat categories on the demographic parameters of fishers that might be present.

Habitat Recruitment

(228) Comment: One commenter stated that although the draft Species Report includes several statements acknowledging that habitat ingrowth could be a factor offsetting habitat loss, the Service declined to provide any quantitative or qualitative analysis of this effect, citing the "high degree of uncertainty. " Further, the commenter stated that despite the Service not considering habitat ingrowth, the Service proceeded to estimate the scope and severity of vegetation management by applying a speculative extrapolation of harvest rates on non-Federal lands from the most recent decade to the entire 40-year period. The commenter asserted that this approach creates a one-sided analysis of the stressor, and believes this was an important factor in designation of vegetation as a threat in the proposed rule. The commenter stated that the 40-year period is long enough to accrue a substantial estimated impact from a hypothetical degree of habitat removal, but not accounting for habitat ingrowth over the same period eliminates any balancing of effects. The commenter articulated that several available sources

indicate that ingrowth could be substantial over the course of a 40-year foreseeable future (e.g., Spies *et al.* (2007a, Fig. 3), USDA Forest Service and USDI BLM (1994)). Also, the commenter stated that there are numerous timber growth and yield models that have been extensively tested within the analysis area. In summary, the commenter proclaimed that the analysis leading to designation of vegetation management as a threat to the fisher in the proposed rule (Factor A) is imbalanced and indefensible due to the unsupported selection of the 40-year foreseeable future and the refusal to account for ingrowth.

Our Response: We understand the concerns of the commenter and have addressed many of these in our responses to peer review comments regarding habitat recruitment (see our responses to *Comments (42)* and *(75)*). We appreciate the references for ingrowth over the course of a 40-year foreseeable future (please see our response to *Comment (174)* for an explanation of how we derived our foreseeable future timeframe, as well as an expanded discussion in our final Species Report (Service 2016, pp. 100–110). The commenter indicated that there are numerous timber growth and yield models that have been extensively tested within the analysis area; however, the commenter did not provide any further information on the models for us to consider or evaluate further. In the end we chose to use the NWFP 20-year monitoring report tracking changes in old-growth and late-successional forests (Davis *et al.* 20XX, entire). This information tracked changes by disturbance type over a 20-year period. We also tracked vegetation changes outside of the NWFP area using a GNN dataset. Both of these tools accounted for ingrowth. See also our response to *Comment (75)*.

(229) Comment: Several commenters expressed concern that the draft Species Report and proposed rule did not adequately address the potential for regrowth (i.e.,

ingrowth or recruitment) of fisher habitat, particularly on NWFP and other Federal lands as a result of various regulatory measures, to better understand the relationship of habitat recruitment to fisher viability. One commenter specifically stated that vegetation management is not a threat, noting that the Service's analysis only considered losses of vegetation/habitat. Two other commenters asserted that forest growth has exceeded forest harvest in the prior 2 decades, and it may continue over the 40-year analysis period considered in the draft Species Report. Finally, one commenter claimed that it is a reasonable assumption that harvest on privately managed lands exceeds that of harvest on Federal- and State-managed lands given different objectives for each of those landowners. This commenter also stressed a concern that the Service's analysis of habitat stressors related to vegetation management resulted in only negative effects to fisher habitat given that private forest landowners are required to demonstrate a balance of harvest and growth.

Our Response: We understand the concerns of the commenters and have addressed many of these in our responses to *Comments (38), (39), (42),* and *(75)*. We agree with the commenter that it is reasonable to assume harvest on non-Federal lands will exceed harvest on Federal- and State-managed lands and noted that in the draft and final Species Reports. The NWFP 20-year old-growth and late-successional monitoring report that we used to assess habitat recruitment and habitat loss due to vegetation management also confirmed that harvest rates on Federal lands are substantially less than on non-Federal lands (Davis *et al.* 20XX, p. 24). We also used Davis *et al.* (20XX, entire) to track net vegetation change in the NWFP area, and GNN data (LEMMA 2016) to track net vegetation change outside of the NWFP area. Based on these data, the

commenter is correct in that, in some portions of the NWFP area, forest ingrowth has exceeded timber harvest over the past two decades. We have used all of this information in our assessment of vegetation management as a stressor to fishers.

(230) Comment: One commenter asserted that recent protocol-compliant surveys following wildfires (specifically referencing the 1992 Fountain Fire in California) have shown significant detections of fishers, indicating that habitat regrowth/ingrowth following fires has occurred. The commenter believes that taking this type of information into account when considering habitat recruitment is critical given that fire is likely the most significant stressor facing the fisher.

Our Response: Fires can cause reductions to or removal of important elements of fisher habitat, including vegetative diversity, overstory canopy cover, understory cover, and key structural elements (large hollow trees, large down logs, large live trees) (Service 2014, p. 59). The effects to fisher habitat are related to fire severity. For example, low-severity fire may reduce some habitat elements while increasing others; however, high-severity fire is more likely to remove forest cover from large blocks of habitat. (Service 2014, p. 59). The recovery of the forest understory after low-severity fire, especially on productive sites, can occur within one fisher lifetime (Naney *et al.* 2012, p. 6). Research specific to the degree to which fishers use post-fire landscapes is extremely limited, but we have updated the final Species Report to reflect all of the best scientific and commercial data available to us on the topic, including the observations of fishers following the Fountain Fire (Service 2016, pp. 66–67). We thank the commenter for providing the data associated with their study so that we may continue to better understand the use of post-fire landscapes by fisher.

Maps/Sightings

(231) Comment: One commenter requested that data in Figures 6 through 9 of the proposed rule be more clearly stated, also recommending that the Service follow the example provided by Aubry and Lewis (2003; Figure 2), using data (reliability 1 and 2) for the last 20 years. The commenter stated that although they have concerns about incorrect interpretations that can be drawn from sighting data that include points with reliability ratings of 3 and 4, they are also concerned with conclusions that can be drawn from specific points in Washington with reliability ratings of 1 and 2. For example, two of the most recent reliability 2 observations were likely to be of two fishers that escaped from Northwest Trek Wildlife Park (observations #53 and 54 in Appendix A of Lewis and Stinson [1998]) and, therefore, they do not indicate native Washington fishers, or the existence of a small population or the remnants of one. In addition, the commenter noted an incorrect interpretation that could be made from the observation of a fisher reintroduced (and radio-collared) in Montana that dispersed to Washington and was recovered in Stevens County in 1994 (observation #55 in Appendix A of Lewis and Stinson 1998). The commenter stated that the most recent reliability 1 observation of a fisher that could be native to Washington was collected near Lilliwaup Swamp in the eastern portion of the Olympic Peninsula in 1969 (Observation #52).

Our Response: We have revised the legends in Figures 6-9 of the final Species Report to more clearly describe the data presented in each (Service 2016, pp. 33–36). We agree that fishers were likely extirpated from Washington prior to reintroductions starting in 2008, and acknowledge that this comment represents the best summary and most supportable conclusion regarding the history of fisher extirpation in Washington.

Accordingly, we included the commenter's description of recent fisher detections in Washington into our description of past and current distribution in the final Species Report. However, Figures 8 and 9 were included in the Species Report to show the approximate historical distribution of fishers, and are not meant to display a temporal or spatial history of likely fisher extirpation in Washington, especially since the range of reliability ratings in each of these figures is different. Figure 8 presents fisher detection locations with all reliability ratings (1–6) to illustrate the probable historical distribution of fishers. Figure 9 illustrates that fishers still occurred at various locations throughout their historical distribution during the period of 1953 to 1993. In this figure, reliability ratings of 5 and 6 are not depicted due to their low reliability.

(232) Comment: One local government stated that the map included in the proposed rule was confusing and unclear about how the fisher's listing may impact Inyo County, and specifically requested that the Service provide a better map to gauge the potential effects of the listing action. Another local government stated that the maps were at too broad a scale to be helpful, also requesting the basis for the boundary in a final listing document. Finally, another commenter stated that they question the validity and accuracy of maps in Figures 8 and 9 (believes data are missing between the two maps) of the draft Species Report.

Our Response: We understand the concerns about needing to clearly identify which areas were included in our proposed listing rule. In this final finding, however, we are withdrawing our proposal to list the West Coast DPS of fisher (see **Determination**, above). Therefore, we will not be providing additional maps in this final finding that would provide the requested clarification.

We assume that one commenter misunderstood the content contained within Figures 8 and 9 of the draft Species Report. Figure 8 depicts all locality records (reliability ratings 1 through 6) prior to 1993. Figure 9 depicts a subset of these records for the time period between 1953 and 1993 for reliability ratings 1 through 4. Figure 9 is a subset of the data contained in Figure 8 and, therefore, contains fewer points than Figure 8. In our review, the data in these maps are valid and accurate.

Northern Spotted Owl (NSO) Habitat Surrogate

(233) Comment: One tribe in the State of Washington stated that northern spotted owl habitat is not a good surrogate for fisher habitat because fisher may use younger forests in Washington that have resting and denning structural elements. Additionally, the tribe mentioned that tribal lands in western Washington impose riparian protection where logging occurs and in some instances employ a reserve system that protects significant stands of late-successional forest. The tribe further articulated that the draft Species Report ignored these contributions to fishers in terms of current habitat conditions and recruitment of habitat for the future, thus likely inflating the risks to fishers in Washington from habitat loss.

Our Response: The tribe may have misunderstood our use of northern spotted owl habitat as a surrogate. We did not use any northern spotted owl habitat surrogate to calculate the amount of habitat for fishers in Washington now or in the future. The loss or degradation of northern spotted owl suitable habitat as documented through section 7 consultation was used only as a proxy to estimate the potential threat from loss of fisher habitat on Federal lands (see also our response to *Comment (79)*). Regardless, in our final Species Report, we did not need to rely on northern spotted owl habitat as a

surrogate for fisher habitat loss or degradation, as the results of the NWFP Monitoring Report (Davis *et al.* 20XX, entire), and other data, became available to us, providing superior datasets for this analysis.

The conservation value of some tribal lands for fisher, including the Makah Reservation, was described in the draft Species Report (Service 2014, pp. 127–128). Although recruitment of habitat (ingrowth) on non-Federal lands was not explicitly considered in our draft Species Report, the availability of the NWFP Monitoring Report mentioned above provided us with the data to estimate ingrowth over the past 20 years within that portion of the analysis area that overlaps with the NWFP (which covers most of the proposed West Coast DPS, with the exception of the Sierra Nevada and east of the Cascades). Also see our response to *Comment (188)* for a discussion of the value of managed forests to fisher; we have broadened our discussion of this topic in our final Species Report.

(234) Comment: One Federal commenter asserted that the northern spotted owl habitat is a useful proxy for fisher habitat in some parts of fisher range, but is inappropriate in California and not useful in the NWFP area. The Federal commenter stated that fishers use habitat types that northern spotted owls do not, especially because northern spotted owls are not present in the southern portion of the fisher's range. Additionally, the Federal commenter noted that northern spotted owl critical habitat does not include wilderness, Jeffrey pine, or serpentine soil areas and, therefore, leaves out some fisher habitat. Another Federal commenter also cautioned the Service in using northern spotted owl habitat as a surrogate for fisher habitat because while northern spotted owl nesting/roosting habitat is likely fisher habitat, not all fisher habitat is

northern spotted owl nesting/roosting habitat, particularly in areas where hardwoods (e.g., oak) are a component and may provide cavities suitable for fisher denning. Additionally, this second Federal commenter stated that in the drier forests in southwest Oregon, some areas not considered northern spotted owl habitat (especially with important fisher habitat characteristics such as hardwoods and cavities) may function as denning habitat.

Our Response: At least one of the commenters may have misunderstood our use of section 7 consultations on northern spotted owl suitable habitat on Federal lands within the NWFP area (see our response to *Comment (233))*, and confused northern spotted owl suitable habitat (which we did use to estimate the scope of fisher habitat loss to management activities) with northern spotted owl critical habitat (which we did not use; see our response to *Comment (80)*). In any case, as described in our response to *Comment (79)*, in our final Species Report, we did not use northern spotted owl habitat as a surrogate to evaluate the effects of management activities on fisher habitat in the analysis area, as better data became available to us for this purpose.

(235) Comment: One commenter suggested that the Service use spatial data, other land cover data, and herbicide application rates to understand change within the same timeframe as the northern spotted owl habitat data to obtain a more complete picture of fisher habitat loss.

Our Response: We appreciate the suggestion. However, we used the most relevant data coverages of which we are aware for our analysis, and the commenter did not provide us with any specific information with regard to other sources of data that we may have overlooked.

Policy

(236) Comment: One local government entity criticized the "single species" focus of the listing proposal, stating that the CEQA and NEPA require consideration of impacts of the proposed rulemaking to humans. The commenter requested that the Service take the following into consideration in the final listing determination: (1) Impacts to the human environment such as management to reduce insect and disease damage and catastrophic fire risk, as well as the promotion of watershed health; (2) benefits of post-fire salvage logging (we presume the commenter means benefits to the human environment, not to fishers); and (3) timber targets and their relationship to jobs in mills.

Our Response: The CEQA and NEPA regulations referenced by the commenter do not require proposed listings under the Endangered Species Act to consider effects on the human environment, nor can we, by law, consider potential economic impacts of a Federal listing in our determination. On the contrary, the Endangered Species Act lists the specific factors we must use to determine whether or not a species meets the definition of an endangered or threatened species, and Section 4 of the Act requires that we base this decision based solely on the best scientific and commercial data available (see also responses to *Comments (122)* and *(158)*.

(237) Comment: One commenter expressed concerns that a final listing determination could disrupt the collaborative work on fisher conservation that has been ongoing in the SSN population, particularly if listing leads to closure of the last remaining timber mill, which would make it more difficult to carry out fuels treatments.

Our Response: Please see our responses to *Comments (122), (158),* and *(236)* for a description of the factors that we may consider in making a listing determination under

section 4 of the Endangered Species Act, which does not include concerns such as those noted by the commenter here. In any case, as noted previously, we are withdrawing the proposed rule to list the fisher under the ESA (see **Determination**, above).

(238) Comment: One commenter asserted that listing the fisher will lead the Forest Service to manage for one species at a time rather than managing for "the whole ecology of the forest." For example, the commenter stated that the Federal listing of the northern spotted owl has restricted logging in the Sierra Nevada and prevented appropriate fuels treatments and prescribed burning, leading to an unhealthy forest more susceptible to catastrophic wildfire. The commenter proclaimed that listing of the fisher or any other additional regulation will be counter-productive to fisher conservation and cause all the species of the forest to be "doomed."

Our Response: Please see our responses to *Comments (122), (158),* and *(236)* for a description of the factors that we may consider in making a listing determination under section 4 of the Endangered Species Act, which do not include concerns such as those noted by the commenter here. In any case, we are withdrawing the proposed rule to list the fisher under the ESA (see **Determination**, above). We recognize the authorities and independent missions of Federal agencies to manage their resources and support their efforts in management of ecosystems and species alike. While we have determined that the fisher does not meet the definition of an endangered or threatened species under the Act, we will continue to work cooperatively with Federal agencies to conserve fisher and its habitat in the west coast States for the continuing benefit of the American people.

(239) Comment: One commenter expressed concern that the proposed designation of critical habitat was not published concurrently with the proposed listing

rule. Furthermore, the commenter is opposed to the development of a section 4(d) rule that would promote fisher-friendly forestry and weaken protections for the fisher under the Act.

Our Response: In the proposed rule to list the DPS, we stated that critical habitat was not determinable; a not determinable finding regarding critical habitat provides additional time (1 year) under our implementing regulations at 50 CFR 424.17(b)(2). However, as we have now determined the proposed West Coast DPS of fisher does not meet the definition of an endangered or a threatened species, we are withdrawing the proposed rule to list the DPS (see **Determination**, above), and we will not be issuing a proposal to designate critical habitat. Neither will we be considering a section 4(d) rule for the proposed DPS since 4(d) rules can only be promulgated for species listed as threatened under the Act.

(240) Comment: One commenter asserted that although surveys for fishers are not complete for all regions of its range, the best available information documents that the fisher is in danger of extinction. The commenter also stated that the Service's failure to conduct surveys for fisher "does not give the Service a free pass to deny listing to a species that is struggling to survive and is considered likely to be extirpated throughout a significant portion of its historic range," and that the Service "must rely on the available data to make a scientific determination." Finally, the commenter declared that the lack of scientific certainty regarding the population trends of fishers in Oregon and Washington due to the Service's own failure to complete population surveys should not support a not warranted determination, and that the courts have declared that the Service must provide benefit of the doubt to the species.

Our Response: We do not agree with the commenter's assessment. Section 4 of the Act requires that we make a determination with regard to whether any species is an endangered species or a threatened species solely on the basis of the best scientific and commercial data available after conducting a review of the status of the species. Here we have conducted a thorough status review, received extensive peer review and public comment, and considered all of the best scientific and commercial information available regarding the status of the fisher, including new information received during our open comment periods. We agree it would be preferable to have more extensive survey data throughout the fisher's range in the west coast States; however, we must make our decision based on the best data available to us at the time of our determination. Furthermore, we wish to point out that there is no requirement for the Service to conduct surveys for fisher, as implied by the commenter. The best available data do not indicate significant impacts at either the population or rangewide scales, currently or in the future. As a consequence, we cannot conclude that fishers in the proposed DPS are in danger of extinction throughout all or a significant portion of their range, or likely to become so within the foreseeable future (see **Determination**, above). The commenter additionally suggests that fishers have been extirpated from a significant portion of their historical range; this concept does not enter into our consideration, however, as fishers cannot be in danger of extinction or likely to become so in a portion of their range where they no longer occur. As explicitly stated in our final SPR policy, we do not base a determination to list a species on the status (extirpated) of the species in its lost historical range (July 1, 2014; 79 FR 37577, p. 37583).

The lack of scientific certainty regarding a species' range, status, or population trend is not a basis for listing a species under the Act. Although absolute certainty is not required, there must be sound scientific support for a listing decision. Per section 4 of the Act and its implementing regulations, we have carefully assessed the best scientific and commercial data available regarding the past, present, and future threats to the proposed West Coast DPS of the fisher, and we have determined that the threats we identified in the proposed rule are not now, and will not in the foreseeable future, act on the species in such a way that the fisher meets the definition of an endangered or a threatened species. Consequently, we are withdrawing our proposal to list this DPS (see **Determination**, above).

(241) Comment: One commenter asserted that the Service's proposed rule to list the West Coast fisher DPS as threatened is a direct acquiescence to the demands of extreme environmental groups as opposed to the use of best available science.

Our Response: As required by section 4 of the Act, we base all decisions regarding the potential listing of a species solely on the basis of the best scientific and commercial data available; see also our responses to *Comments (122), (158),* and *(236),* and *(240).* The 2004 decision that listing was warranted but precluded, the 2014 proposed rule to list the species, and this withdrawal of the proposed listing rule are not exceptions. Despite our final determination that the protections of the Act are not warranted for the fisher at this time, we will continue to work cooperatively with all interested parties in the conservation of fishers in the west coast States and their habitat.

Population Estimates

(242) Comment: Several commenters expressed their general support of the proposed rule to list the West Coast DPS of fisher as threatened due to declines in the NCSO and SSN populations. Alternatively, several other commenters stated or cited information that indicates the overall populations are not declining, including some areas particularly in the NCSO population that are stable or increasing. One commenter asserted that despite potential threats to the NCSO and SSN populations, they are not declining (citing support for this with Higley and Matthews (2009), Swiers (2013), and Zielinski *et al.* (2013)), and another commenter specifically noted that some studies in small portions of the NCSO population that may show a decline are not indicative of the entire NCSO population. Another commenter stated that the Service should describe the NCSO and SSN population sizes and isolation separately, claiming that there was no information in the draft Species Report to support NCSO as genetically isolated or contracting (and citing Service (2008)), thus indicating that the NCSO population range has been consistent for 75 years.

Our Response: We appreciate the various opinions expressed by commenters related to whether the NCSO and SSN populations have declined. Our draft Species Report identifies the uncertainties associated with relative population stability for the NCSO (Service 2014, p. 38) and SSN (Service 2014, p. 42) populations. We reviewed numerous pieces of information provided during the open comment periods, as well as information in our files, and have considered and incorporated the new information, where appropriate, into our final Species Report. To clarify for the reader, Service (2008) states: "Because there is no apparent significant decrease in the *extent* of geographic distribution in NCAL [northern California-southwestern Oregon regional

population], we infer some level of regional stability over the last 75 years, and conclude that the NCAL population meets the assumption of stability for the VORTEX modeling exercise." Our understanding of the extent of the NCSO population has not changed since this 2008 reference, except for the expansion of the population as a result of the NSN reintroduction. Regarding the request that we describe the NCSO and SSN population sizes and isolation separately, we are unsure as to what further distinction the commenter is asking for, as we discuss the NCSO and SSN populations separately throughout the entirety of the draft Species Report. Similarly, we have appropriately and accurately represented the data provided in Self *et al.* (2008) for the general reader, and direct those wishing more detail on methods and results to the reference itself. Please also see our response to *Comment (201)* above.

(243) Comment: One commenter asserted that the draft Species Report fails to produce a reasonable estimate of the extant NCSO population, and further suggested that the Service's estimate of "as few as 258 animals in NCSO population" defies any reasonable logical analysis. The commenter stated that the Service should provide a more precise population range for the fishers in the NCSO population in order to make a fair assessment of the risks to fishers in this population area. Another commenter requested the Service conduct a population viability analysis of the NCSO population, asserting that there is no other way to determine the effect of stressors or their trend on the NCSO population.

Similarly, another commenter asserted that the Service neglected to acknowledge what is known about fishers in the NCSO population/region, including overestimated impacts of stressors. This commenter also declared that the analysis of impacts to the

NCSO population was arbitrary and capricious, citing numerous studies (i.e., [Klug 1997, Farber and Franklin 2006 (although this appears to be incorrect and should be Farber and Franklin 2005), Aubrey and Raley 2006, Clayton 2013]) that do not document any long-term decline in this fisher population. Finally, this commenter also noted that reintroductions help demonstrate that both the NCSO and SSN populations are stable or expanding.

Our Response: We appreciate the opinion of both commenters. However, the final Species Report presents the best available information regarding the status of the NCSO population, including the applicable references provided by the commenter (see the "Population Status" section of the Species Report (Service 2016, pp. 42–48) and *Species Information*, above. As noted above in our response to *Comment (252),* we reviewed a substantial amount of new information during the open comment periods. The new information, in addition to our analysis of the best scientific and commercial data available at the time of the proposed listing rule, was considered for this final decision. Please also see our response to *Comment (81)* above. With regard to the request for a population viability analysis, we consider those population viability analyses provided in peer reviewed literature and other reputable unpublished documents.

(244) Comment: One commenter asserted that the overall fisher population is sufficiently robust to remain viable and thus does not warrant listing. Additionally, the commenter noted that the draft Species Report supports this conclusion through its discussions on recent detections of individuals that have been found where prior surveys did not detect them, all of which indicate the proposed DPS may actually be larger than estimated. The commenter said this is also supported by studies cited in the draft Species

Report (e.g., Self *et al.* 2008) that have estimated the West Coast fisher population to be large, even though more information is needed to adequately determine the population size of fishers in southwest Oregon and northwest California. Another commenter similarly noted that the Service has underestimated the overall population size, as demonstrated, for example, by the recent discovery of fisher by ODFW in the Middle Fork Willamette watershed. As such, this second commenter asserted that a statistically valid population estimate should be conducted throughout the entire region, including wilderness areas and areas outside known inhabited areas, prior to any listing decision.

Our Response: As noted above, we reviewed a substantial amount of new information during peer review and public comment periods. All of this new information, in addition to our analysis of the best scientific and commercial data available at the time of the proposed listing rule, was considered for this final decision. Some of this information includes new estimates of population abundance, reproduction, and population growth for fisher populations within the proposed DPS; all of this information is incorporated into our final Species Report and is summarized in this document. We interpret the commenter to be recommending that additional information be collected to support a statistically valid population estimate. We agree that additional surveys would be beneficial in deriving a more robust population estimate, but we must make our listing determinations using the best scientific and commercial information available at the time of the listing determination (see our response to *Comment (230)*. Thus, we cannot delay making a listing determination while additional survey data are collected. Please also see our response to *Comment (81)*.

We also wish to correct the commenter's apparent presumption that the recent detection of a single fisher in the Middle Fork Willamette watershed is indicative of a population increase. We have no population estimates for the SOC population, and even if we did, this single sighting would not affect any existing estimate. Second, even without a population estimate, this sighting, while encouraging, is not necessarily indicative of a population expansion of the SOC. There has been little monitoring of the northern portion of this population to assess distribution; furthermore, in the late 1990s a dispersing juvenile male from the SOC population was radio-tracked to the Deschutes National Forest, roughly due east of the recent Middle Fork sighting but across the Cascade crest (Aubry and Raley 2006, p. 5). This alone is not sufficient information to suggest that the SOC population has expanded since the early 1990s.

(245) Comment: One commenter disagreed with the Service's conclusion that "the greatest long-term risk to fishers [is] the isolation of small populations and the higher risk of extinction due to stochastic events" and that "small population size constitutes a threat to fisher, now and in the future." The commenter noted that recent studies indicate that fisher in California and southern Oregon are stable and dispersing across the landscape, and that the fisher has endured all of the "stressors" identified in the draft Species Report for decades, or longer. Thus, the commenter stated that this information intuitively leads one to conclude that the fisher is not threatened or endangered.

Our Response: As noted above, we reviewed a substantial amount of new information that was made available during the open comment periods on our proposed rule. We have fully considered and evaluated all of the best scientific and commercial

data available for this final decision. As a result of this assessment, we have reconsidered our evaluation of the level of threat posed by small population size and isolation of fisher populations, and we no longer conclude that this stressor rises to the level of a threat for fisher in the sense that it is either singly or in concert causing the proposed DPS to be in danger of extinction now or within the foreseeable future. Based on our evaluation of fisher population persistence in the face of ongoing stressors, we conclude that the proposed West Coast DPS of fisher does not meet the definition of an endangered or threatened species under the Act and are withdrawing our proposed rule (see **Determination**, above).

(246) Comment: One commenter stated that throughout the draft Species Report, population-level impacts from stressors are rarely assessed, and it is seldom acknowledged that the degree of impact is largely or entirely speculative. Thus, the commenter asserted that the Service should not conclude that the fisher is likely to become endangered in the future if there is uncertainty as to whether the taxon is declining. The commenter requested that the Service better explain why purported threats rise to the level of threatened status given that the population trend in the NCSO is unknown, that the best available scientific information indicates that the population trend in the SSN is apparently increasing, and that actual effects of purported threats at the population level are unknown. Additionally, the commenter requested that the Service explicitly note that density estimates from various areas in the NCSO over the past 2 decades consistently fall within the range of 5 to 20 fishers per 100 km^2 (38.6 mi^2), and that the best available scientific information does not indicate any widespread decline in density.

Our Response: In our draft Species Report, the scope of a potential stressor was used to describe the proportion of a subregion expected to be affected by the stressor. Only the percentage of the population or analysis area subregion that may potentially be impacted by the stressor was assessed (Service 2014, p. 50). Therefore, depending upon the scope of any one stressor, it may or may not have been assessed at the population level. When the information available regarding a stressor was contradictory or included a wide range of values, we provided that information in the draft Species Report to demonstrate the uncertainty or variability of the data we reviewed (e.g., Service 2014, pp. 38, 60, 65–66, 80–81).

As suggested by the commenter, in this document we have clarified that although all species experience stressors, we consider a stressor to rise to the level of a threat to the species (or in this case the DPS) if the magnitude, intensity, or imminence of the stressor is such that it is resulting in significant impacts at either the population or rangewide scales. As described in our proposed rule (79 FR 60419, p. 60427), in considering what stressors might constitute threats, we must look beyond the mere exposure of the DPS to the stressor to determine whether the DPS responds to the stressor in a way that causes actual negative impacts to the DPS. In our draft Species Report, as described above, we attempted to evaluate the magnitude of the effects of identified stressors by quantifying the severity and scope of those stressors. However, that analysis required us to make assumptions or extrapolate impacts in an effort to quantify stressors in areas where stressor-specific information was not available. Our presentation of the scope and severity of stressors in quantitative terms may have created a false sense of the level of scientific accuracy underlying these estimates. To avoid this perception, in our final

Species Report we use a qualitative approach to describe stressors (i.e., stressors are categorized as low, moderate, or high, as defined in that Report). We use quantitative data wherever available, but if specific data are lacking, we rely on qualitative evidence to derive a qualitative descriptor of each stressor, based on the best scientific and commercial information available, rather than extrapolating.

In our final determination, we specifically evaluated whether there were any indications that the identified stressors acting on the proposed DPS were resulting in any significant impacts at either the population or rangewide scales to fishers or their habitat. The best available data for the NCSO population were included in that assessment. We did not find any indication that the stressors are manifesting themselves to a significant degree across the proposed DPS such that there are significant impacts (i.e., stressors functioning as operative threats) at either the population or rangewide scales. Thus, we conclude that the stressors acting on the proposed West Coast DPS are not so great that fishers in the DPS are currently in danger of extinction (endangered), or likely to become so within the foreseeable future (threatened). As a consequence, we are withdrawing our proposed rule to list the West Coast DPS of fisher (see ***Determination***, above).

(247) Comment: One commenter stated that the Service's analysis does not support the conclusion that "a significant amount of high quality habitat remains unoccupied within the current boundaries of the Northern California-Southwestern Oregon population." Specifically, the commenter expressed concern that the Service's discussion does not evaluate the validity of surveys with absence reported and the extent to which this lack impacts the analysis, and questions support for use of a 60 percent survey detection rate. Additionally, the commenter maintained that the Service's analysis

does not inform the public about the significance of the substantial amount of high quality habitat that remains unsurveyed.

Our Response: Figure 10 in the draft Species Report illustrates the surveyed and unsurveyed suitable habitat within portions of California and Oregon (Service 2014, p. 41). Information in the "Distribution and Abundance" section of the draft Species Report discusses the various sources of information that we used to determine where fishers are found (Service 2014, pp. 23–41). The draft Species Report (Service 2014, p. 39) notes that "Fisher detection probabilities are affected by latitude, season, type of survey, and survey effort (Furnas 2014, pers. comm.; Slauson *et al*. 2009, entire), but given reported fisher detection probabilities (reviewed by Slauson *et al.* 2009, pp. 15–19), we believe that 60 percent detection probability is a conservative estimate that does not place undue confidence in the accuracy of negative results." Finally, we assume the commenter is implying that the "substantial amount of unsurveyed high quality habitat" is significant because there may be more fisher present than current data indicate. However, the results of the Fisher Analysis Area Habitat Model (Service 2014, Figures 2 and 3) show that, in certain areas, connectivity within fisher population areas is disrupted as a result of habitat quality, possibly making it difficult for fishers to disperse into some habitat that may be suitable. Finally, it is possible that there are more fisher in areas of unsurveyed high-quality habitat, but at this time there are no data to support a conclusion that these areas are or are not occupied by fisher.

(248) Comment: One commenter asserted that there are fewer than 150 adult female fishers in the entire Sierra Nevada (although no citation was provided), indicating that Federal protections are warranted.

Our Response: We agree with the commenter that the SSN population is comprised of low numbers of individuals, although the exact number is uncertain (see the "Population Status" section of the final Species Report (Service 2016, pp. 48–50) for additional discussion. Estimates for the SSN population range from a low of 100 to a high of 500 individuals (Lamberson *et al.* 2000, entire). A recent estimate of 256 female fishers was based on available habitat (Spencer *et al.* 2016, p. 44). Other population estimates are: (1) 125–250 adult fishers (Spencer *et al.* 2011, p. 788); (2) less than 300 adult fishers (Spencer *et al.* 2011, p. 801); and 276–359 fishers including juveniles and subadults (Spencer *et al.* 2011, p. 802). Although we agree that this data does not indicate the SSN to constitute a large population of fishers, we additionally considered that all of the best scientific and commercial data indicate that this population has persisted at a relatively low population level for a very long time, in geographic isolation and in spite of the stressors acting on the population. We have no evidence to suggest that this population is in decline, or that its range is contracting. Finally, the SSN is only one of the fisher populations within the proposed West Coast DPS of fisher; as described above, our evaluation for the purposes of making a final listing determination was based on an assessment of the proposed DPS as a whole, as originally described in our proposed rule. When we considered all the potential impacts from the factors that may be affecting the proposed DPS, we determined there is no evidence to suggest significant impacts at either the population or rangewide levels, currently or in the foreseeable future (see the **Determination** and *Significant Portion of the Range* sections, above, for additional discussion). As our evaluation of all the best scientific and commercial data available did not allow us to conclude that the proposed DPS is in danger of extinction or likely to

become so throughout all or a significant portion of its range within the foreseeable future, we are withdrawing our proposal to list the West Coast DPS of fisher.

Prey

(249) Comment: One Federal agency stated that abundant large prey (i.e., greater than 7 ounces (200 g)) is likely a limited food source in the SSN population (citing unpublished data from Slauson and Zielinski).

Our Response: The main potential prey that is missing in the SSN population is the snowshoe hare (*Lepus americanus*). The best available data at this time does not indicate that the lack of this one species, which is also missing from much of northwestern California, is limiting the population of the fisher in this region.

(250) Comment: One commenter requested the Service acknowledge livestock grazing as a benefit to fisher. Specifically, the commenter asserted that vegetation management by livestock grazing allows easier access to prey for many species, including fisher. Another commenter argued that positive changes to the fisher's prey base as a result of vegetation management were overlooked in the Service's analysis.

Our Response: We are not aware of literature or reports specifically describing the benefits of livestock grazing on fisher prey, nor did the commenter provide any sources for our consideration. The second commenter is correct—our analysis of effects to fisher prey species was largely focused on negative impacts to prey habitat (e.g., Service 2014, pp. 87 and 109). We reviewed the documents suggested by the commenter and updated the final Species Report to reflect this new information.

Range Expansion

(251) Comment: One commenter contended that while the former range of fishers in the west coast States was substantially reduced by historical activities, there is no indication that the range presently occupied by the proposed DPS has diminished during the last 2 decades. Additionally, the commenter asserted that the proposed DPS's range expanded as a result of two reintroductions that appear successful, and there is also empirical evidence suggesting that the proposed DPS's range may have expanded naturally in recent years in eastern Shasta County, California. Thus, the commenter requested that the Service acknowledge in the final rule that the existing range is apparently stable or increasing, and evaluate whether purported threats rise to the level of threatened status in that context. Another commenter indicated that they are currently detecting fishers in areas where they did not occur 10, 20, and 30 years prior based on interviews conducted with long-time trappers and early survey efforts, indicating that fisher populations are growing and recolonizing a portion of the proposed DPS's historical range.

Our Response: In our draft and final Species Reports, we specifically note the differences of opinion regarding the question of whether fisher distribution was formerly relatively continuous across the west coast States, or naturally more disjunct (citing, for example, to differences between the view expressed by Grinnell *et al.* 1937, versus Knaus *et al*. 2011 or Tucker *et al*. 2012). The first commenter appears to refer to the newly introduced fishers within the Olympic and Stirling study areas. As stated in the draft Species Report, it is too soon to determine if the fishers reintroduced into these areas will persist (Service 2014, p. 43–46; Service 2016, pp. 50–53), although as discussed in the final Species Report and this document, initial indications are encouraging. The

reintroductions in these areas are within the proposed West Coast DPS of fisher and, therefore, would not result in expansion of the current DPS. The draft Species Report also notes the detections in eastern Shasta County, California, and our uncertainty as to whether these detections represent a possible expansion or are a result of wide-ranging or dispersing males (Service 2014, p. 34). Because data were not provided to support the claim that fisher now occupy areas they were not occupying 10 to 30 years ago, we are not able to verify the locations and/or reliability of the claims made by the second commenter.

In sum, although we do not have sufficient information to substantiate the claim that the range of fisher is expanding, we do agree there is no evidence that suggests that the present range of fisher has diminished within the past few decades. This was one of the considerations we took into account as we conducted our final evaluation of all of the best scientific and commercial data available regarding the status of the proposed West Coast DPS of fisher, including, as noted above, a substantial amount of new information obtained during peer review and public comment periods, recently published journal articles, and unpublished reports associated with management activities and research projects. All of this new information contributed to our conclusion that the proposed DPS does not meet the definition of an endangered or threatened species under the Act and, therefore, our final determination to withdraw the proposed listing of the West Coast DPS of fisher as threatened (see **Determination**, above).

(252) Comment: One Federal agency stated that the SSN fisher population is small (less than 500 individuals; Spencer *et al.* 2011), appears to be stable over about the

past decade (Zielinski *et al.* 2013), but apparently expanded in size and range from an even smaller population during the late 20th century (Tucker *et al.* 2014).

Our Response: Tucker *et al.'s* (2014, p. 131) statement of possible recent population expansion refers only to the northern portion of the SSN range, north of the Kings River. The small population size of fisher in the SSN population and the likely stability of the population are reflected in both the draft and final Species Reports. The long-term persistence of this small population, and lack of evidence for current or likely declines in the face of stressors, played a role in our final determination that the proposed West Coast DPS of fisher does not meet the definition of an endangered or threatened species under the Act (see also our response to *Comment (248)*).

(253) Comment: One commenter asserted that fishers have recolonized the central Sierra Nevada on the Stanislaus National Forest, per personal observations within areas where the taxon was thought to be extirpated.

Our Response: We use the best available scientific and commercial information to make determinations regarding listing species under the Act. Specifically regarding locations of fisher in the west coast States, as described in our draft and final Species Reports, we do not use anecdotal observations to support population distribution and extent, only verified location information based on track plate surveys, camera stations, scat, or other verifiable information. We appreciate the observation and comment.

Reintroductions

(254) Comment: Several commenters asserted that reintroduction efforts on managed timberlands in California (e.g., Stirling reintroduction area) and Washington have been successful. One of these commenters stated that the fisher has a history of

successful reintroduction efforts and the draft Species Report provides evidence that reintroductions are more likely than not to be effective in the west (citing Lewis and Hayes 2004, p. 5). This commenter also stated that the fisher translocation effort in northern California shows the value of encouraging private partners to be involved with fisher conservation and reintroduction. Although not articulated clearly by another commenter, we assume this commenter's statements are suggesting that reintroductions demonstrate the fisher's adaptability to areas actively managed for forest products, and their ability to survive on managed timberlands, thus reinforcing the concept that timber management is not a threat to the proposed DPS.

In contrast, another commenter stressed that insufficient time has passed since the Stirling reintroduction (and other reintroductions) to assess whether fishers will continue to do well in managed forests given those forests are gradually converting to even-aged plantations.

Our Response: While we are encouraged by the status of the reintroduction efforts, we agree that it is too soon to determine if fisher reintroduced in California and Washington will persist (Service 2016, pp. 50–53). However, we also agree that early results demonstrating reproduction in these populations are encouraging, and indications are that fisher reintroductions have a good likelihood of success. In addition, we agree there is value in encouraging private landowners to be involved with fisher conservation and reintroductions and we will continue to look for opportunities to partner with landowners to promote fisher conservation. Please also see our response to *Comment (85)* above.

(255) Comment: One commenter insisted that reintroductions of fishers should be the Service's primary goal as opposed to listing under the Act, especially given the extensive areas of unoccupied, suitable habitat and the likely unwillingness of private landowners to accept a listed species being present on their lands. Another commenter championed the Service's tools of creating (or continuing to finalize) candidate conservation agreements with assurances specifically in Oregon and Washington to ensure private landowner cooperation (e.g., preventing a barrier to reintroduction activities on private timberlands) with the Service's conservation objectives for this taxon.

Our Response: There are many tools that can be used to further species conservation. Listing under the Act is one of those tools, but it is not a discretionary tool. Section 4 of the Act lists the factors we use to determine whether or not a species is endangered or threatened, and requires that we make the determination based solely on the best scientific and commercial data available. In the case of the fisher, we have determined that the proposed West Coast DPS of fisher does not meet the definition of an endangered or a threatened species (see **Determination**, above). This means we are withdrawing our proposed rule and will not be enacting the protections of the Act at this time. However, this determination should not be taken to mean no further conservation measures to protect fishers in the west coast States are important or will occur. We encourage the continuation of other Federal, State, and private conservation efforts in the furtherance of fisher and habitat conservation, and are particularly supportive of efforts such as further reintroductions and the development of the mentioned CCAAs in Washington and Oregon, all of which we expect to contribute to maintaining and

increasing fisher populations, and precluding the need to revisit the conservation status of fishers in the west coast States in the future.

Rodenticides

(256) Comment: Several commenters requested more information on how listing the fisher under the Act would ameliorate the threat from ARs associated with illegal marijuana growers, as the growers are already acting in violation of Federal regulations. Several other commenters felt that listing the fisher would not reduce illegal anticoagulant rodenticide use, that more law enforcement presence was needed rather than additional regulations, that regulations would only impact legal use of rodenticides, and that more information on the threat was needed before increased resources were dedicated to the problem.

In contrast, several other commenters believed that listing under the Act would increase funding for the Federal Government to combat illegal marijuana growers. Other commenters urged the Service to enact stronger penalties for illegal use of anticoagulant rodenticides and to provide more funding for eradication efforts. One commenter stated that the Service should encourage the EPA to ban rodenticides within and adjacent to occupied fisher habitat.

Our Response: Section 4(a)(1) of the Act lists the factors we use to determine whether or not a species is endangered or threatened, as defined by the Act. Whether the Act can make a difference in ameliorating specific threats is not a consideration in our determination of whether the listing of a species is warranted; that determination rests solely upon our conclusion regarding the status of the species, as informed by the best

scientific and commercial data available. See also our responses to *Comments (122)* and *(241)*.

The Service does not have the authority to regulate the sale or use of toxicants, including ARs.

(257) Comment: Several commenters stated that illegal marijuana growers and ARs posed a significant threat to the fisher within the proposed West Coast DPS. One commenter stated that the loss of habitat was exacerbated by the threat from illegal marijuana growers. Two commenters urged the Service to list the fisher under the Act based on the impact of ARs given impacts from this stressor alone could drive the proposed DPS to extinction.

Our Response: We agree with the commenters that illegal marijuana cultivation and the use of ARs are a growing concern and a current stressor to fishers within the proposed DPS. Combined with habitat loss, among other factors, this threat may be acting synergistically and cumulatively to affect fishers in the proposed West Coast DPS. However, the best available information does not support concluding that these impacts rise to the level of a threat, based on the insufficient evidence that ARs are resulting in significant impacts at either the population or rangewide scales (see ***Exposure to Toxicants***, above).

(258) Comment: Some commenters stated that the use of anticoagulant rodenticides poses no risk to fishers because it occurs in urban and suburban areas. The commenters also stated that there has already been recent regulatory activity aimed at preventing wildlife exposures to rodenticide. They believed that more regulation of this

kind is unwarranted and would result in harm to human health by preventing necessary pesticide application in urban areas.

Our Response: The illegal use of ARs is a stressor to fisher in certain portions of its range, as discussed in our draft and final Species Reports. The claim that use of ARs is limited to urban and suburban areas and thus poses no risk to fishers is not supported by the evidence (Gabriel *et al.* 2012, pp. 11–13), which suggests that AR contamination of fishers is widespread and not clustered around urban or suburban areas. However, based on the best available scientific and commercial information, we have determined the level of this stressor alone and in combination with other stressors does not rise to the level of a threat such that the proposed DPS meets the definition of an endangered or threatened species (see ***Exposure to Toxicants*** and **Determination**, above). Thus, we are withdrawing the proposed rule to list the DPS. As noted above, the Service does not have the authority to regulate the sale or use of ARs or other pesticides or toxicants.

(259) Comment: One commenter provided data from a wildlife rehabilitation hospital in San Rafael, California, which indicated that among carnivores treated by that organization in 2013–2014, 86 percent tested positive for exposure to anticoagulant rodenticides (although we note that the commenter did not provide a ratio of mortality to non-mortality for the carnivores tested). In some cases this was sublethal exposure, and in other cases the animal died from toxicosis. The commenter stated that ARs are becoming more common, that the use of anticoagulant rodenticides poses a significant threat to predatory wildlife, and that in concert with small population size, the presence of anticoagulant rodenticides is making the fisher more vulnerable to extinction.

Our Response: We agree that 86 percent of carnivores testing positive for exposure to anticoagulant rodenticides is a high proportion, and reflects widespread exposure to anticoagulant rodenticides from a number of sources, not only illegal marijuana grows. However, this is only 1 year of data. We are not aware of any studies that have tracked the prevalence of ARs in wildlife over a number of years. Records on the sale and use of rodenticides do not exist, so it is not possible to determine whether ARs are becoming more common. Furthermore, we do not yet know what level of exposure creates sublethal effects that may compromise an individual animal's persistence. We agree that ARs currently pose a significant concern to predatory wildlife, as documented by a number of studies cited in the final Species Report.

We find that although individual fishers within three populations (i.e., NCSO, SSN, and ONP) have been exposed to toxicants at sublethal levels with an unknown degree of impact to those individuals, there is a lack of information rangewide regarding potential sublethal effects of toxicants to fishers within the proposed DPS. Only 15 mortalities directly caused by toxicant exposure have been documented within the native California populations Gabriel *et al.* 2015, p. 5; Wengert 2016, pers. comm.). Insufficient information exists regarding the extent of AR exposure in Washington and Oregon, and no rangewide studies have occurred to evaluate the population-level impacts across the fisher's range in the west coast States. Therefore, the best available information does not indicate that these impacts rise to the level of a threat, based on the insufficient evidence that ARs are resulting in significant impacts at either the population or rangewide scales.

(260) Comment: One commenter believed that the Service neither overstated nor understated the threat of toxicants to fishers in Washington.

Our Response: New information about rodenticide exposure to the fisher population in Washington documents that three fishers found dead from other apparent causes were exposed to ARs. None of these were in the vicinity of a known marijuana grow site, and they were found near rural areas where rodenticides could have been used legally on private land. However, insufficient information exists to draw any further conclusions regarding the impact that this exposure is having, either on individuals or the population.

(261) Comment: One commenter stated that the Service's analysis of ARs in the draft Species Report and proposed listing rule relied too heavily on information from public lands, where illegal marijuana grow sites are more common than they are on private lands. The commenter further noted that even on public lands, multiple studies have not observed a negative demographic response from fishers due to ARs (Higley and Matthews 2009, Swiers 2013, Zielinski *et al.* 2013), and that multiple California agencies are beginning to implement regulations that will help decrease the impact of anticoagulant rodenticides (such as forest practice rules and water quality laws). The commenter recommended that the Service review information on ARs on both public and private lands to better understand the impacts on fishers.

Our Response: We agree that more data are needed to assess the threat to fisher populations posed by the use of ARs on private lands, including the threat posed by legal uses, such as around homes, golf courses, agricultural buildings, and in forestry. We have reviewed the best scientific and commercial information available, including new

information received, which enabled us to provide clarity and corrections in the final Species Report (Service 2016, pp. 141–159) to some information that was presented in the draft Species Report (Service 2014, pp. 152–169). Unfortunately, no records exist on the quantities, locations, and use patterns for ARs applied on private lands. The extent to which the legal use of ARs occurs at agricultural and commercial sites within the range of the fisher is unknown. Two fisher carcasses from Oregon have been tested for rodenticides, of which both tested positive, and only three fishers can be confidently documented to have been exposed in Washington. The Washington fishers were not found in the vicinity of a known marijuana grow site, but were found near rural areas where rodenticides could have been used legally on private land. We note the lack of information rangewide regarding potential sublethal effects of ARs to fishers within the proposed West Coast DPS. Only 15 mortalities directly caused by AR exposure have been documented within the native California populations (Gabriel *et al.* 2015, p. 5; Wengert 2016, pers. comm.). Insufficient information exists regarding the extent of AR exposure in Washington and Oregon, and no rangewide studies have occurred to evaluate the population-level impacts across the fisher's range in the west coast States. We do, however, recognize Sweitzer *et al.'*s (2015b, p. 9) observation that exposure to ARs may affect fisher survival during the spring to mid-summer, although they were unable to make a direct link. At this time, we have determined that the best available information do not indicate significant impacts at either the population or rangewide scales (see ***Exposure to Toxicants***, above).

(262) Comment: One commenter believed that the magnitude of threat of ARs to fishers was overstated in the proposed listing rule and should be revised. The commenter

stated that only one fisher death could be attributed entirely to rodenticides, that all other detections of rodenticides were proximal to the actual cause of death, and that rodenticides do not reach a population-level threat. The commenter noted that there had been no evidence of fisher mortalities as a result of rodenticides at the Stirling reintroduction site.

Our Response: We have reviewed the best scientific and commercial information available, including new information received, which enabled us to provide clarity and corrections in the final Species Report (Service 2016, pp. 141–159) to some information that was presented in the draft Species Report (Service 2014, pp. 152–169). Two fisher carcasses from Oregon have been tested for rodenticides, of which both tested positive, and only three fishers can be confidently documented to have been exposed to, but not killed by, ARs in Washington. Insufficient information exists regarding the extent of AR exposure in Washington and Oregon, and no rangewide studies have occurred to evaluate the population-level impacts across the fisher's range in the west coast States. We note the lack of information rangewide regarding potential sublethal effects of ARs to fishers within the proposed West Coast DPS. At this time, we have determined that the best available information do not indicate significant impacts at either the population or rangewide scales (see ***Exposure to Toxicants***, above). See also our response to *Comment (261)*.

(263) Comment: One commenter believed the severity of the threat from ARs was understated in the draft Species Report and proposed listing rule and should be increased because: (1) The analysis does not account for rodenticide used to decrease vole and mountain beaver damage to conifer seedlings on some private lands in Oregon

and Washington; (2) the effects on fisher prey from such application of rodenticides is unknown; and (3) information on AR use by private industrial landowners is lacking. Based on these factors, the commenter stated that the Service should use a more conservative estimate of anticoagulant impact to fishers, especially in areas of high proportions of private land ownership.

Alternatively, another commenter believed the threat from ARs was overstated in the draft Species Report and proposed rule, and that it was unprecedented for the Service to take such a minor threat and state that it was affecting the species on a population level. The commenter stated that only 58 fishers total have been impacted by ARs per the draft Species Report, and added that pesticides in general are so ubiquitous in our environment that they would even be found in human livers.

Our Response: We agree that more data are needed to assess the threat to fisher populations posed by the use of ARs on private lands, including the threat posed by legal uses, such as around homes, golf courses, agricultural buildings, and in forestry. We have reviewed the best scientific and commercial information available, including new information received, which enabled us to provide clarity and corrections in the final Species Report (Service 2016, pp. 141–159) to some information that was presented in the draft Species Report (Service 2014, pp. 152–169). Unfortunately, no records exist on the quantities, locations, and use patterns for ARs applied on private lands. The extent to which the legal use of ARs occurs at agricultural and commercial sites within the range of the fisher is unknown. Two fisher carcasses from Oregon have been tested for rodenticides, of which both tested positive, and only three fishers can be confidently documented to have been exposed in Washington. Insufficient information exists

regarding the extent of AR exposure in Washington and Oregon, and no rangewide studies have occurred to evaluate the population-level impacts across the fisher's range in the west coast States. We note the lack of information rangewide regarding potential sublethal effects of ARs to fishers within the proposed West Coast DPS.

In reference to the potential effects of ARs on fisher prey, Wengert (2015, pers. comm.) reports that rodent diversity is reduced to only mice at marijuana cultivation sites that are treated with rodenticides, as compared to nearby untreated sites where large-bodied rodents (e.g., woodrats, squirrels, chipmunks), which are the prey species that the fisher prefers, are found. This provides support for the possibility that prey depletion may be associated with predator home range expansion and resultant increase in energetic demands, as well as other indirect effects such as prey shifting, impaired reproduction, and starvation.

With regard to the second commenter's assertions, Gabriel *et al.* (2015, p. 7) found that, between 2012 and 2014, AR exposure to fishers in two California populations has increased from 79 percent (46 of 58 individual fishers) to 85 percent (86 of 101 fishers). In addition, the draft (Service 2014, pp. 152–169) and final Species Reports (Service 2016, pp. 120–121) discuss the fact that for any contaminant, collection of dead or moribund individuals is likely to represent only a subset of the actual exposure or mortality attributable to that contaminant.

Overall, the best available information at this time does not support concluding that the impacts described herein rise to the level of a threat, based on the insufficient evidence that ARs or other toxicants are resulting in significant impacts at either the population or rangewide scales (see ***Exposure to Toxicants***, above).

(264) Comment: Several commenters stated that fishers in Washington were at low risk from ARs because: (1) Marijuana was legalized in Washington in 2012; (2) new information shows that Washington fishers found to have been exposed to rodenticides were animals translocated from British Columbia; and (3) the most recent fisher necropsy that detected levels of AR was from an animal that lived in close proximity to commercial and residential areas.

Our Response: New information about rodenticide exposure to the fisher population in Washington documents that three fishers found dead from other apparent causes were exposed to ARs in Washington. Two of these were mortalities among the translocated individuals on the Olympic Peninsula that tested positive for bromadiolone too long after their relocation from British Columbia to have been exposed there. These individuals were found near rural areas where rodenticides could have been used legally. The most recent fisher mortality testing positive for an AR was born to a translocated female, and was found on the border of the Port Angeles City Limits, surrounded by a low-density housing area and commercial development. Thus, AR impacts for the reintroduced ONP population site could be from legally applied sources. None of these were in the vicinity of a known marijuana grow site, and they were found near rural or suburban areas where rodenticides could have been used legally on private land. However, insufficient information exists to draw any further conclusions regarding the impact that this exposure is having, either on individuals or the Washington population. There is not yet sufficient information to conclude what the effects of legalizing marijuana will have on fishers, if any.

(265) Comment: One commenter concurred with the Service that ARs are an *emerging threat*, with the magnitude greatest in California but less in southern Oregon. However, a second commenter asserted that the best available information demonstrates that ARs pose a *significant threat* to fishers and their habitat, specifically stating that AR contamination is widespread in the California-portion of the proposed DPS's range. The first commenter also believed that if fishers from the SSN population area were lost, it would harm the NCSO population through loss of genetic exchange and decline in potential mates and overall vigor of the population (citing Service Toxicant Fact Sheet 2014).

Our Response: We recognize the potential impacts of ARs and associated toxicants throughout the proposed DPS's range, particularly in the California population areas. Based on our evaluation of the information available at the time of the proposed rule and new information received, we have determined that the best available data do not indicate significant impacts at either the population or rangewide scales for the proposed West Coast DPS of fisher. Please also see our response to *Comment (88)*.

(266) Comment: One commenter declared that the conclusions about the impact of ARs in the draft Species Report and proposed listing rule were based on too few data. The commenter stated that though ARs were present, the physiological effects of this level of exposure on fishers were not clear. The commenter provided as an example the statement in the draft Species Report that "gastrointestinal tract primary poisoning cannot be completely ruled out," further stating that they disagreed with that wording and that few factors can be completely ruled out as a threat for any species.

Our Response: The full sentence in the draft Species Report reads: "Though no fisher necropsies in California have detected AR bait products in the stomach or gastrointestinal tract, primary poisoning cannot be completely ruled out (Gabriel *et al*. 2012a, p. 8)" (Service 2014, p. 159). The statement was made in the context of describing the ways that fishers could be exposed to ARs, and explains that the baits themselves could be attractive to fishers.

We have reviewed the best scientific and commercial information available, including new information received, which enabled us to provide clarity and corrections in the final Species Report (Service 2016, pp. 141–159) to some information that was presented in the draft Species Report (Service 2014, pp. 152–169). Two fisher carcasses from Oregon have been tested for rodenticides, of which both tested positive, and only three fishers can be confidently documented to have been exposed in Washington. Insufficient information exists regarding the extent of AR exposure in Washington and Oregon, and no rangewide studies have occurred to evaluate the population-level impacts across the fisher's range in the west coast States. We note the lack of information rangewide regarding potential sublethal effects of ARs to fishers within the proposed West Coast DPS. Therefore, the best available information does not support concluding that these impacts rise to the level of a threat, based on the insufficient evidence that ARs are having significant impacts at either the population or rangewide scales.

(267) Comment: One commenter stated that the Service did not use the best scientific data by inferring the effects of ARs on fishers from the effects of those chemicals on other related and non-related species. The commenter asserted that some of the species used for this analysis are too distantly related, and that the best available

science does not mean any information that would conceivably have any bearing on the fisher's status. The commenter concluded that too little is known about the stressor of ARs from illegal marijuana growth operations to list the species under the Act.

Our Response: We explained the limitations in the best available data in the draft Species Report (Service 2014, pp. 161, 166). We have since reviewed the best scientific and commercial information available, including information previously available and new information received, which enabled us to provide clarity and corrections in the final Species Report (Service 2016, pp. 141–159). We added information on the range of responses for individuals and species from studies of rodenticides. We agree that insufficient information exists regarding the extent of AR exposure in Washington and Oregon, and no rangewide studies have occurred to evaluate the population-level impacts across the fisher's range in the west coast States. Finally, there is also a lack of information rangewide regarding potential sublethal effects of ARs to fishers within the proposed West Coast DPS. Therefore, based on our final evaluation of all of the best scientific and commercial data available, we conclude that these impacts do not rise to the level of a threat, based on the insufficient evidence that ARs are having significant impacts at either the population or rangewide scales. (see ***Exposure To Toxicants***, above). We also note that we used the best available data available for mammals, which is consistent with the data used to support pesticide registrations.

(268) Comment: One commenter stated that the sampling of fishers for rodenticide poisoning was not representative, as the sampling primarily occurred in two areas in California. The commenter also questioned the sampling methodology of only testing dead animals or others discovered fortuitously, rather than a random sample.

Therefore, the commenter stated that the results from California should not be extrapolated to the proposed DPS as a whole.

Our Response: Section 4(b)(1)(A) of the Act requires the Service to use the best available scientific and commercial information in determining a species' status under the Act. Testing for ARs requires sampling the liver, which cannot be done on a live animal. Consequently, a random sampling methodology would require removing live animals from the population and euthanizing them before testing, which raises ethical concerns, particularly as we are in the early stages of trying to understand the magnitude and extent of AR presence. Although the collection of fisher carcasses for testing may not be a random sample, it is the best available information upon which to base our conclusion.

We have reviewed the best scientific and commercial information available, including new information received, which enabled us to provide clarity and corrections in the final Species Report (Service 2016, pp. 141–159) to some information that was presented in the draft Species Report (Service 2014, pp. 152–169). Two fisher carcasses from Oregon have been tested for rodenticides, of which both tested positive, and only three fishers can be confidently documented to have been exposed in Washington. Insufficient information exists regarding the extent of AR exposure in Washington and Oregon, and no rangewide studies have occurred to evaluate the population-level impacts across the fisher's range in the west coast States. We also note a lack of information rangewide regarding potential sublethal effects of ARs to fishers within the proposed West Coast DPS. Therefore, at this time the best available information does not support concluding that these impacts rise to the level of a threat, based on the insufficient

evidence that ARs are having significant impacts at either the population or rangewide scales (see ***Exposure To Toxicants***, above).

(269) Comment: One commenter asserted that ARs have both direct and indirect effects on fecundity and reproduction in female fishers, and that these effects may influence both survival and population expansion of the proposed DPS.

Our Response: We have reviewed and added information to our analyses in the final Species Report on the potential for reproductive effects from rodenticide exposure (Service 2016, pp. 157–159). Exposure to ARs has been documented to cause fetal abnormalities, miscarriages, and neonatal mortality in mammals. The timing of AR use at cultivation sites (April–May) may also be important, because this time coincides with increased energetic requirements of pregnant or lactating female fishers, and the reduction of prey has been documented at illegal grow sites where ARs were applied. However, insufficient information exists regarding the extent of AR exposure in Washington and Oregon, and no rangewide studies have occurred to evaluate the population-level impacts across the fisher's range in the west coast States. We note the lack of information rangewide regarding potential sublethal effects of ARs to fishers within the proposed West Coast DPS. Therefore, the best available information does not support concluding that these impacts rise to the level of a threat, based on the insufficient evidence that ARs are having significant impacts at either the population or rangewide scales (see ***Exposure To Toxicants***, above).

(270) Comment: One commenter suggested adding the following information to the analysis of ARs: (1) Legal marijuana cultivation on remote private lands, and associated AR use; (2) off-label use of rodenticides; (3) the current ease of use of large

quantities of rodenticides and second generation ARs; and (4) population-level effects of AR use.

Our Response: We have reviewed the best scientific and commercial information available, including new information received, which enabled us to provide clarity and corrections in the final Species Report (Service 2016, pp. 141–159) to some information that was presented in the draft Species Report (Service 2014, pp. 152–169). Unfortunately, no records exist on the quantities, locations, and use patterns for ARs applied on private lands. There are no rodenticide labels that allow application to marijuana as a crop, so any current use of rodenticides within a marijuana grow site would be illegal under State and Federal laws, even in States where marijuana is legal.

The extent to which the legal use of ARs occurs at agricultural and commercial sites within the range of the fisher is unknown. Two fisher carcasses from Oregon have been tested for rodenticides, of which both tested positive, and only three fishers can be confidently documented to have been exposed in Washington. None of these were in the vicinity of a known marijuana grow site, and the Washington fishers were found near rural areas where rodenticides could have been used legally on private land. While the State of California in 2014 prohibited the sale of the second generation ARs (brodifacoum, bromadiolone, difethialone, and difenacoum) to the general public, they are still widely available in California and can be purchased by anyone with a State-issued pesticide applicator's license. No records are kept on the sale and use of rodenticides that can be used to determine whether this new measure will reduce the illegal and legal uses of the second generation ARs within the range of the fisher. We also note the lack of information rangewide regarding potential sublethal effects of ARs

to fishers within the proposed West Coast DPS. No rangewide studies have occurred to evaluate the population-level impacts across the fisher's range in the west coast States. Therefore, the best available information does not support concluding that these impacts rise to the level of a threat, based on the insufficient evidence that ARs are having significant impacts at either the population or rangewide scales (see ***Exposure To Toxicants***, above).

(271) Comment: One commenter asserted that recent regulatory changes regarding the use of second generation ARs do not reduce the scope or severity of the threat to fishers since the products are still widely available in neighboring States for purchase and use by both the public and professionals.

Our Response: While the State of California in 2014 prohibited the sale of the second generation ARs (brodifacoum, bromadiolone, difethialone, and difenacoum) to the general public, they are still widely available in California and can be purchased by anyone with a State-issued pesticide applicator's license. No records are kept on the sale and use of rodenticides that can be used to determine whether this new measure will reduce the illegal and legal uses of the second generation ARs within the range of the fisher.

(272) Comment: One commenter stated that illegal marijuana growth should not impact fishers in Washington, as marijuana is not grown outdoors there due to a short growing season.

Our Response: As we noted in the draft Species Report (Service 2014, p. 167), most marijuana is thought to be grown indoors in western Washington, but in eastern Washington it is thought to be grown outdoors. However, the principal source of

exposure for fishers in Washington is still unknown (i.e., legal uses or illegal marijuana grows), as is the extent of exposure. Based on the information in Figure 21 of the draft Species Report (Service 2014, p. 167), as well as information received during the open comment periods on the proposed rule, we agree that the use of rodenticides at illegal marijuana grows is likely considerably less of a stressor in Washington than in other portions of the range.

(273) Comment: Two commenters addressed the recent legalization of marijuana in Oregon, stating that one purpose of the law was to reduce the impact from illegal marijuana growers. One commenter believed that this information was not fully considered by the Service in the draft Species Report.

Our Response: Legalization of recreational marijuana in Oregon was the result of a ballot initiative that was passed by the Oregon voters in November 2014. Because the proposed rule was published prior to the passage of this initiative into law, we could not address this issue in the proposed rule. We have incorporated a discussion of the recent legalization of recreational marijuana in Oregon with regard to its potential impacts on fisher in the final Species Report.

(274) Comment: Two commenters noted that many of the rodenticides detected in fishers are not labeled for legal use in forestry operations. As an example, the commenters noted that Rozol, a rodenticide labeled for forestry use in Oregon, was only found in four of the fishers tested by Gabriel *et al.* (2012a). Based on that evidence, and on the stringent and season-specific application requirements, the commenter found it highly unlikely that the legal use of Rozol to control mountain beavers could negatively impact fisher populations.

Our Response: There is not sufficient evidence to determine whether or not legal use of Rozol in forestry applications will affect fisher populations. The Rozol application described by the commenter (application of Rozol pellets to control mountain beavers in forest plantations) is limited to western Oregon and western Washington under a special local need label. We do not know to what degree the anticoagulant in the Rozol product (chlorophacinone) may affect fishers in Oregon because to date only two fishers from Oregon have been tested for the presence of anticoagulants, both of which tested positive for anticoagulant residue; both carcasses were tested for chlorophacinone, but it was not detected. In Washington, where Rozol application is also legal, 13 fishers have been tested for anticoagulant rodenticides, but none showed the presence of chlorophacinone. The sample sizes from Oregon and Washington are too small to satisfactorily conclude that Rozol application does not affect fishers.

The fishers tested by Gabriel *et al*. (2012a, p. 5), as referenced by the commenter, were fisher carcasses found in California, where the application of Rozol pellets to control mountain beavers is not legal. However, in the State of California, Rozol is registered to control voles in forestry plantations, and the State also makes its own chlorophacinone baits that can be used to control a number of rodent species in forestry plantations. It is, therefore, possible that these legal uses of chlorophacinone could have been a source of the chlorophacinone detected in the four fishers that tested positive for chlorophacinone in California. Thus, we cannot use fisher toxicant results from California, where control of mountain beavers by Rozol is not legal, to conclude that Rozol application in Oregon or Washington specifically to control mountain beavers in forestry plantations is not likely to affect fishers.

We do note that the special local need label for Rozol pellets requires application designed to reduce the exposure of the product to nontarget species such as fisher (e.g., seasonal restrictions and placement of bait underground within beaver holes or burrows). However, fishers may still be exposed to the toxin because contaminated mountain beavers can still be active for several days after exposure. Mountain beavers are known prey for fishers in western Washington, and their range overlaps that of fishers in Oregon. As such, we cannot agree with the commenter's conclusion that it is highly unlikely that use of Rozol for mountain beaver control will negatively impact fishers, as there is not yet enough information to support their claim.

(275) Comment: One commenter stated that over 35 percent of male fishers in the Hoopa Valley study area have died due to toxicosis. The commenter reasons that these deaths, in combination with habitat fragmentation, will make it difficult for fishers to find mates and reproduce.

Our Response: We have included new information in the "Synergistic Effects" section of the final Species Report (Service 2016, p. 161) that long-term studies on the Hoopa Valley Tribal Reservation report a toxicosis rate in male fishers of 35 percent from 2005–2012, which may be contributing to a decline in male fisher survival in that area over the same time period (Higley 2014, pers comm.). Although the biologist presenting the information mentioned the possibility that a reduction in the number of male fishers in combination with habitat fragmentation may result in fewer matings, he did not elaborate on the remark and did not provide evidence to support his assertion. The presenter in the video also did not posit a possible relationship between the male fisher toxicosis-related mortality rate and habitat fragmentation, or explain how this

combination of stressors would reduce fisher reproduction in an additive or synergistic manner. Based on the best available scientific information, we conclude that there is no direct evidence suggesting that a combination of a greater than 35 percent toxicosis-related mortality rate for male fishers and habitat fragmentation would make it difficult for fishers to find mates and reproduce within the Hoopa Valley Reservation.

(276) Comment: One commenter stated that fisher mortality due to AR use at illegal marijuana grow sites has occurred in close proximity to Redwood National and State Parks (RNSP), and that some fisher mortality in the RNSP may also have been due to the same factor. The commenter provided information on one case where a fisher was found dead at an illegal grow site within the boundaries of RNSP. In that case, the condition of the fisher prevented testing for AR exposure, although bite marks on the skull were suggestive of predation as the ultimate cause of death. The commenter suggested that predation may increase synergistically when fishers are exposed to ARs, and expressed the opinion that there is a high likelihood that additional fisher mortality will occur from rodenticide use adjacent to RNSP.

Our Response: We noted in the draft Species Report (citing Gabriel *et al.* (2012a), "*Exposure to Toxicants*" section)) that the relationship of AR concentration found in fishers and rate of fisher mortality is unknown. However, since then, Sweitzer *et al.* (2015b, p. 9) observed reduced fisher survival that may be a result of secondary exposure to toxicants used in marijuana grow sites, although they could not make a direct link. We agree that exposure to ARs may predispose fishers to predation due to the known physically debilitating effects of ARs on fishers and other mammals, and note that sublethal AR exposure may also combine with other stressors to have additive or

synergistic adverse effects (citing Golden *et al.* 2012). We agree with the commenter that AR exposure may make fishers more vulnerable to predation, but currently lack adequate information to suggest whether exposure actually increases fisher predation rates. We also agree that fisher mortalities are likely to occur in the future as a result of ingesting lethal levels of ARs and possibly through accumulation of sublethal levels of ARs in combination with other stressors. However, information is currently lacking to estimate the probability of additional fisher mortalities in the future within or near RNSP.

(277) Comment: One commenter stated that rodenticides have not caused fisher declines on some private forestlands in Mendocino County, but that they could pose a threat to any fishers attempting to recolonize the areas. The commenter stated that in the past decade, employees of those forestlands have observed an increase in wildlife exposure to ARs used at illegal marijuana grow sites. The commenter also stated that the managers of these forestlands are concerned with the impacts of illegal AR use, and would like to work collaboratively with the Federal Government and other land managers to assess the problem and ameliorate the issue.

Our Response: We are not aware of any data regarding the populations of fishers on private forestlands in Mendocino County before and after the recent increasing trend in illegal marijuana grow sites. Based on information presented in the proposed rule (79 FR 60419) and the draft Species Report, we agree with the commenter that ARs are a management concern and look forward to working with the landowner and other land managers to assess the problem and ameliorate the issue.

(278) Comment: One commenter believed that the Service's map showing illegal marijuana grow sites was misleading because it showed illegal marijuana grow sites to be

widely dispersed across the landscape. The commenter stated that most illegal grow sites were found in close proximity to freeways, rather than deeper in forests where fishers live. The commenter also stated that in 2013, only six illegal marijuana grow sites were found on public lands in Humboldt County.

Our Response: These comments were made during a November 17, 2014, public hearing in Redding, California, after we displayed a map of illegal marijuana grow sites prepared by the Service for the hearing. The commenter was providing his personal opinion and did not provide information to support his claim that illegal marijuana grow sites were mostly clustered along freeways and not within areas occupied by fishers. The commenter also did not provide information supporting his claim regarding the number of illegal grow sites found in Humboldt County in 2013. Information presented in the *Exposure to Toxicants* section of the draft Species Report (citing Thompson *et al.* 2014 and Gabriel *et al.* 2012a) shows that AR exposure in fishers in California is widespread, with residues found in 84 percent of fisher carcasses tested. Further, the commenter's claim that illegal grow sites are clustered around freeways is contradicted by a spatial analysis of AR exposure of fishers in California conducted by Gabriel *et al.* (2012a, entire), which suggested that exposure of fishers to ARs was from a widespread use of ARs across the landscape. Figure 19 in the draft and final Species Reports (Service 2014, p. 156; Service 2016, p. 146; source information from Higley *et al.* 2013) shows dozens of known marijuana cultivation sites in Humboldt County in 2010 and 2011. Further, only a fraction of illegal grow sites are detected by law enforcement, suggesting many more exist than are displayed in Figure 19. We are unaware of any information that would lead us to conclude that the number of cultivation sites in Humboldt County was

reduced from dozens in 2010 and 2011 to only six in 2013. Therefore, the best available information suggests that: (1) Marijuana cultivation sites are distributed across the landscape and occur within suitable fisher habitat, and are not clustered around freeways outside of suitable fisher habitat; and (2) the number of illegal marijuana cultivation sites in Humboldt County in 2013 is not substantially different from the years for which we had data (2010 and 2011).

(279) Comment: One commenter stated that Figure 19 in the draft Species Report was misleading, as the dots on the map are buffered by a 2.5-mi (4,000-m) radius to approximate the hypothetical home range of a male fisher. The commenter believed that this map leads to an overstatement of the threat of ARs from illegal marijuana grow sites, as it does not account for the fact that multiple female fishers will be found within an area of that size. The commenter stated that because female fishers are unlikely to cross another female's territory, they might never encounter an illegal marijuana grow site.

Our Response: We agree with the commenter that Figure 19 in the draft Species Report (Service 2014, p. 156) may overestimate the exposure of individual fishers to ARs over these 2 years, but it also may underestimate exposure as well, since the information is presented at a very broad scale. However, the information in the final Species Report reflects the best scientific and commercial information available at this time. Furthermore, we disagree with the commenter that female home ranges do not overlap (Lafroth *et al.* 2010, p. 67; Higley *et al.* 2014, Figure 10, p. 86; Powell *et al.* 2015, Figure 6, p. 43, and Figure 7, p. 44) and, therefore, disagree with the premise that because of that, female fishers may never encounter a trespass marijuana cultivation site. In any case, the best available information does not support concluding that these

impacts rise to the level of a threat, based on the insufficient evidence that ARs are having significant impacts at either the population or rangewide scales.

(280) Comment: One commenter asserted that the Service lacks explicit data to make conclusions about the scope and severity of AR use on fishers. They stated that the conclusion in the draft Species Report is unreliable, as it is based on faulty assumptions and extrapolations rather than substantial data. They stated that the Service's analysis incorrectly assumes that all sites use ARs with no remediation measures, and that the Service incorrectly assumed an even distribution of illegal marijuana cultivation sites across the range of the proposed DPS.

Our Response: Please see our response to *Comment (87).*

(281) Comment: One commenter believed the scope of ARs in the draft Species Report was too high. The commenter highlighted expert opinions, voiced at a symposium, that illegal marijuana cultivation on public lands may be decreasing, and moving instead to indoor operations. Based on Forest Service estimates of the size of illegal marijuana trespass sites and the number of sites eradicated, the commenter stated that it appears that only 2 percent of fisher habitat on Forest Service lands in California has been impacted by illegal marijuana cultivation, and although the effects of toxicants extend beyond these areas, the scope of 23 to 95 percent for California given in the draft Species Report is too high.

Our Response: We disagree with the commenter that the scope of toxicant exposure is too high. Our method for determining the scope in the draft Species Report can be found in Appendix C of the Species Report (Service 2016) and involves buffering known illegal marijuana cultivation sites eradicated by law enforcement personnel over a

2-year period by the area encompassed by a male fisher's home range. The summed area of those buffers roughly approximates 23 percent (low scope) of the fishers' current range in California (Higley 2013, pers. comm.). However, because the number of illegal cultivation sites detected and eradicated annually is estimated to be between 15 to 50 percent of active sites, and many sites have not been remediated (toxicants removed), it is possible that as many as 95 percent (large scope) of fishers may be exposed to toxicants associated with these sites over the next 40 years. We have not received any new information that would allow us to refine the scope of toxicant exposure to a greater degree because the total amount of habitat destroyed by illegal marijuana trespass sites is typically not reported. Further, we have not received any new information regarding annual trends in law enforcement effort to survey for illegal trespass cultivation sites, nor information on the total number of sites located each year. For the reasons we have discussed in the "Exposure to Toxicants" section of the final Species Report (Service 2016, pp. 141–159), we agree that the effects of toxicants extend beyond the actual area where they are found. In addition, we caution that many eradicated sites have not been remediated (toxicants have been removed from the environment). Therefore, we disagree with the commenter and conclude that in California, a broad range of scope (from low to high) is supported by the data that we have received to date. Although our overall conclusion about this stressor has changed (i.e., toxicants are not resulting in significant impacts at either the population or rangewide scales), we have not received any new information that would change our estimates of the scope of this stressor as that outlined in the draft Species Report.

(282) Comment: One commenter believed that the best available scientific data demonstrated that the scope and scale of the impacts of marijuana cultivation on the fisher are significant and shows no systematic decrease. The commenter provided a reference to Bauer (2015) to support this statement.

Our Response: We agree that Bauer (2015) supports the conclusion that the impacts of marijuana cultivation on northwestern California forested ecosystems likely are significant, especially with respect to the effects of water withdrawal on streamflow in creeks and rivers. However, we disagree that this article supports the conclusion that the impacts of marijuana cultivation on the fisher show no systematic decrease. Indeed, with regard to effects on wildlife, the article states: "Though these impacts have been documented by state and Federal agencies, the extent to which they affect sensitive fish and wildlife species and their habitat has not been quantified (Bauer 2015, p. 2)." On the other hand, Gabriel *et al*. (2015, p. 7) found that, between 2012 and 2014, exposure of fishers to toxicants in California has increased from 79 percent (46 of 58 individuals tested) to 85 percent (86 of 101 individuals tested), although the sample size is small. Thus, the data we have does not support a conclusion that there has been a systematic decrease in the scope and scale of the impacts of marijuana cultivation on fishers. However, we note the uncertainty as to the severity of impact that this stressor may have rangewide, given data are minimal across Oregon and Washington in particular, including the lack of information rangewide regarding potential sublethal effects of toxicants to fishers (i.e., we only have information on 15 mortalities rangewide). Therefore, the best available information does not indicate that these impacts rise to the level of a threat, based on the insufficient evidence that ARs are functioning as an

operative threat on the fisher such that significant impacts are occurring at either the population or rangewide scales.

(283) Comment: One commenter stated that DDT and DDE had been previously found at illegal marijuana cultivation sites, but did not provide any further data about use of those pesticides.

Our Response: Table 10 in the final Species Report (Service 2016, pp. 153–155) lists the pesticides found on marijuana cultivation sites and specifies which are currently registered in the United States. Among those not registered for use in the United States are azinphos methyl, methamidophos, methyl parathion, and DDT. There are no rodenticide labels that allow application to marijuana as a crop; thus, any use of rodenticides within a marijuana grow would be illegal under State and Federal laws, regardless of whether marijuana is legal in that State.

(284) Comment: One commenter stated that the threat from illegal marijuana growers was overstated in the draft Species Report and proposed rule due to the increase in legal medical marijuana in California, Oregon, and Washington. Based on this legalization, the commenter believed that the drug cartels are less interested in growing marijuana on Federal lands, as legal growing of marijuana is now possible for some growers on private property. The commenter concluded that the impacts of ARs from illegal marijuana growers is short-term and on a rapid and measurable decline, as demonstrated in the draft Species Report and the decline in sites from the 2010 to 2011 maps. This commenter stated that they are working on a report related to the illegal growing of marijuana on Federal lands.

Our Response: Please see our response to *Comment (281)*. We are not aware of any information documenting the decline of trespass marijuana sites as a result of the legalization of marijuana. In addition, we disagree that any trend in the impacts of ARs on fishers can be deduced from 2 years of data.

(285) Comment: Two commenters believed that the threat from illegal marijuana growers was overstated. One commenter pointed to publicly available information relating to the Forest Service (Region 5), which shows a 70 percent decline statewide in California of illegal marijuana grow sites from 2009 to 2013, and an estimate that successful Statewide raids of illegal grower sites is down 83 percent in 2014. Another commenter referred to a private communication with the Forest Service, which stated that the number of illegal marijuana plants seized on public lands in California declined by approximately 88 percent between 2009 and 2014.

Our Response: The commenters provide no information on the amount of survey effort for the years for which they are reporting declines in the number of plant seizures. Please see our response to *Comment (281)* regarding illegal marijuana grower information.

(286) Comment: One commenter believed that the Service's analysis of ARs from illegal marijuana growers was incomplete, as it did not mention that the number of illegal marijuana grow sites is diminishing due to increased legalization of marijuana. The commenter suggested that the Service obtain information from the U.S. Forest Service Law Enforcement Managing and Reporting System Database. The commenter stated that this information represented the best available scientific data on this matter,

and that not using this data would make the analysis of scope and severity very speculative.

Our Response: We are not aware of any information documenting the decline of trespass marijuana sites as a result of the legalization of marijuana, including related to the U.S. Forest Service Law Enforcement Managing and Reporting System Database. Please see our response to *Comment (281)*.

Stressors

(287) Comment: The State of Washington proclaimed that the factors that affect the continued existence of fishers are not evenly distributed (noting that this is of greatest concern outside of Washington since the native population of the State was extirpated by the mid-1900s). With regards to the reintroduced population on the Olympic Peninsula, the commenter stated that it is exposed to numerous threats (e.g., illegal trapping, vehicle collisions, predation, disease, toxicants); however, this reintroduced population's most significant threat may be its relatively small size. The commenter noted that historical and current information related to small population size impacts in Washington is not known, yet the commenter also stated that ongoing monitoring indicates that the population is widely distributed and reproducing. The commenter expressed significant concern that a Federal listing may preclude the ability of the State to conduct further reintroductions, thus eliminating the most significant, beneficial action that can be taken to address threat of small population size.

Our Response: We agree with the State of Washington that stressors are not evenly distributed in the analysis area, as clearly stated in both our draft Species Report and our proposed rule. We disagree that a Federal listing of fishers in Washington would

preclude the ability of the State to conduct further reintroductions; there are numerous examples of threatened and endangered species that have been reintroduced. We acknowledge there may be greater support for reintroductions if that effort is not accompanied by real or perceived regulatory burdens that may come with a Federal listing under the Act. However, such considerations cannot enter into our determination (see our response to *Comment (122)*, above). Regardless, based on our evaluation of the best scientific and commercial data available, we have concluded that the proposed West Coast DPS of fisher does not meet the Act's definition of an endangered or threatened species throughout all or a significant portion of its range; therefore, we are withdrawing the proposed rule to list (see **Determination**, above). Conservation efforts by WDFW for fishers in Washington, including reintroductions, are, therefore, expected to continue unaffected by this rulemaking.

(288) Comment: The State of Oregon disagrees with the Service's "overarching concern" to list the taxon based on a small and isolated nature of fisher populations, indicating that there is a lack of information on which to base this decision. The State also disagreed with the Service's assumption that fisher are absent from the Oregon Cascades given they believe this determination without dedicated surveys following a peer-reviewed protocol is not reliable. The State asserted that it is possible that fisher occur at low population levels in portions of their range where they are presumed to be extirpated. Also, the State claimed that the Service may have overstated the uncertainty about the size of the NCSO population in the draft Species Report (i.e., range of 258–4,018 animals ([Service 2014, p. 39]) because the lower estimate comes from a study that examined genetic isolation in fisher using a technique that may be unreliable for

estimating population size for management purposes, while the remaining references come from the "gray" literature and are either unpublished studies or personal communication. Overall, the State maintained that listing the fisher as a federally protected species/DPS is premature without additional research demonstrating the NCSO population is in decline and confirmation that fisher has been extirpated from the northern portion of the Oregon Cascades.

Our Response: The Act directs us to use the best scientific and commercial information available when determining whether a species is threatened or endangered. Regarding our "assumption" that fishers are absent from the Oregon Cascades, we do acknowledge their presence in the southern Cascades. We reference Aubry and Lewis (2003, p. 85), a peer-reviewed resource, who reviewed all known fisher occurrence records in Oregon. The authors also compiled information from standardized surveys, mostly based on sampling techniques recommended by Zielinski *et al.* (1995) and conducted in areas where fishers were historically reported. The authors concluded that, outside of the southern Cascades and southwest Oregon, fishers "appear to have been extirpated from all other portions of their presumed historical range in Oregon." Although updated surveys in the central and northern Oregon Cascades would give us a more robust handle on fisher distributions, we described the known distribution of fishers based on the best available scientific and commercial data.

Regarding our description of the size of the NCSO population in the draft Species Report, we agree that the lower estimate of 258 is calculated from an effective population size based on genetic data. We include this information to represent the best scientific and commercial data available and to indicate the breadth of the range of values available

to us on which to base our listing decision. We also have revised our final Species Report to include new population estimate values (Service 2016, pp. 42–48). We realize the remaining references do not come from peer-reviewed literature, but again, this is the best available information, which the Act requires us to use in making our listing decision.

We have carefully assessed the best scientific and commercial data available regarding the past, present, and future threats to the proposed West Coast DPS of the fisher and are withdrawing our proposal to list this DPS (see **Determination**, above). We reached this conclusion in part because we have no evidence to suggest that any of the potential stressors are having significant impacts at either the population or rangewide scales (see **Summary of Factors Affecting the Species**, above).

(289) Comment: Many commenters agreed with the Service's analysis regarding stressors affecting the threats that are impacting the fisher, including trapping, logging, wildfire, climate change, and rodenticides. The following are representative comments. One commenter proclaimed that logging of fisher habitat as well as road kill, disease, and other human-related impacts to fisher are what continues to contribute to decline of fishers across its range. A second commenter declared that fishers have declined dramatically in recent decades specifically due to trapping, logging, and wildfire (this commenter and another declared that the SSN population faces imminent extinction from threats). Two more commenters asserted that the species across its entire range necessitates listing as endangered primarily due to the small size and isolation of the remaining populations, as well as continued habitat loss from logging and development, and that the Service should ensure that the final listing rule limits mortality of fishers to

the greatest extent possible. A fifth commenter stated that short-term impacts to fishers from logging and human-associated noise are likely causing behavior changes and negative impacts to fisher prey species. A sixth commenter asserted that small population size impacts are so significant that there is a low likelihood that the populations would expand other than through reintroduction efforts (as demonstrated by the SOC population that has been in place for 30 years with no apparent increase in size beyond the reintroduction area). A seventh commenter explicitly attributed past and present logging activities as the primary, significant threat to the fisher and its habitat, noting salvage logging on non-Federal lands in California as an impact that is poorly regulated and inadequately monitored.

In contrast, several commenters declare that the analysis of stressors in the proposed rule and draft Species Report overestimated actual impacts. One commenter asserted that the Service's threats analysis overestimated the level of impact specifically in the southern Oregon and northern California region. Another commenter claimed that the three primary threats identified by the Service (habitat loss, toxicants, and cumulative and synergistic effects) are diminishing impacts that are not resulting in population-level effects, thus demonstrating why the fisher is not in need of listing under the Act. A third commenter stated that there is no immediacy of the threats described in the proposed rule to necessitate listing the species as threatened or endangered, in part because there are no population-level effects, including within the NCSO and SSN populations.

Our Response: We appreciate the comments from those in support of and those with concerns regarding our analysis of stressors. The analysis of stressors is complex and takes into consideration such factors as timing, scope, and severity of stressors

potentially acting on the proposed West Coast DPS of fisher using the best available scientific and commercial information. After review of new information and comments received during both the comment periods, as well as information used for the proposed rule, the best available information does not support concluding that the stressors, individually or in combination, have a significant impact at the population or rangewide scales. Consequently, we have determined that the proposed West Coast DPS of fishers is neither threatened or endangered under the Act and are withdrawing our proposal to list this DPS (see **Determination**, above). We will continue to monitor the status of fishers and their habitat as we develop management strategies and work toward the conservation of fisher throughout its range.

(290) Comment: One commenter claimed that dichlorodiphenyltrichloroethane (DDT) and dichlorodiphenyldichloroethylene (DDE) are two chemicals/pesticides that are likely impacting fishers and other non-targeted species, and as such should be considered as part of the threats analysis.

Our Response: Evaluating the impacts of pesticide exposures on free-ranging wildlife can be difficult and is often limited to carcass counts in the field and detection of pesticides in postmortem samples, which primarily reflect acute intoxications. Unlike the information on ARs, such exposures of DDT are not documented in fishers, and their use in marijuana grow sites has been extremely limited (Service 2016, Table 10). Please see our response to *Comment (283).*

(291) Comment: One commenter declared that the Service implied (in the draft Species Report) that all stressors result in a negative effect on fishers or fisher habitat, and considered this viewpoint to be invalid because changes to natural or man-made

habitat do not always result in negative effects to species. The commenter discussed wildfire and timber harvest as two examples to articulate their point, stating that wildfire and timber harvest can create habitat loss and concurrently create a heterogeneous landscape that benefits fisher prey species, and that can also (in the case of wildfire) create snags and down wood that facilitates prey, and provides denning and resting habitat.

Our Response: Please see our response to *Comment (97).*

Synergistic (Cumulative) Effects

(292) Comment: One commenter asserted that the synergistic impacts of climate change and fire behavior pose the most serious long-term threat specifically to the California populations, and, accordingly, listing is warranted. Another commenter highlighted synergistic habitat impacts across the entire range of the taxon (as proposed) as a significant concern due to multiple ongoing or future project impacts in conjunction with past habitat loss, noting that these impacts to already small and isolated fisher populations will likely further impair the survival and recovery of the proposed West Coast DPS of fisher.

Our Response: Please see our response to *Comment (1).*

(293) Comment: One commenter highlighted the information in the draft Species Report concerning studies that look at larger areas where wildfire and rodenticides are present. The commenter asserted that there was no decline in fisher populations despite surveys of a larger area. The commenter requested that we make this information more prominent by including it in the executive summary of the final Species Report.

Our Response: The draft and final Species Reports first review stressors individually, including wildfire and exposure to toxicants, and then consider whether these stressors act cumulatively or synergistically to determine if the proposed West Coast DPS of fisher meets the definition of an endangered or threatened species according to the Act. At this time, the best available information do not indicate that these stressors, by themselves or acting cumulatively or synergistically with other stressors on small populations, are resulting in significant impacts at either the population or rangewide scales. Therefore, based on our assessment of the best scientific and commercial data available, we have concluded that the proposed West Coast DPS of fisher does not meet the definition of an endangered or threatened species under the Act, and we are withdrawing our proposed rule. While neither the draft nor final Species Report has an executive summary, this information is summarized in the **Executive Summary**, above.

Threatened Versus Endangered

(294) Comment: Many commenters urged the Service to list the proposed West Coast DPS of fisher as an endangered species with no reason given, or based on a rationale such as limited distribution, isolated population, declining populations, questions about the success of a newly reintroduced population, rodenticides, or loss of historical habitat. Many other commenters urged the Service to list the taxon as a threatened species with no reason given, or based on a rationale such as significant threats to its survival (e.g., declining population numbers) and conservation, and ongoing threats (most commonly referencing degradation and loss of late-successional forests via logging activities, and to a lesser extent trapping, rodenticides, wildfire, road kill, or

small/fragmented populations). In contrast, other commenters urged the Service not to list the taxon because they believed the populations to be stable or increasing, that there is significant suitable habitat available both currently and in the future, recovery efforts have occurred or are ongoing, robust State and Federal regulatory frameworks exist for the taxon's long-term protection, or they claimed the proposed listing was based on uncertainty or was speculative.

Our Response: Sections 3(6) and 3(20) of the Act, respectively, define an endangered species as one that is in danger of extinction throughout all or a significant portion of its range, and a threatened species as one that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Our task in evaluating a species for a potential listing under the Act is to determine whether that species meets the definition of either a threatened species or an endangered species, based *solely* on the best scientific and commercial data available. For this reason, comments merely expressing support for or opposition to a proposed listing, without supporting scientific rationale or data, do not meet the standard of information required by section 4(b)(1)(A) of the Act. At this time the best available information does not support concluding that the stressors to fishers rise to the level of a threat, either singly or considered in combination, based on the insufficient evidence that these stressors are having significant impacts at either the population or rangewide scales. We, therefore, have no scientific information to suggest that fishers in the proposed West Coast DPS are currently in danger of extinction, or likely to become so within the foreseeable future. For all of these reasons and as detailed in the **Determination** section of this document, we now conclude that the proposed West Coast DPS of fisher does not

meet the definition of an endangered or threatened species under the Act, and we are withdrawing our proposed rule.

Trapping

(295) Comment: The State of Washington and several other commenters claimed that we underestimated the severity of trapping as a stressor in the draft Species Report and proposed rule, describing this impact as one that the Service previously recognized as a significant threat. The State claimed that there is a higher likelihood of incidental captures in Oregon given: (1) The legal use of leg-hold and body gripping traps, (2) the likely less than 100 percent reporting of incidental captures, (3) the potential for poaching of fishers with higher current pelt prices, and (4) probability of incidental captures of fishers in southwestern Oregon in the late 1980s and 1990s as reported from other unpublished observations (e.g., J. Lewis (WDFW) and K. Aubry (Forest Service)). Additionally, the State claimed that the severity of trapping as a stressor in coastal Washington and in California may be underestimated because of the potential for fishers to be injured when captured in a box/cage-type trap, the less than 100 percent reporting of incidental captures, and the possibility of poaching especially with the higher current pelt prices. Overall, the State asserted that a severity value of less than 1 percent is too low for the risks that exist in southwestern Oregon, and indicated that 5 to 10 percent may be more appropriate for Oregon and up to 5 percent for coastal Washington.

Alternatively, two other commenters stated that the severity of trapping is low and agreed with our assessment. One commenter asserted that trapping prohibitions have sufficiently reduced the effects of trapping as a stressor. The other commenter, a tribe in Washington, indicated that the threat of trapping is largely nonexistent in Washington

(and specifically for the reintroduced population) because leg-hold and kill traps are not legal for use in Washington for general hunting/trapping. Although tribes can still authorize trapping for fur-bearers, they suggested that it is regulated appropriately and has low participation.

Our Response: See our response to *Comment (161)* for Washington. In addition, this response applies to Oregon [and California] as well. See our response to *Comment (297).*

(296) Comment: One commenter asserted that historical trapping activities for fur-bearing animals were the primary reason for fisher population declines, as opposed to old-growth forest loss, which the draft Species Report and proposed rule imply was a greater concern. The commenter believed that this piece of history (i.e., the idea that the British Crown directed trapping throughout Idaho, Oregon, and Washington to discourage American settlers from coming into this area) should not be overlooked when describing why fisher numbers are lower today compared to the past.

Our Response: We do not disagree that historical trapping likely played a key role in past declines in fisher populations. See our response to *Comment (92).*

(297) Comment: Two commenters disagreed with our conclusion that incidental trapping and poaching are not impacts to the taxon and requested that we reconsider our conclusion for the final rule.

Our Response: The draft Species Report determined the severity of trapping, including incidental trapping and poaching, to be very low in Washington and California and infrequent in Oregon (Service 2014, p. 112). Information received during public and peer review comment periods provided data on the incidental capture of two fishers

reintroduced to the Olympic Peninsula in Washington. This information is consistent with our determination that incidental trapping is very low in Washington. We have updated the final Species Report with this new information; however, our conclusion regarding stressors associated with trapping has not changed. Based on our evaluation of the best scientific and commercial data available, we see no evidence that trapping is resulting in significant impacts to fishers at either the population or rangewide scales, such that we would consider trapping to pose a threat to the proposed West Coast DPS (see ***Trapping and Incidental Capture***, above).

Wildfire

(298) Comment: One commenter cited Hanson (2013) as the best available science for potential impacts of fire on fisher and its habitat. Specifically, the commenter stated that fisher do not categorically avoid large, mixed-severity fire areas, particularly given these types of fires create "essential aspects of fisher habitat."

Our Response: Our draft and final Species Report includes a discussion of Hanson's (2013, entire) observations of fisher use of burned areas in the southern Sierra Nevada. We agree that fishers likely use burned landscapes to varying degrees depending upon the presence of necessary habitat elements and structures for fisher foraging, denning, and resting. We received multiple comments on this subject, and have updated the final Species Report to include an expanded discussion of fisher use of burned landscapes, including any new information that has become available (Service 2016, pp. 62–77).

(299) Comment: One commenter stated that addressing the risk of catastrophic wildfire should be a higher priority than conservation of any particular species. We

interpret the commenter's various statements to imply that listing the fisher, particularly in the Sierra Nevada, should not occur, but that efforts should instead focus on wildfire prevention due to fire impacts that result in a landscape where "nothing survives."

In contrast, multiple commenters stated that wildfire is not a significant issue or threat. One commenter stated that (in California) fewer acreage has burned in the past 5 years as compared to the previous 5 years, those fires that do occur are mostly a mosaic of high- and low-intensity burns, and the fires create more fisher habitat (e.g., prey habitat, denning or nesting structures) than what may be destroyed, thus setting the stage for better fisher habitat in the future. Five of the commenters articulated that the Species Report mischaracterizes, in general, the benefits of fire (or makes unsupported assumptions about fishers and fire). Several commenters asserted that fire plays a key role in creating prey/foraging habitat (which can be enhanced by high-intensity fires (Hanson 2013) that can increase prey abundance) and denning/resting structures for fisher. One commenter also asserted that 20,000 acres of their lands experienced a 2008 catastrophic wildfire, which they subsequently salvage logged and later (in 2010) documented a fisher natal den inside the salvaged area (2 years after the fire and 1 year after salvage logging).

Our Response: While we understand that catastrophic, or stand-replacing, fire may impact more than one particular species and that the first commenter believes this issue should be addressed first, the purpose of this document is to assess the conservation status of fisher as required under the Act.

Fires over the last 5 years (2010 through 2014) in California did burn fewer acres than in the previous 5 years (2005 through 2009); however, extreme fire activity in 2008

was responsible for a large majority of acres burned. A more appropriate comparison would be to view a given year against a 5-year average to determine whether fire activity has increased or decreased. For example, California wildfires burned approximately 308,000 acres in 2015 (*http://cdfdata.fire.ca.gov/incidents/incidents_stats?year=2015*). When compared to the 5-year average of 110,000 acres burned (*http://cdfdata.fire.ca.gov/incidents/incidents_stats?year=2015*), 2015 was a year of increased fire activity in California.

Fire can have either a negative or positive effect on fisher habitat, depending on the specifics of the situation; many variables enter into the final outcome with respect to potential habitat suitability for fisher, and additionally the post-fire landscape may vary in suitability for fishers depending on the aspect of fisher life history under consideration (e.g., denning or resting versus foraging or movement). We understand that fires can create fisher habitat and that fishers have been documented in burned landscapes. We have incorporated all additional information submitted during the comment periods into our final Species Report, where we provide an expanded discussion on this topic (please also see our responses to *Comments (87), (105),* and *(298).*

(300) Comment: One Federal agency suggested that the Service use the Forest Service's plan for revision of fire risk modeling studies to examine the immediacy and scope of the threat of fire on the proposed West Coast DPS of fisher.

Our Response: We appreciate the suggestion by the agency. Although these studies were not supplied with the comment letter or during the open comment periods, we have used additional fire information made available since the proposed listing rule to

provide an updated and thorough analysis of the immediacy and scope of the threat of fire on the proposed West Coast DPS of fisher (see ***Wildfire and Fire Suppression*** above, and the associated discussion in the final Species Report (Service 2016, pp. 62–77). We will coordinate with the agency about any fire risk modeling studies available prior to any future Species Report updates.

(301) Comment: One local government expressed concern that species typically become listed under the Act after fire burns the landscape. We interpret the commenter's remarks to imply that fisher may be listed under the Act specifically due to the recent impacts to fisher habitat following the recent 2007 Moonlight, 2012 Chips, 2013 Rim, and 2013 Aspen fires. The commenter stated that listing the fisher would preclude appropriate management for restoration, thus increasing the risk of fire, and noted that 90 percent of burned areas are not salvaged and reforested due to concerns about black-backed woodpecker habitat, thus converting the once suitable fisher forested habitat to brush ecotypes.

Our Response: The effect of fire on fishers and fisher habitat was one of the many potential stressors evaluated in our review of the status of the proposed West Coast DPS of fisher. At this time the best available information does not support concluding that the stressors to fishers rise to the level of a threat, either singly or considered in combination, based on the insufficient evidence that these stressors are having significant impacts at either the population or rangewide scales currently or in the foreseeable future; this evaluation includes the consideration of fire as a stressor. Based on our review of the all of the best scientific and commercial information available, we have determined that the fisher does not meet the definition of an endangered or a threatened species and

consequently have withdrawn the proposed rule to list the species (see **Determination**, above).

(302) Comment: One commenter disagreed with the Service's assumption that areas burned at high severity would be unsuitable as fisher habitat for several decades afterward, and that the development of structures necessary for resting and denning could take up to 100 years to recover. The commenter suggested that suitable fisher habitat may regenerate in relatively short time periods following disturbance events, and provided the results of a study done on fisher usage on 26,000 ac (10,522 ha) of the Fountain Fire in California, which burned in August 1992. Specifically, the commenter stated that the Fountain Fire burned at very high intensity, subsequent salvage logging was completed without specific retention of structures for wildlife purposes, and the area was replanted with ponderosa pine from 1993 through 1997. The commenter went on to articulate that both bait stations and photo detections demonstrated that fishers were present in 50 percent of the replanted forest during the winter of 2013–2014, approximately 16 to 20 years after planting. The commenter also acknowledged that the absence of adequate structures probably precluded denning, but the evidence demonstrated that fishers are using this recently regenerated forest, at least for foraging, in much less than 100 years. Finally, the commenter stated that burned forests on Federal and State lands (as opposed to unburned forests) may provide more of the structures needed by fishers within a relatively short time.

Our Response: We agree that the information provided by the commenter provides additional insight into fisher use of burned landscapes. The replanted areas likely contain dense canopy cover that would provide fisher some protection from

predators while foraging. We also agree that fire is a necessary part of the disturbance regime and can lead to the creation of the structural elements used by fisher. We have incorporated the information provided by the commenter in our final Species Report (Service 2016, pp. 62–77). Please also see our responses to *Comments (87)* and *(105)*.

(303) Comment: One commenter disagreed with our assumption in the draft Species Report and proposed rule that high-intensity burns will increase, stating that calculations do not account for some other important potential sources of variation that would likely reduce the calculated values for scope and severity into the foreseeable future. For example, the commenter asserted that the increasing effect of continued forest management on Federal lands in both the NCSO and SSN population areas is designed to reduce the intensity of wildfire, including multiple fuels reduction projects at various stages of planning and implementation, thus helping prevent the taxon from potentially becoming an endangered species in the foreseeable future. The commenter stated that because the scope and severity estimates for wildfire are fairly small, balancing these values against the beneficial forest management activities would likely reduce the stressor of wildfire to a level of near insignificance. The commenter requested that the Service balance the projected effects of wildfire with a thorough analysis of the potential for ongoing and future vegetation management.

Our Response: The draft Species Report provided individual analyses of the potential effects of wildfire and vegetation management stressors on fisher and fisher habitat (Service 2014, pp. 58–72, 85–96). We recognize that vegetation management may result in reduced fire severity and appreciate the examples of planned or ongoing efforts by Federal agencies to accomplish fuels reduction projects. We have expanded

our discussion of this topic in our final Species Report, including specific consideration of various fuels treatment projects that may ameliorate the effect of future wildfires throughout the analysis area (Service 2016, pp 62–77).

(304) Comment: One commenter urged the Service to consider the tradeoffs of mechanical treatments of fisher habitat to reduce fire severity given that fisher avoid areas of mechanical treatments. The commenter also stated that mechanical treatments may not be effective to retain fisher habitat because treated areas can still burn at high severity.

Our Response: We recognize that there are tradeoffs when otherwise suitable fisher habitat is treated to minimize the potential for fire risk. Depending upon the mechanical treatment, there may be short-term reductions in habitat suitability (e.g., alterations to prey habitat); however, these treatments can also result in long-term benefits to fisher habitat (e.g., minimize risk of stand-replacing fire). We also understand that treated areas may still burn at low, moderate, and/or high severity levels, related to a variety of factors including the spatial arrangement and type of treatments, forest type, and weather. We received some new information during our open comment periods specific to fisher use of areas that have experienced mechanical treatment to reduce fire risk, and incorporated this new information into our final Species Report (Garner 2013, entire).

(305) Comment: Two commenters stated that catastrophic fires, which remove fisher habitat, are unlikely to occur on their lands on the California coast. One commenter stated this to be true due to the natural fire regime, their forest management practices, and effective fire suppression, and also provided examples of recent low-

severity fires to demonstrate their opinion. The second commenter asserted this to be true because of their management practices, the strong coastal influence, road infrastructure and readily available heavy equipment, as well as employee training.

Our Response: We thank the commenters for suggesting that fisher habitat in certain areas of the California coast may not be subject to the catastrophic fires occurring elsewhere in the NCSO subregion. As described in our final Species Report, there is great variability in both observed and projected fire starts, severity, size, and effectiveness of suppression capabilities across the range of the proposed West Coast DPS of fisher (Service 2016, pp. 62, 67–76).

(306) Comment: One local government maintained that the Service contradicted itself by claiming that loss of habitat by both wildfire and vegetation management is a threat to fishers. The commenter believed that this type of argument illustrates how the Act (and other environmental laws) destroy what they intend to preserve. The commenter noted that the Siskiyou County Board of Supervisors has declared an ongoing state of emergency due to the potential for catastrophic wildfire, thus implying that vegetation management is needed to address the current situation.

Our Response: We acknowledge the frustration expressed by the commenter. The term "vegetation management," as used and defined in our draft Species Report, applied not only to management actions intended to reduce the risk of catastrophic wildfire, but also to various forms of timber harvest and other activities. We understand and agree that strategic vegetation management aimed at fuels reduction can minimize the potential for catastrophic, or stand-replacing, fire. However, not all forms of vegetation management (e.g., clearcuts, even-aged management) are beneficial to fishers

or necessarily reduce the risks of stand-replacing fire. In our final Species Report, we have attempted to make a more clear distinction between the various forms of vegetation management that we assessed across the fisher's range in the west coast States, and have addressed management aimed toward fuels reduction separately (Service 2016, pp. 68–69, 98–110).

(307) Comment: Three commenters stated that the Service's analysis of wildfire is incomplete and improperly biased toward negative impacts.

- One commenter asserted fire is not a significant threat overall, and stated there is no sound science for the assumption in Naney *et al.* 2012 (as discussed in the draft Species Report) that high-intensity fires lead to permanent loss of conifer forest. The commenter asserted (with multiple supporting citations) that existing data strongly indicate vigorous conifer regeneration occurs after high-intensity fire and is not precluded by native shrub cover after fire. They suggested there could be type conversion in some circumstances (without supporting evidence), but cautioned against this speculation noting that "lagged effects of past fires and recovery rates…would prevent that from happening and maintain structural diversity on the landscape." Additionally, the commenter stated that the draft Species Report does not present meaningful context about current rates and patterns of fire in forests occupied by fisher populations. Specifically, the commenter alleged that current fires are heavily dominated by low- and moderate-intensity fire effects; fire intensity is not increasing; high-intensity fire rotation intervals are currently 600 to 1,000 years or more in the Sierra Nevada, Klamath/Siskiyou, and southern Cascades due to fire suppression, which is far longer than natural; and that high-

intensity fire occurred historically at long rotation intervals (providing multiple citations for each).

- A second commenter stated that the Service fails to attribute the benefits of fire absent fire suppression. Specifically, the commenter stated that, while firebreaks and back-burning may be necessary to stop wildfires, and undeniably inflict impacts that would not accrue absent fire, such practices are, in almost all circumstances, designed to prevent a fire from growing even larger. The commenter suggested that the Service calculate the difference between acres burned and acres projected to burn absent wildfire suppression, and derive a net anthropogenic conservation benefit. The commenter believed that this additional analysis should account for fire management regimes, and explicitly contrast the fire suppression strategies of the ODF against those of the Forest Service. Absent this calculus, the commenter declared the Service's wildfire suppression discussion is meaningless.

- The third commenter questions our reference to Powell and Zielinski (1994, p. 64) for the hypothesis that fishers evolved in forests subject to fires, thus suggesting that management should mimic small, stand-replacing fires. The commenter noted that fishers also evolved in forests with large stand-replacing fires, so by this same logic, burned forests should not have a detrimental effect on fisher survival, even absent high quantities of late-successional conifer forest.

Our Response: In response to the first comment, the draft Species Report states: "Some fires may lead to vegetation type conversion from forest to shrublands, which may permanently change landscape permeability for fishers (Naney *et al.* 2012, p. 7)." The emphasis should be on "some"; we are not suggesting that all fires (or high-severity fires,

as suggested by the commenter) lead to conversions from forest to shrubland, only that should such a conversion occur, it would affect fishers. We reviewed the multiple references provided by the commenter and revised the final Species Report to refine our discussion of conifer regeneration after fire, in addition to discussions of fire intensity and rotation (Service 2016, pp. 63–64). We thank the commenter for the additional information.

The second commenter suggested that the final Species Report should account for the fact that fire suppression activities would not occur but for a wildfire event. Fire suppression activities are a part of normal fire-fighting activities and occur within fisher habitat. To the extent that fire suppression activities have the potential to impact fisher habitat, we have included a discussion of this stressor in the final Species Report. The additional calculation, and subsequent analysis, suggested by the commenter is outside the scope of this final rulemaking process.

While the logic posed by the third commenter is convincing, there is evidence suggesting that in some areas the frequency and size of wildfires appears to be increasing, which has the potential to alter fisher habitat at rates more rapidly than historically. We acknowledge that fishers utilize burned forest and are not obligate users of late-successional forests; we have also incorporated additional discussion of historical fire regimes in forests inhabited by fishers in the west coast States in our final Species Report. Please also see our responses to *Comments (57), (87),* and *(105)*.

(308) Comment: With regard to fisher use of burned landscapes, one commenter asserted that literature we relied on should not be used. Specifically, the commenter asserted that de Vos (1952) is not a credible source because it is unpublished material

with anecdotal observations, and it is not clear whether areas in question were post-fire logged, which is a confounding factor. Additionally, the commenter asserted that Williams *et al.* (2007) is not credible because it reflects author assumptions with no empirical supporting data and does not indicate the extent of post-fire logging.

Our Response: As noted in the draft Species Report, information regarding fisher use of burned landscapes is extremely limited. Our discussion of the use of burned areas by fishers is not intended to be restricted to areas that had been burned and subsequently harvested. While we appreciate the commenter's point of view, we included de Vos (1952, pp. 12–13) in this discussion because it is an example of an incidental observation of fisher in a burned area during the breeding season. We agree that Williams *et al.* (2007, p. 1) is very general in their description of how or to what extent fires and logging degraded fisher habitat. We have revised the final Species Report to address these comments and to clarify that in both cases the studies cited were observational in nature (Service 2016, pp. 65–67).

(309) Comment: With regard to the Service's discussion (in the proposed rule and the draft Species Report) about the threat of wildfire to fisher, one commenter stated that management of Forest Service lands to reduce wildfire impacts is important to long-term fisher viability, and if the Service lists the fisher, increased regulatory burden may reduce the Forest Service's ability to prevent catastrophic wildfire and its effects to fishers and their habitat. The commenter also articulated that based on their experience, it is difficult to conduct vegetation management activities on lands that harbor federally listed species The commenter expressed concern related to how advocacy groups routinely challenge these projects, slowing the Forest Service's ability to accomplish

project goals, such that listing the proposed West Coast DPS of fisher could potentially increase the risk of catastrophic wildfires. Finally, the commenter asserted that even in areas where Forest Service projects are not challenged, the threat of ESA litigation slows Federal agencies' ability to accomplish treatments that would reduce the threat of fire.

Our Response: The commenter's concerns appear to be focused on the impacts our proposal to list fisher could have on the ability of Federal agencies to complete or initiate vegetation management projects, some of which may reduce fuels. As noted above, we have determined that the proposed West Coast DPS of fisher does not warrant listing at this time (see **Determination**, above), and are withdrawing our proposal to list the West Coast DPS of fisher as a threatened species. Accordingly, the protections afforded by the ESA will not apply to the proposed West Coast DPS of fisher. In addition, responding to the commenter's concerns regarding litigation on other species and a general perceived threat of litigation over fuel reduction treatments is beyond the scope of this document.

References Cited

A complete list of all references cited in this document is available on the Internet at *http://www.regulations.gov* at Docket No. FWS–R8–ES–2014–0041 or upon request from the Field Supervisor, Yreka Fish and Wildlife Office (see **ADDRESSES**).

Authors

The primary authors of this document are the staff members of the Pacific Southwest Regional Office, Pacific Regional Office, and Yreka Fish and Wildlife Office (see **ADDRESSES**).

Authority

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

April 4, 2016

Noah Matson

Acting Director, U.S. Fish and Wildlife Service

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