State of California
Department of Fish and Wildlife

Memorandum

Date: ~~January 23~~ Feb. 6, 2013

To: Sonke Mastrup
Executive Director
Fish and Game Commission

From: Charlton H. Bonham
Director

Subject: Petition from the Environmental Protection Information Center (EPIC) to List the Northern Spotted Owl under the California Endangered Species Act

The Department of Fish and Wildlife (Department) prepared the attached petition evaluation report in response to a petition, dated September 4, 2012, received by the Fish and Game Commission (Commission) on September 7, 2012 (Petition), and from the Environmental Protection Information Center (EPIC), to list the northern spotted owl (*Strix occidentalis caurina*) (northern spotted owl) as a threatened or endangered species under the California Endangered Species Act (CESA). (See generally Fish and Game code §2073.5, subd. (a); Cal Code Regs., title 14, §670.1, subd. (d)(1).)

In accordance with CESA, the attached petition evaluation report delineates the categories of information required in a petition, evaluates the sufficiency of the information in the Petition, and incorporates additional relevant information that the Department possessed or received during the review period. Based upon the information contained in the Petition, the Department has determined that there is sufficient information to indicate that the petitioned action may be warranted. The Department recommends that the Petition be accepted.

If you have any questions or need additional information, please contact Dan Yparraguirre, Deputy Director, Wildlife and Fisheries Division at 916-653-4673 or Eric Loft, Chief, Wildlife Branch at 916-445-3555.

Attachment

State of California
Natural Resources Agency
Department of Fish and Wildlife

REPORT TO THE FISH AND GAME COMMISSION

EVALUATION OF THE PETITION FROM THE ENVIRONMENTAL PROTECTION INFORMATION CENTER TO LIST NORTHERN SPOTTED OWL (*Strix occidentalis caurina*) AS THREATENED OR ENDANGERED UNDER THE CALIFORNIA ENDANGERED SPECIES ACT

January 2013

**Photo courtesy of USFWS; John and Karen Hollingsworth*

Charlton H. Bonham, Director
Department of Fish and Wildlife

EXECUTIVE SUMMARY

The Environmental Protection Information Center (Petitioner) submitted a Petition (Petition) to the California Fish and Game Commission (Commission) dated September 4, 2012 to list the northern spotted owl (*Strix occidentalis caurina*) (northern spotted owl) as a Threatened or Endangered Species pursuant to the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.). The Commission received the Petition on September 7, 2012 and referred it to the California Department of Fish and Game (Department; CDFG) for an initial evaluation on September 10, 2012. (Cal. Reg. Notice Register 2012, No. 15-Z, p. 494.) On December 1, 2012, the Department requested an additional thirty (30) days to complete its initial evaluation of the Petition.

This report presents the Department's initial scientific evaluation of the Petition as required by Fish and Game Code section 2073.5. (See also Cal. Code Regs., tit. 14, § 670.1, subd. (d).) Consistent with that authority, this report evaluates the scientific sufficiency of the Petition on its face and in relation to other relevant information the Department possesses or that it received during its review. To support the review, the Department gathered and reviewed the information referenced in the submitted Petition to the best of its ability. Not all references were available to the Department. In addition to the face value, and the material referenced in the Petition, the Department also considered other relevant information in its possession related to California northern spotted owl populations. All sources of information considered by the Department in preparing this report, including those referenced in the Petition are identified in the References Section.

For the reasons highlighted in this evaluation, the Department recommends that the Commission accept the Petition for further consideration under CESA. Having evaluated the Petition and other relevant information, the Department finds that sufficient information exists to indicate that the petitioned action may be warranted. (Fish & G. Code, § 2073.5, subd. (a)(2).) The Department's finding and its recommendation to the Commission is based on an evaluation of the scientific information in the Department's possession at this time relevant to the topic areas enumerated in the controlling regulation [Cal. Code Regs., tit. 14, § 670.1, subd. (d)(1)]. Likewise, in evaluating the scientific sufficiency of the available information, the geographic context for the Department's analysis and recommendation is the species' range in California. (*California Forestry* Association v. *California Fish and Game* Commission (2007) 156 Cal. App. 4th 1535, 1551.)

The Petition relies heavily on studies from Oregon, Washington, and British Columbia, many of which provide range-wide analyses for fecundity, population trend, survival, and associated required habitats. Although information for California is sometimes included in the range-wide summaries or is unsupported in the Petition, the Department's evaluation indicates that many of the factors influencing population trends range-wide may also be relevant to California populations of northern spotted owl.

The Department finds the Petition contained a number of inaccuracies and poorly supported conclusions. In several places, the Petition refers to the Commission and/or Department as the U.S. Fish and Wildlife Service (USFWS). Some sections of the Petition included statements and conclusions for which the supporting information was absent or poorly presented. Referenced owl and habitat survey data were not included in the Petition. In some instances, the Petitioners support conclusions with studies from

other states that may not be applicable to California due to differences in habitats, prey, climate, competitors, and other factors.
The conclusion that there is a declining northern spotted owl population trend range-wide is supported by the referenced material and scientific information that the Department has readily available, including studies that indicate substantial declines in the northern part of the species' range (British Columbia and Washington), with some declining populations in California. However, other information available to the Department indicates that some of the California populations are stable or increasing, and the total cumulative number of activity centers has increased. A more thorough assessment and evaluation is necessary to examine the information available to determine the status of the species in California. The Department can draw from its own spotted owl database for information and from other sources to assess population trend, such as annual reports received by timber companies in the owl's range in Northwestern California. The majority of the external reports indicate that California's northern spotted owl populations have experienced a steady decline over the last 5 to 15 years. Additionally, the primary threats to northern spotted owls and to their habitats are increasing. In California, the harvest of old-growth and mature forest – the primary threat to the species at the time the Fish and Wildlife Service listed the species – has declined, largely because of the imposition of take avoidance prohibitions. However, threats to northern spotted owls and to their habitats continue to increase: i.e., habitat fragmentation, wildfire, competition from barred owls, disease, pesticide poisoning, and climate change.

Although the Petition lacks summaries specific to California, it identifies two actions required for the future management of the species assumed to be relevant to associated habitats and climate for this part of its range: (1) listing the northern spotted owl as a threatened or endangered species in California under CESA and (2) the initiation of a long-term planning process to develop a recovery plan to conserve the species.

The Department, considering the Petition on its face and in relation to other relevant information referenced below, finds that sufficient scientific information exists, particularly with respect to population trend and degree of threat, to indicate that the petitioned action may be warranted. (See Fish & G. Code, § 2073.5, subd. (a)(2); Cal. Code Regs., tit. 14, § 670.1, subd. (d).)

INTRODUCTION

The subject of this evaluation report is the "Petition To List The Northern Spotted Owl As Threatened Or Endangered Under The California Endangered Species Act" submitted by the Environmental Protection Information Center (Petitioner) to the Commission on September 7, 2012. This evaluation report is intended to inform the Commission's determination as to whether the Petition, when considered along with other related information before the Commission, provides sufficient information to indicate the petitioned action may be warranted. (See generally Fish & G. Code, §§ 2073.5, 2074.2; Cal. Code Regs., tit. 14, § 670.1, subds. (d), (e).) The Department's charge and focus in its advisory capacity to the Commission is scientific. Consistent with controlling law, the Department has conducted its initial review of the Petition and focuses its recommendation to the Commission on the sufficiency of scientific information. *(Id.,* subd. (d)(1).).

GENERAL PETITION PROCESS INFORMATION

A petition to list or delist a species under CESA must include "information regarding the population trend, range, distribution, abundance, and life history of a species, the factors affecting the ability of the population to survive and reproduce, the degree and immediacy of the threat, the impact of existing management efforts, suggestions for future management, and the availability and sources of information. The Petition shall also include information regarding the kind of habitat necessary for species survival, a detailed distribution map, and other factors the Petitioner deems relevant." (Fish & G. Code, § 2072.3.)

OVERVIEW OF NORTHERN SPOTTED OWL ECOLOGY

The species information that follows is derived, in part, from the Revised Northern Spotted Owl Recovery Plan (USFWS 2011a).

Species Description and Taxonomy

The northern spotted owl is a medium-sized owl, dark brown, with a barred tail, white spots on its head and breast, and dark brown eyes surrounded by prominent facial disks (Gutiérrez et al. 1995). Males average about 13 percent smaller than females (USFWS 2008b). The northern spotted owl is one of three recognized subspecies of spotted owls (American Ornithologists' Union 2011). The taxonomic separation of these three subspecies is supported by genetic (Barrowclough and Gutiérrez 1990, Haig et al. 2004), morphological (Gutiérrez et al. 1995), and biogeographic information (Barrowclough and Gutiérrez 1990). The distribution of the Mexican subspecies (*S. o. lucida*) is separate from those of the northern and California (*S. o. occidentalis*) subspecies (Gutiérrez et al. 1995). There is a narrow, apparently stable zone where hybridization occurs between the northern and California spotted owl in the Southern Cascades and Northern Sierra Nevada Mountains near the Pit River in California (Barrowclough et al. 2005).

Population Trends, Distribution and Range

The size of the northern spotted owl population prior to settlement by Europeans has not been estimated. Population trend data for northern spotted owl populations in California are not available, although there are localized study-specific analyses of population trend. The Department maintains a spotted owl occurrence database that consists of occurrences for both northern and California spotted owls but until recently the database had not been regularly updated. However, annual reports from Humboldt Redwood Company (HRC 2012), Mendocino Redwood Company (MRC 2010), and Green Diamond Resource Company (Green Diamond 2011), summarize survey results over at least a 10-year span and show a steady decline in population for these regions. The annual progress report for federal lands in Northwestern California shows a fairly stable to slightly declining population over the last 15 years.

Some literature indicates that population trends on public land declined at a slightly lower rate than those on privately owned and managed lands (Anthony 2006, Davis et al. 2011, Forsman et al. 2011). For 8 sites located on federal lands in portions of California, Oregon and Washington from 1985 to 2008, the northern spotted owl population trend shows a 2.8% decline each year. The annual decline for just the

Northwestern California NSO study area during this period was 1.7% (Davis et al. 2011).

The current distribution of the northern spotted owl in California includes three provinces described as: California Coast, California Klamath, California Cascades (Appendix A) (Thomas et al. 1993).

Reproduction

The northern spotted owl is relatively long-lived, has a long reproductive life span, invests significantly in parental care, and exhibits high adult survivorship relative to other North American owls (Forsman et al. 1984, Gutiérrez et al. 1995). Northern spotted owls sexually mature at 1 year of age, but rarely breed until they are 2 to 5 years of age (Forsman et al. 2002, USFWS 2011a). Breeding females lay one to four eggs per clutch, with the average being two eggs. Most northern spotted owl pairs do not nest every year, nor are nesting pairs successful every year (Forsman et al. 1984, USFWS 1990, Anthony et al. 2006).

Diet

Northern spotted owls are mostly nocturnal, although they also forage opportunistically during the day (Forsman et al. 1984). Generally, flying squirrels are the most prominent prey for northern spotted owls in Douglas-fir and western hemlock forests (Forsman et al. 1984) in Washington and Oregon, while dusky-footed wood rats are a major part of the diet in the Oregon Klamath, California Klamath, and California Coastal Provinces (Forsman et al. 1984, 2001, 2004, Ward et al. 1998, Hamer et al. 2001).

EVALUATION OF THE PETITION

The discussion below presents the Department's topic-area specific evaluation of the Petition, as well as other relevant information the Department possesses or received. (See generally Cal. Code Regs., tit. 14, § 670.1, subd. (d).)

Population Trend ("Executive Summary" [page 3] and "Population Status" [pages 12-15] in the Petition)

The Petition (page 3 and pages 12-15) summarizes the population trend of northern spotted owls in the Executive Summary and elaborates on it under "Population Status" (pages 12-15). The Petition does not assess the species' current population trend in California specifically. The Petition describes declining population trends over the entire northern spotted owl's range. The discussion and range-wide analysis includes California, Oregon, and Washington in the United States (U.S.), and British Columbia, Canada. The Petition primarily cites a recent study (Forsman et al. 2011) that analyzed eleven study areas spanning Washington, Oregon and northern California. Cumulatively, the eleven study areas compose approximately 9% of the northern spotted owl's range. This study indicates an average annual decline of 2.9% for the entire population from 1985 to 2006. For California, two of the three study areas identified declining annual population trends over the analysis period; 1.7% for owls in Northwest California (1988-2006) and 2.8% for owls within Green Diamond (1990-2006) land ownership. The third California study area (Hoopa: 1992-2006) is apparently stable, but the point estimate of decline (1.1%) was not statistically significant.

Population trend data for northern spotted owl populations in California are not available, although there are localized study specific analyses of population trend. As accurately described in the Petition, the Department maintains a spotted owl occurrence database that consists of occurrences for both northern and California spotted owls. Until recently the database had not been regularly updated. Annual reports from Humboldt Redwood Company (HRC 2012), Mendocino Redwood Company (MRC 2010), and Green Diamond Resource Company (Green Diamond 2011), summarize survey results over at least a 10-year span and show a steady decline in population for these regions. The annual progress report for federal lands in Northwestern California shows a fairly stable population over the last 15 years, however, a body of recent research indicates that increasing threats from barred owls and other factors may negatively influence this trend in the future (Franklin et al. 2012).

The Petition also discusses and cites literature that indicates population trends on public land declined at a slightly lower rate than those on privately owned and managed lands (Anthony 2006, Davis et al. 2011, Forsman et al. 2011). These studies consider the difference to be largely due to the management guidelines developed in the Northwest Forest Plan including the retention of late seral forest stands and other high quality owl habitats required in the plan. For 8 sites located on federal lands in portions of California, Oregon and Washington from 1985 to 2008, the northern spotted owl population trend shows a 2.8% decline each year. The annual decline for just the Northwestern California NSO study area during this period was 1.7% (Davis et al. 2011).

Based on information in the Petition and other data that is readily available to the Department for California, there is sufficient evidence to conclude that population trends are declining and warrant further evaluation to determine the extent of the decline in terms of the population's threat of extinction.

Range ("Biology and Ecology of the Northern Spotted Owl: Range" [discussed on pages 7 through 10] in the Petition)

The Petition (pages 7-10) discusses an historic and current northern spotted owl range that extends from California, through Oregon and Washington in the United States (U.S.), and into British Columbia, Canada. The Petition accurately indicates the species' range in California runs south from Siskiyou to Marin County in Northwestern California. It also discusses that the ranges of the northern and California subspecies of spotted owls meet at the southern end of the Cascade Range, near the Pit River area (Gutiérrez and Barrowclough 2005). The Petition (Figure 1 on page 8) identifies all the occupied physiographic provinces in the U.S. occupied by the northern spotted owl, including three in California: California Coast, California Klamath, and California Cascades (USFWS 2008b).

The consideration of relevant information outside of California supports a substantial decline of populations in the northern part of the owl's range, which corresponds to declining numbers in parts of Northern Oregon, Washington and most of British Columbia (Forsman 2011). The Petition accurately describes the Canadian Wildlife Service's view (COSEWIC 2008) that in British Columbia, the populations (and

therefore range) could be extirpated in the near future, with owls now being absent in most Southern British Columbia habitats that were occupied historically.

The Petition does not discuss a recent restriction or contraction of the species range, or any changes or stability of the range in California; however, the factors identified as contributors to range reduction in the northern part of the species' range could potentially affect the range in California. However, the Department does not believe there is sufficient evidence to conclude that the range of northern spotted owl in California has changed substantially.

Distribution ("Biology and Ecology of the Northern Spotted Owl: Range" [starting on page 9] in the Petition)

The Petition (pages 9-10) includes limited information addressing northern spotted owl distribution. The Petition includes general distribution maps for Oregon and California. The California map is not current and shows northern spotted owl distribution based on CDFG data dated February, 1996 (Gould 1996). A current distribution map is included in Appendix B of the petition evaluation based on the most up-to-date information available in the Department's spotted owl database. Besides an increase in the total number of known records, the more current map does not readily impart any new information about change in the distribution of the northern spotted owl in California.

Based on information in the Petition and other data that is readily available to the Department for California, there is not evidence to indicate that the distribution of northern spotted owl has changed during the time period of years for which surveying/monitoring of the species distribution has occurred.

Abundance ("IV. Population Status" [discussed on 12 through 15] in the Petition)

The Petition (pages 12-15) does not include direct information on the abundance of northern spotted owl populations in California, nor does it discuss abundance range-wide. The relevant information found in the literature cited in the Petition and other scientific documents that the Department has available is inconclusive to determine the abundance of northern spotted owls range-wide or in California. Further survey and monitoring would be required to determine the abundance of northern spotted owl populations in California.

Based on information in the Petition and other data that is readily available to the Department for California, there is uncertainty about whether the declining population trends from specific study areas has translated into an overall decrease in abundance of northern spotted owls in California. However, based on the studies and the potential threats, the Department acknowledges that abundance may have declined.

Life History ("Biology and Ecology of the Northern Spotted Owl: Physical Description and Taxonomy, and Prey" [discussed on pages 7, 10 and 11] in the Petition)

The Petition (page 7) includes a brief physical description of the northern spotted owl and includes references to support the taxonomic separation of the three subspecies based on genetic, behavioral and biogeographical characteristics (Gutiérrez et al 1995,

Courtney et al. 2004, Barrowclough et al. 2005). The Petition does not provide details regarding these characteristics, nor does it include any information regarding breeding ecology.

Regarding diet, prey species utilized by northern spotted owls are briefly described in the Petition, although much of the information was derived from study areas with habitats and prey communities outside of California. The Petition recognizes that prey distribution and abundance play a central role in the species' ecology, and that significant variation in prey across the range of northern spotted owl may drive eco-regional differences in its life history. However, the Petition fails to address the influence these prey items may have on northern spotted owl populations in California compared to other geographical areas.

The Petition further discusses that much of the high variation in northern spotted owl demographics may be explained, at least partially, by variations in prey abundance (Carey 1992, Courtney et al. 2004) and associates declining populations in Washington with low prey abundance, lack of particular prey species, and declining areas of old-growth habitat. A review of literature cited in the Petition and relevant information available to the Department found limited support for a definitive conclusion for any of these statements (Rosenberg et al. 1992, Carey et al. 1992, Ward et al. 1998).

In this petition evaluation, several factors that influence and impact habitat use, foraging, and reproductive success in the variety of habitats and climates within the owl's range (Ward et al. 1998, Anthony et al. 2006, USFWS 2011a) were identified. Studies support a preliminary conclusion that the owl is resourceful and adaptable to a variety of conditions, changes in habitat, and prey availability. However, based on information in the Petition and other data that is readily available to the Department for California, there remains uncertainty in our understanding of all life history requirements of northern spotted owl populations in California (Gutiérrez et al. 1996, Ward et al. 1998, Thome et al. 1999, Franklin et al. 2000, Courtney et al. 2004).

Habitat Necessary for Survival ("Biology and Ecology of the Northern Spotted Owl: Habitat Requirements" pages 11 and 12 in the Petition).

The Petition (pages 11-12) discusses the habitat necessary for survival and refers to general, range-wide habitat characteristics for northern spotted owl; relatively large areas of complex, older forests provide for breeding, forage, roosting and dispersal life history functions (Forsman et al. 2011). The Petition does not specifically describe habitats that exist in California, nor how available habitat types influence northern spotted owl populations found here. The only habitat information related to California in the Petition attributed to Franklin et al. (2000) is nonspecific to habitat types.

The Petition states that both the amount and the spatial distribution of nesting, roosting, foraging, and dispersal habitat influences reproductive success and long-term population viability of northern spotted owls, which is supported by the research referenced within the Petition. However, habitat types found in California, which may be considerably different than those found in other portions of the owl's range (Davis and Lint 2005, Davis et al. 2011), are not specified.

The Department agrees, as the Petition indicates, that there have been extensive studies supporting a strong association of northern spotted owls with older forests throughout its range. For the most part, these studies refer to research that analyzed associations range-wide or in other states rather than in California.

Citing Diller and Thome (1999), the Petition states that breeding occupancy is related to the presence of mature and old-growth forests in Northwestern California, as northern spotted owls usually occur in the oldest forests available on private lands. Then, citing several studies (Carey et al. 1992, Rosenberg and Anthony 1992, Buchanan et al. 1995, LaHaye and Gutiérrez 1999, Lehmkuhl et al. 2006) the Petition identifies understory structural characteristics of late-successional forest habitats as important for northern spotted owls and their prey, but does not describe those characteristics. The conclusions however, are supported by the referenced studies and the information the Department has in its possession.

The Petition states that northern spotted owl fecundity, production, survival, and recruitment are positively correlated to a larger proportion of older forest habitats in a pair's home range (Forsman et al. 2011, Bart and Forsman 1992, Franklin et al. 2000, Dugger et al. 2005, Olson et al. 2004). Additionally, the effects of barred owls have been found to increase with a decrease in the proportion of old forest habitat in a home range (Dugger et al. 2011); however, most of these studies cited are associated with habitats in Southern Oregon and would need California work to determine whether the relationship holds in habitats found in this state.

The Petition includes a discussion focusing on the importance and characteristics of dispersal habitat (page 12), and reasonably describes it as forested stands with adequate tree size and canopy closure to provide for foraging opportunities and protection from avian predators. Additionally, the Petition states that population growth can occur only if there is adequate habitat in an appropriate configuration to allow for the dispersal of owls across the landscape; including dispersing juveniles, nonresident sub-adults, and adults that have not yet recruited into the breeding population. However, no literature was cited in the Petition to support these conclusions related to dispersal habitat.

Outside of the Petition, information that the Department has available (e.g., Davis and Lint 2005) shows a distinct lack of dispersal habitat connectivity within two of the three California Provinces (California Coast and Cascades Provinces). However, this and other studies show that a variety of habitats are used for dispersal, and more information is needed to determine what key elements of dispersal habitat structure is required for a sustainable population range-wide and in California (LaHaye and Gutiérrez 1999, Thome et al. 1999, Franklin et al. 2000, Gonzales 2005, Phillips et al. 2010).

The Department concludes that the existing science that is readily available for California is varied and complex for specific characteristics of breeding, foraging, roosting, and dispersal habitats that are required for the northern spotted owl and requires further evaluation, thus contributing to uncertainty regarding the specifics of habitats necessary for survival.

Factors Affecting Ability of Population to Survive and Reproduce ("Biology and Ecology of Northern Spotted Owl" [starting on page 10] and "Northern Spotted Owl in California: Prey, Habitat Requirements in California" [starting on page 15] in the Petition)

The Petition does not specifically summarize the factors affecting the ability of northern spotted owl populations to survive and reproduce in California or range-wide. These factors were found interspersed throughout the Petition within the following two sections: "Biology and Ecology of Northern Spotted Owl" and "Nature, Degree, and Immediacy of the Threat to Northern Spotted Owls in California."

Primary factors described in the Petition affecting the ability of the population to survive and reproduce included prey availability, and the amount of suitable nesting, foraging, roosting, and dispersal habitat available (i.e., old growth and mature forest habitats). Additionally, direct and indirect threats of habitat loss and fragmentation by timber harvest, catastrophic fire, human development, barred owls, sudden oak death and West Nile Virus were cited as influencing the ability of the northern spotted owl populations to survive and reproduce in California (Courtney et al. 2008, Forsman et al. 2011, USFWS 2011a).

The Petition states, "Large areas of older, structurally complex forests provide the habitat necessary to support viable populations of northern spotted owls (Forsman et al. 2011)." However, the literature cited to support this conclusion is based on a meta-analysis of studies across the species full range. One California study cited in the Petition states that northern spotted owl survival was positively associated with area of old forest habitat in the core, but reproductive output was positively associated with the amount of edge between older forest and other habitat types in the home range (Franklin et al. 2000).

Extracting California-specific information from the relevant scientific information that the Department has readily available (Forsman et al. 2011, Davis et al. 2005, Anthony 2006), the Department believes that there has been a decline in the northern spotted owl population in the state and that factors, such as those listed in the Petition are likely to have influenced this decline. The Department acknowledges a likely increase of potential threats (e.g., Diller et al. 2010). Factors affecting this decline in California include the range of items described in the Petition under "needs and threats"; but, the Petition does not make a strong link of these to California populations of northern spotted owl. The Petition identifies these factors as availability of prey; loss and fragmentation of suitable nesting, foraging, roosting, and dispersal habitats (i.e. old growth and mature forest habitats) in the face of timber harvest, catastrophic fire, and human development; and biological threats from the barred owl, predation, and disease.

While the Petition suggests certain hypotheses, the Department believes, due to the absence of comprehensive analysis and criteria specific to California, that there remains uncertainty at this time regarding the extent in any given northern spotted owl population that these factors, or some combination of them, affect the ability of northern spotted owls to survive and reproduce.

Degree and Immediacy of Threat ("Executive Summary" [starting on page 3] and "Nature, Degree and Immediacy of Threat to Northern Spotted Owl in California" [starting on page 15] in the Petition)

The Petition (page 3 and pages 15-25) discusses the degree and immediacy of threat to northern spotted owls relying on sources ranging from USFWS federal listing documents to specific focused studies.

The Petition provides information that spans potential or documented threats to northern spotted owls range-wide. These include impacts to the owl populations and prey base, loss of critical habitats from fire, logging and urban development, and other potential impacts of barred owls, predation, and disease. The potential impact and degree of threat from climate change was not discussed, although the research available suggests it poses a threat that warrants evaluation (Franklin et al. 2000, Spies et al. 2010, Glenn et al. 2011).

Loss of late-seral forest and other required habitat elements across the northern spotted owl's range are well-documented (USFWS 2011a, Moeur et al. 2005, Raphael 2006, Courtney et al. 2004). The Petition describes extensive habitat loss in Washington and Oregon over the last 20 years (Courtney et al. 2004, Davis and Lint 2005, Campbell et al. 2010).

The Petition does not discuss historic or recent habitat loss for California. It does tabulate twenty-seven of Sierra Pacific Industries THPs (Table 3 in the Petition) that the Petitioner identified as activities "destroying northern spotted owl habitat in violation of the ESA Section 9 'Take' prohibition". The table concludes that over 2833 ha (7000 ac) of northern spotted owl habitat that have been or will be destroyed by these plans. However, the Department analysis was unable to confirm the number of acres of owl habitat alleged as subject to destruction.

In some cases, silviculture/habitat crosswalks in Table 3 were apparently inconsistently applied. For example, Hogs THP (2-09-010-TRI) was identified as destroying 83 acres of northern spotted owl habitat of the 116 acres included in the plan, but the silviculture numbers of 37 acres (clear-cut), 13 acres (selection), 22 acres (commercial thinning), 15 acres (alternative) and 29 acres (sanitation salvage) do not combine together in any combination that totals 83 acres. The most expected combination based on potential impacts to habitat would be to add the clear-cut, alternative and sanitation salvage which totals 81 (37+15+29).

In other cases, estimated destroyed acreage in Table 3 was inaccurate because the area of the entire plan was smaller than the amount destroyed. For example, the Petition identifies the Wilcox THP (2-09-038TRI) as destroying 293 ha (724 ac) of owl habitat, but the entire plan only totals 226 ha (559 ac). Additionally, the Petition states that it will *"provide the supporting information for the identified Sierra Pacific THPs, including the owl and habitat data".* The supporting information however, was not provided. To assess the impacts of timber harvest activities in California for direct, indirect and cumulative effects to northern spotted owl populations, and the degree and immediacy of any threat identified, a more in-depth evaluation would be needed.

The Petition describes habitat loss and decline of preferred prey species range-wide, but does not focus on California habitats or prey species, nor does it present how habitat loss within California may impact prey abundance. Information related to prey species in California is mentioned briefly but presents no conclusions or supporting scientific evidence identifying the degree, immediacy, or magnitude of these threats.

The Petition accurately states that one of the greatest threats to the northern spotted owl both in California and across its range is the increasing competition by the barred owl. This owl species has been expanding its range from eastern North America over the last half century to the point that it now completely overlaps the range of the northern spotted owl. The barred owl is known to prey upon, hybridize with, displace and out-compete northern spotted owls (USFWS 2011a). The Petition accurately identifies the increasing threat that barred owls pose to northern spotted owls due to competition for breeding and foraging habitats, and the associated significant negative effects on northern spotted owl reproduction and survivorship.

The relevant information readily available to the Department shows a north to southward trend in the expansion of the barred owl range, with this threat recently moving into California. The barred owl may be the primary reason for the near-extirpation of northern spotted owls in Canada, as well as the marked declines in Washington and Oregon (Forsman 2011, USFWS 2011a, USFWS 2012b, Dark et al. 1998, Kelly et al. 2003). After a period of initial invasion, barred owl populations increase as do their potential impacts to northern spotted owl populations. Currently, the California portion of the northern spotted owl's range is experiencing the post-invasion increase in barred owls. As in other parts of the northern spotted owls range, the barred owl may be the primary reason for recent declines in California. Recent scientific information (Diller et al. 2010) suggests a strong negative link between barred and northern spotted owls. The related research cited above on Green Diamond Resource Company land found in most cases that northern spotted owls reoccupied areas where barred owls were removed.

The Petition identifies predation and West Nile Virus as potential threats that may have a negative impact on the northern spotted owl populations in the future. A more thorough evaluation is needed to determine the extent to which these factors may influence owl population viability in California. Trichomoniasis is another disease that has been recently identified in northern spotted owl carcasses (CDFG 2012b) but for which the Petition contains no information about the disease or the disease's impact on the species. Impacts due to predation on northern spotted owls also needs more investigation. While the Petition and other information suggests certain hypotheses regarding predation and disease impacts to northern spotted owls, the Department finds that in the absence of specific research findings on disease and predation effects in California, the scientific uncertainty at this time limits conclusions regarding the importance of these factors in affecting northern spotted owl populations.

Much of the information included in the Petition supporting the degree and immediacy of threat was derived from studies conducted outside of California. However, the Department believes that while the magnitude and mechanisms of the threats may differ between California and other portions of the northern spotted owls range, the non-California studies do provide useful information regarding potential in-state threats.

Impact of Existing Management Efforts ("Inadequacy of Existing Regulatory Mechanisms" [starting on page 19] in the Petition)

The Petition (pages 19-23) describes the overall regulatory and management inadequacies believed to exist between federal lands, non-federal lands, and then by each U.S. state within the northern spotted owl's range.

The information directly related to California discusses the inadequacy of federal protections to stop declines, noting that the owl population has not stabilized since the 1990 Federal Endangered Species Act listing in spite of the protections afforded by the Northwest Forest Plan (NWFP) (Davis et al. 2011, USFWS 2011a). The Petition concludes that this is due to insufficient protections and a lack of recovery planning outside of late-successional reserves established on federal lands by the NWFP.

The Petition further discusses the lack of protection on private lands by citing a review (DellaSala 2011) that specifies the areas of management deficiencies as follows:

(a) *variable and often inadequate protection given to owls and owl habitat;*
(b) *lack of landscape-scale planning, especially on non-federal lands;*
(c) *use of survey protocols and other standards that fail to incorporate current relevant science;*
(d) *prevalence of discretionary guidelines and/or unclear or unsuitable direction;*
(e) *failure to consistently require involvement of personnel with biological expertise in evaluating/assessing ecological information.*

The Department involvement in biological assessment and evaluation for the species in THP review has been limited in the last few years. Beginning January 1, 2013, the Department will resume full participation in the THP review process. The Department conducted "Take" consultations of all THPs until June 1999. USFWS picked up the work until about spring 2008, when the California Department of Forestry and Fire Protection (CALFIRE) began reviewing THPs following guidelines from USFWS supported by technical assistance from USFWS of specific plans and issues. Consequently, as it relates to this portion, existing/future management efforts will be expanding compared to the recent past.

The Petition states that protection under the federal ESA is not sufficient to ensure the long-term survival of northern spotted owls in California. The northern spotted owl is currently protected as a threatened species under the federal ESA, which prohibits all non-permit take as defined under the federal ESA. The USFWS has issued survey guidance, including updates (most recently, USFWS 2011b) to identify situations where a development project may take a northern spotted owl.

The Department currently has no special status classification assigned to the northern spotted owl in California. However, governmental entities and land managers are required to evaluate any potential impacts to native biological resources during CEQA review. Projects that have the potential to impact northern spotted owls are required to

comply with the California Environmental Quality Act (CEQA) or an equivalent Certified Regulatory Program such as the Forest Practices Act. Not only do projects need to avoid “take” under the federal ESA, CEQA dictates they must be developed to identify and mitigate significant direct and cumulative significant impacts. The California Department of Forestry and Fire Prevention (CALFIRE) has also developed guidance specific to California to avoid take to northern spotted owls by timber harvest (CALFIRE 2012).

The Department concludes that the existing science that is readily available for California is varied and complex for the spotted owl as it relates to management efforts. The Department acknowledges and understands there have been efforts and locations where management occurred that was either beneficial or detrimental to the northern spotted owl; or in some cases perhaps benign. Whether the existing management efforts will successfully address factors that could otherwise limit the species remains uncertain in the present.

Suggestions for Future Management (“Recommended Management and Recovery Actions” [starting on page 25] in the Petition)

The Petition (page 27) recommends two management and recovery actions. First is that the Commission list the northern spotted owl in California under CESA. Second is the initiation of a long-term planning process to develop a recovery plan using the best science available. CESA does not require recovery plans be prepared for species listed under the act. The Department is aware the USFWS recently adopted an updated Recovery Plan (USFWS 2011a) intended to apply across the species’ full range.

The Petition does not provide support for its assertion that these two recommended management and recovery actions are needed to sustain northern spotted owl populations in California. The contents of a California-specific Recovery Plan are unknown. While proposed actions in such a Recovery Plan could be extensive and rigorous, the successful implementation of such plans is often accomplished through voluntary action, and are thus of unknown application and efficacy. An increased level of conservation and management action through a Northern Spotted Owl Conservation Strategy could improve conditions for this species in the State.

Management elements are suggested throughout the Petition but are not identified under “Suggestions for Future Management”. Additionally, the Petition supports a possible management strategy of protecting more late-seral and mature forest habitats as a potential solution to minimize the increasing threats to northern spotted owl posed by the barred owl. The Department finds that the lack of existing science specific to California regarding what particular actions may be necessary for future management and conservation of the northern spotted owl make drawing conclusions difficult, and the topic therefore requires further evaluation.

Distribution Map (“Northern Spotted Owl Distribution in California” [page 9] in the Petition)

The Petition (page 9) includes a distribution map for northern spotted owls in California; however, the distribution map is outdated (Gould 1996). The Petition accurately stated that the Department maintains records of northern spotted owl territories for California. An up-

to-date distribution map prepared from the Department spotted owl database based on northern spotted owl records is included in Appendix B.

Availability and Sources of Information ("Literature Cited" [starting on page 27] in the Petition)

The Petition (pages 27-35) included a list of literature cited references in the document. The information content of this literature was not accessible when originally submitted on a CD to the Commission with the Petition.

Preparers

This report was drafted by Department of Fish and Wildlife staff: R. Lee, C. Battistone, D. Applebee, and K. Rogers of the Wildlife Branch; B. Valentine of the Northern Region; and L. Bauer of the Office of General Counsel.

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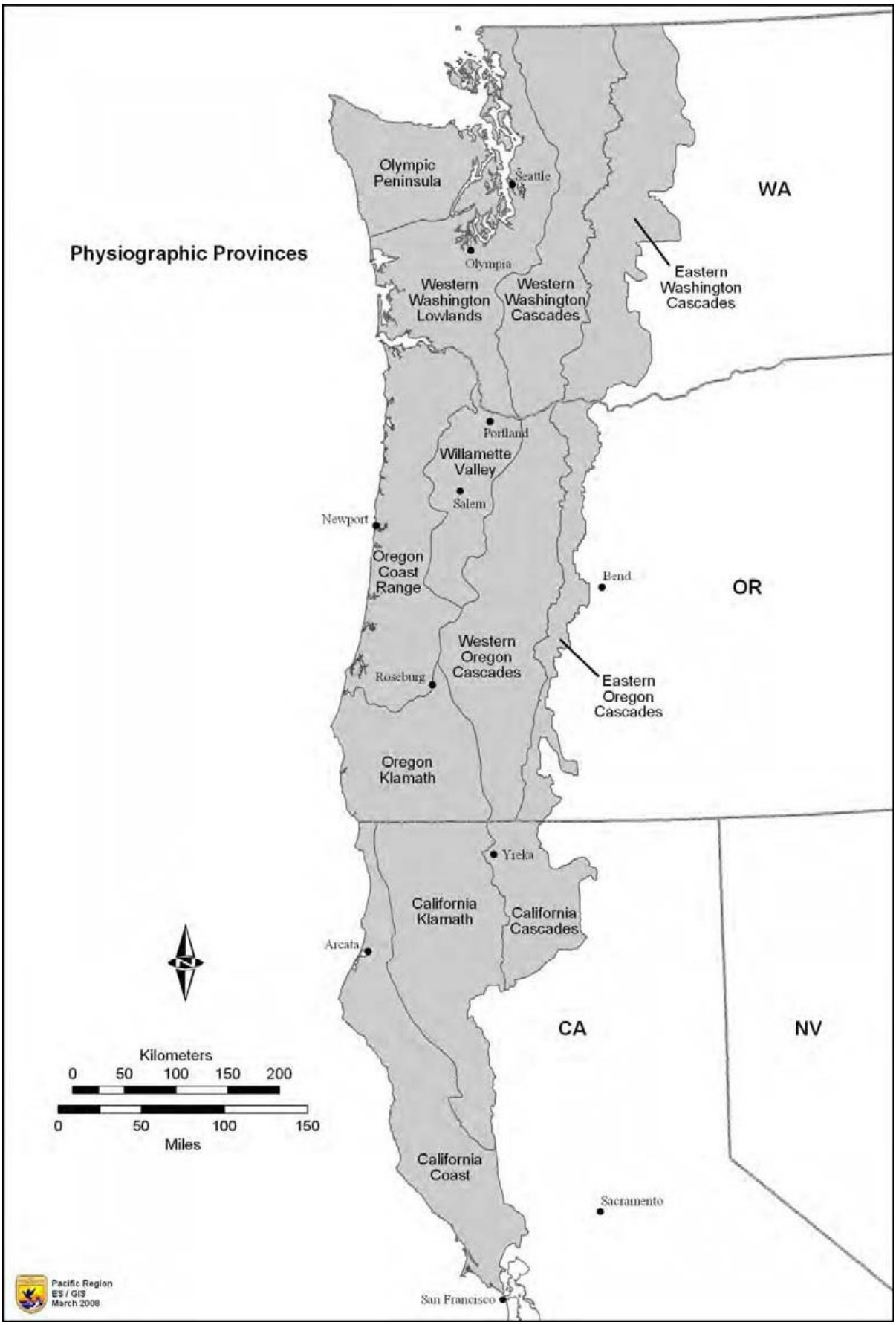
*Literature cited from the Petition referenced in petition evaluation but was not available for review by Department staff.

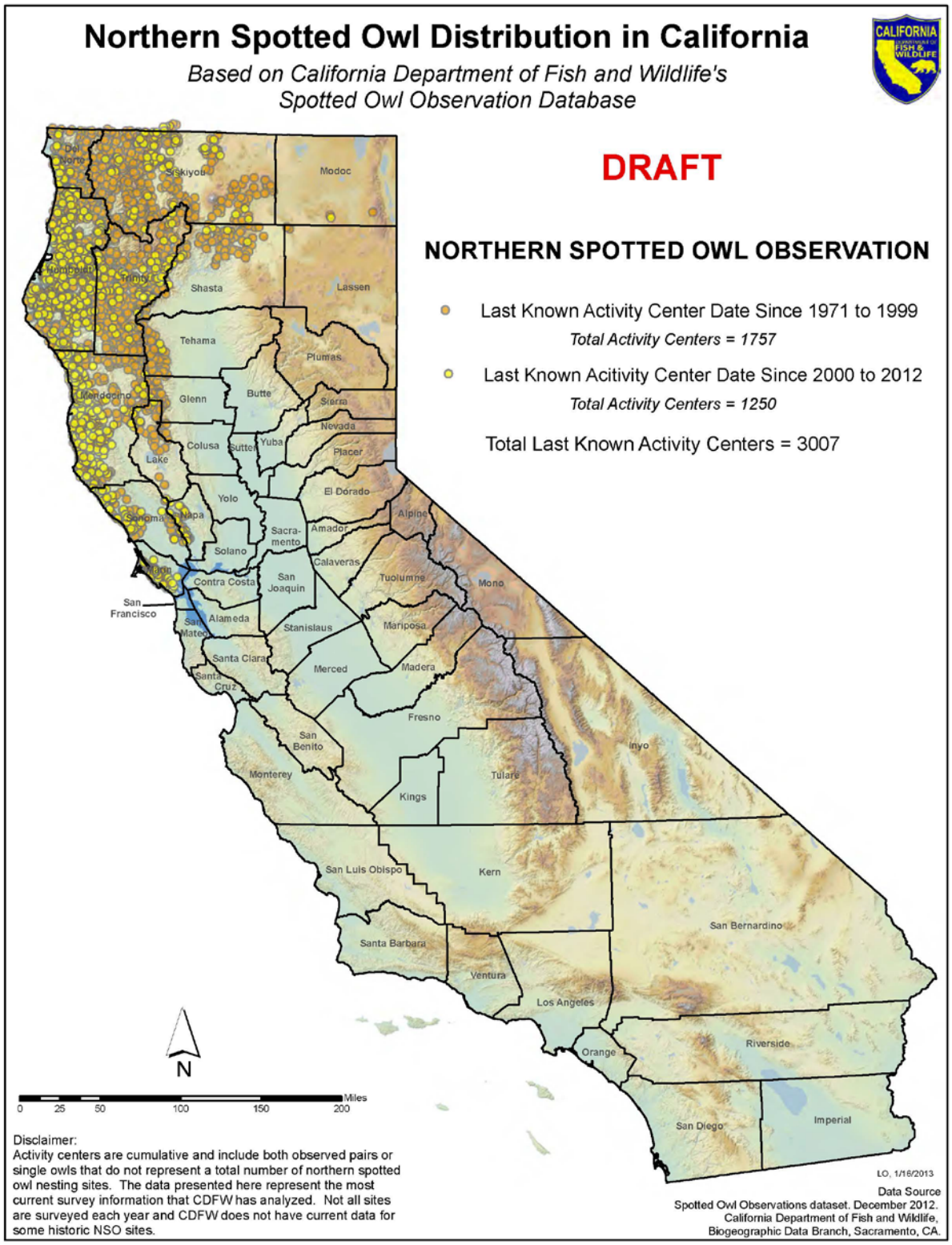
APPENDICES

Appendix A – Northern Spotted Owl Physiographic Provinces
Appendix B – Northern Spotted Owl Distribution in California

Appendix A: Northern Spotted Owl Physiographic Provinces



Appendix B: Northern Spotted Owl Distribution in California


Northern Spotted Owl Distribution in California
Based on California Department of Fish and Wildlife's
Spotted Owl Observation Database
DRAFT
NORTHERN SPOTTED OWL OBSERVATION
Last Known Activity Center Date Since 1971 to 1999
Total Activity Centers = 1757
Last Known Acitivity Center Date Since 2000 to 2012
Total Activity Centers = 3007
Total Last Known Activity Centers = 3007
Del Norte
Siskiyou
Modoc
Humboldt
Trinity
Shasta
Lassen
Tehama
Plumas
Mendocino
Glenn
Butte
Sierra
Nevada
Colusa
Sutter
Yuba
Placer
Lake
Yolo
El Dorado
Napa
Sonoma
Sacra-
mento
Amador
Alpine
Solano
Calaveras
Marin
Contra Costa
San
Joaquin
Tuolumne
Mono
San
Francisco
San
Mateo
Alameda
Stanislaus
Mariposa
Santa Clara
Merced
Madera
Santa
Cruz
Fresno
San
Benito
Inyo
Monterey
Tulare
Kings
San Luis Obispo
Kern
San Bernardino
Santa Barbara
Ventura
Los Angeles
Orange
Riverside
San Diego
Imperial
N
Miles
0 25 50 100 150 200
Disclaimer:
Activity centers are cumulative and include both observed pairs or single owls that do not represent a total number of northern spotted owl nesting sites. The data presented here represent the most current survey information that CDFW has analyzed. Not all sites are surveyed each year and CDFW does not have current data for some historic NSO sites.
LO, 1/16/2013
Data Source
Spotted Owl Observations dataset. December 2012.
California Department of Fish and Wildlife,
Biogeographic Data Branch, Sacramento, CA.