



Sierra Forest Legacy
Protecting Sierra Nevada Forests and Communities



August 14, 2015 (revised 8/17/15)

Forest Plan Revision
USDA Forest Service
Pacific Southwest Region
1323 Club Drive
Vallejo, CA 94592

Forest Issues Group



Sent via email: r5planrevision@fs.fed.us

Re: Comments on draft species of conservation concern for the Inyo, Sequoia and Sierra national forests

To Whom It May Concern:

We have reviewed the draft lists of species of conservation concern (SCC) posted by your agency on July 29, 2015. In the first part of these comments, we address the ongoing process used to determine and evaluate such species in the forest plan revision process. These are followed by detailed information on a number of plant and animal species omitted from the draft SCC list that should be included on the final.

I. Pacific Southwest Region’s Approach to Determining SCC

We have demonstrated our commitment to providing detailed and timely comments on all steps in the forest plan revision process. We have invested significant time and resources to provide comments that are supported by scientific information, expert opinion, and other relevant evidence. Consistently, the Revision Team has failed to provide the rationale or supporting evidence for determinations made in draft products. In the case of SCC, the Revision Team issued a “draft list” without providing documentation, as required by the planning rule and directives (36 CFR 219.3; 36 CFR 219.9(c); FSH 1909.12 § 12.52b; FSH 1909.12 § 21.22a), for why a potential species was included or excluded from the list. The information presented is inadequate to satisfy the planning rule. The incomplete information also thwarts our ability to respond to the draft “decision” as to which species identified as potential SCC in the forest assessments qualify, in the Revision Team’s view, for the SCC list to be considered in the draft plans. It is unacceptable that the Revision Team cannot find the time to document the rationale for the draft products, yet the agency has requested stakeholders to provide well-reasoned comments supported by evidence.

We are deeply disturbed by the extremely short time frame given for us to provide comments on the draft SCC lists. Ten business days is an inadequate amount of time to respond, especially in this case since the Revision Team provided no documentation for the draft SCC list. The response from agency staff that the team did not have time to provide documentation for the draft SCC lists raises significant concern that if we fail submit comments by the deadline, the Revision Team will have moved on and not have time to consider any information we submit after that date. As committed stakeholders in this process, we find this an unacceptable timeframe for meaningful engagement. It also does not meet the intent of the planning rule and directives to engage stakeholders and leverage their resources.

Lastly, we are concerned that the Revision Team has yet to substantively engage federal and state wildlife agencies and species experts in the evaluation of status and trends for at risk species or to discuss with them the inclusion or exclusion of a given species from the potential and draft SCC lists.

For most potential SCC noted in the final forest assessments, information on status and trend was not provided and very little information was presented on key ecological conditions and risk factors. In mid-2014, we provided the Revision Team with an assessment tool to guide the evaluation of SCC and proposed workshops among species experts to inform decision-making, to leverage resources from those outside the agency, and to engage stakeholders. These were not approaches that you chose to utilize, yet the Revision Team has not made any other effort in the 18 months since completion of the forest assessments to provide evidence for each at risk species considered for the SCC list, as required by the planning rule. We frankly are at a loss about how to engage in a process that so seriously lacks veracity and transparency.

II. Mammal and Bird Species that Should Be Included on the SCC list

Our review of the draft SCC lists indicates that there are at least five bird or mammal species that were considered potential SCC in the forest assessments, but have been dropped from the draft SCC list: Pacific marten, northern goshawk, black-backed woodpecker, desert bighorn sheep, and bi-state sage grouse. We provide evidence below to support their inclusion on the SCC list.

A. Criteria for Inclusion on SCC list

The planning rule contains only two criteria that the regional forester may use to identify SCC (219.9(c)):

- A species must be known to occur in the plan area; and
- Best available scientific information indicates substantial concern about the species' capability to persist over the long-term in the plan area.

Below we provide evidence to show how the species noted below meet the criteria needed for the SCC decisions for the Inyo, Sequoia, and Sierra national forests.

B. Species Occurrence in Plan Area

Range maps examined at NatureServe¹ and species accounts and range maps available from the California Department of Fish and Wildlife² indicate that three species (pacific marten, northern goshawk, black-backed woodpecker) occur on the Inyo, Sequoia and Sierra national forests and two (bi-state sage grouse and desert bighorn sheep) occur on the Inyo National Forest.

Occurrences on their respective national forests were also verified from monitoring data (Pacific marten³, black-backed woodpecker⁴ and desert bighorn sheep⁵) and assessments related to land management planning (bi-state sage grouse⁶ and northern goshawk⁷). This information satisfies the first criteria for including these four species on the SCC list.

C. Substantial Concern about Persistence in the Plan Area

The best available science information is sufficient to conclude that there is a substantial concern about the capability of martens, northern goshawks, and black-backed woodpeckers to persist on the Inyo, Sequoia, and Sierra national forests. There also is sufficient evidence to conclude that there is a substantial concern about the capability of bi-state sage grouse to persist on the Inyo National Forest.

1. Pacific Marten

Loss of important habitat qualities could reduce connectivity and fragment the habitat in this southernmost region.

Additional information in support of designation as an SCC is provided in the species account for Pacific marten included in Britting et al. (2012). This information was submitted to the Revision Team with our scoping comments in September 2014.

Substantial Conservation Concern Recognized

Pacific marten is ranked by NatureServe as G5T3 S3 and considered vulnerable. The State of California includes this species on their “Special Animals” and “considers taxa on this list to be those of greatest conservation need” (California Department of Fish and Wildlife 2015b). The Draft State Wildlife Action Plan being prepared by California Department of Fish and Wildlife denotes Pacific marten to be a species of greatest conservation need (SGCN) (California Department of Fish and Wildlife 2015a). Key pressures identified in the SWAP for habitats occupied by marten were fire and fire suppression and logging and wood harvesting.

¹ <http://www.natureserve.org/>

² <http://www.dfg.ca.gov/biogeodata/cwhr/>

³ http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5383773.pdf

⁴ <http://www.birdpop.org/pages/blackBackedWoodpeckerMap.php>

⁵ <https://www.dfg.ca.gov/wildlife/Bighorn/Desert/images/DesertSheepMap.jpg>

⁶ http://www.ndow.org/uploadedFiles/ndoworg/Content/Nevada_Wildlife/Sage_Grouse/Land-Mgmt-and-Permitting-Entities-D-Letter-Summary-Inyo-National-Forest-USFS-Regulatory-Mechanisms.pdf

⁷ http://www.fs.fed.us/emc/nfma/includes/r5/feis/vol_3/part_4.4.pdf

Pacific marten has been designated a Forest Sensitive Species in Region 5 since the mid-1980s. Concern about range restrictions, declining populations, and decline of habitat quality for martens and fishers in the late-1980s led Region 5 to develop a literature review (Freel 1991) of important habitat attributes for martens (and fishers). This information was used in the mid-1990s by some national forests to develop conservation measures to address martens' habitat needs. In some cases, forest plans were amended to incorporate these measures (Sierra National Forest) and in others conservation was addressed through project level planning (Sequoia National Forest).

In 2001 and 2004, the Forest Service amended forest plans on eleven national forests in the Sierra Nevada. Each time, the conservation of old forests and associated species was identified as one of five key issues. The amendments included in the forest plans measures that they designed to maintain viable populations of Pacific marten in the planning areas, establishing that this is a species for which substantial conservation concern exists.

In 1998, the Pacific Southwest Research Station, USDA Forest Service, was charged by Region 5, Forest Service to synthesize new information on issues of urgent priority at range-wide scales. The resulting report, *Sierra Nevada Science Review* (Pacific Southwest Research Station 1998), formed the basis for forest plan amendments made to eleven national forests in 2001. This report found that marten's:

...association with mature and old-forest ecosystems makes it vulnerable to the loss of large trees, and large patches of mature, high-elevation true-fir forest. The marten, like fisher, occurs at the southernmost portion of its North American range in the Sierra and the populations at the end of this peninsula are expected to be more vulnerable than those closer to the center of the species' range. Like many other carnivores, martens have relatively large home ranges for their body sizes and therefore occur at relatively low densities. The combination of relatively low natural population sizes and their association with habitat that is vulnerable to additional losses (old-forest conifer systems) make the marten particularly vulnerable to activities that decrease canopy closure or remove large diameter standing and downed material from forest lands.

Thus, science advisors to the Forest Service found in 1998 that heightened concern for Pacific marten persistence merited the development of conservation measures in the future planning process.

Again in 2012, the Forest Service requested assistance from the Pacific Southwest Research Station in the synthesis of new information to support the anticipated forest plan revision process in the Sierra Nevada. The science synthesis team selected topics they considered most highly relevant to management in the focal parts of the synthesis area, based on input from management, stakeholders, and reviewers. The conservation of Pacific marten was the focus on one chapter emphasizing the importance of conserving this mid-sized carnivore in an ecosystem which has already suffered losses of top predators (Zielinski 2014). Zielinski concluded that fisher and marten "are not the only species that could be affected by management decisions, but they are among the most prominent conservation concerns across many national forests in the synthesis area."

Best Available Science Information Indicating Conservation Concern

Restricted Range, Restricted Ecological Conditions, and Low Population Numbers

Martens in the Sierra Nevada occur at the southern-most edge of its North American Range, increasing the risk of range contraction if habitat conditions decline and other threats are not ameliorated (Pacific Southwest Research Station 1998). Martens' dependence for resting and denning on large tree structures in forests with dense canopy restricts the range of ecological conditions to those that provide more mesic conditions (Spencer et al. in press).

Habitat modeling indicates that marten habitat is more fragmented and narrows along an elevational gradient on the Sierra and Sequoia national forests and at the southernmost extent of its range in the Sierra Nevada (Figure 1, Spencer and Rustigian-Romsos 2012). Loss of important habitat qualities could reduce connectivity and fragment the habitat in this southernmost region. Marten's relatively large home ranges result in naturally low population numbers (Pacific Southwest Research Station 1998) habitat loss which makes home ranges unsuitable could result in range constrictions for this species.

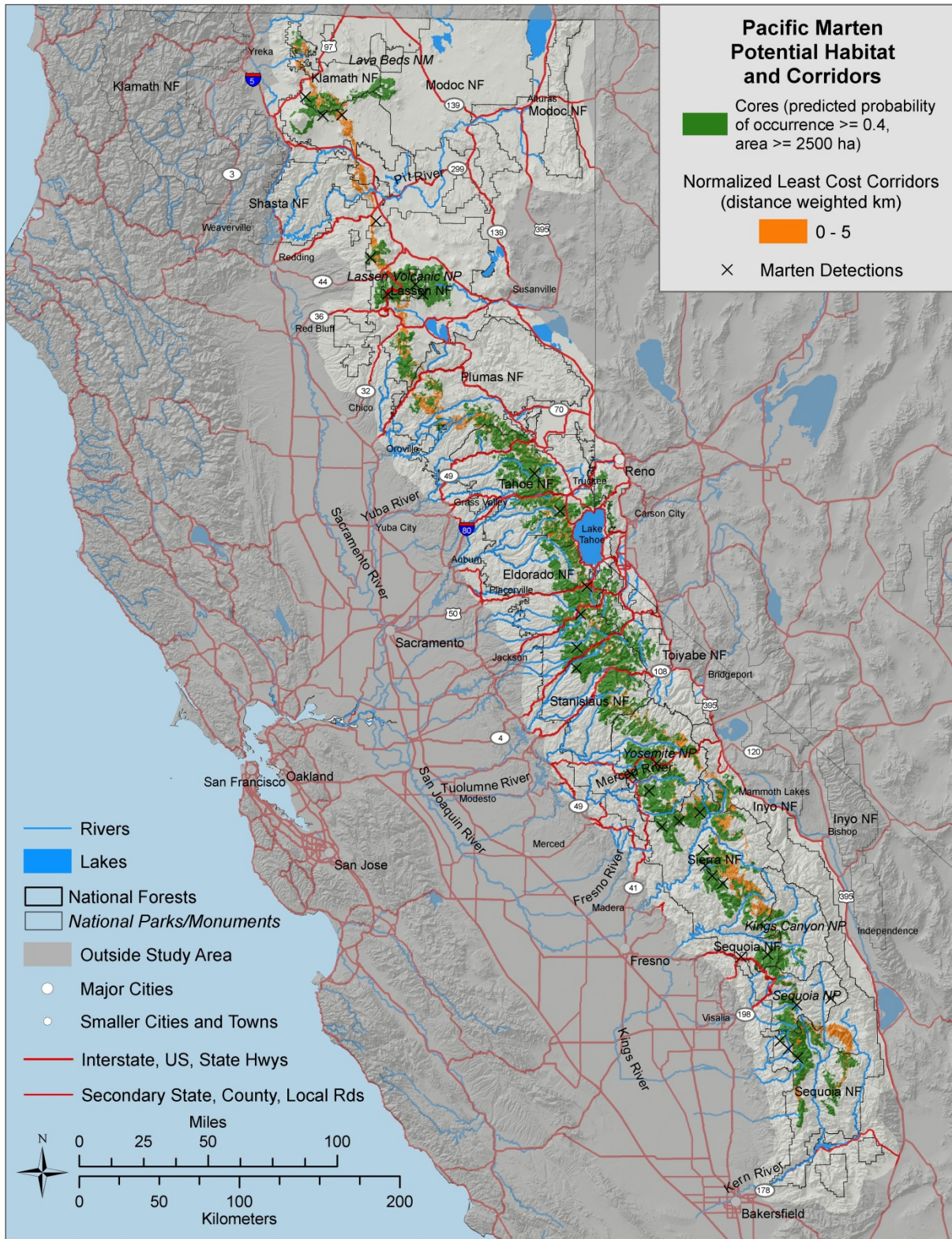


Figure 1. Habitat modeling for marten. Taken from Spencer and Rustigian-Romsos (2012).

Climate Change

Lawler et al. (2012) and Spencer et al. (in press) each created habitat models for marten and evaluated the probability of suitable habitat being available as climate changes habitat conditions. Both studies found significant declines in marten populations under the climate scenarios that were modeled. Lawler et al. (2012) suggest that the range of the Pacific marten in California will contract to the north and move up in elevation over the coming century (Lawler et al. 2012). Spencer et al. (in press) found that “predicted marten distribution shifted to higher elevations, became more fragmented, and decreased in area by 40–85% (depending on scenario) compared to current distributions.” They suggested that “[m]artens may persist in areas that retain deep, persistent snow and some dense forest patches with large trees, perhaps in high-elevation canyons and valleys.” These studies indicate that range restriction and fragmentation is likely to occur as a result of climate change.

The results of these studies indicate that marten habitat will become less common and more fragmented and the landscape will shift to mixed woodland and hardwood-dominated forest types and the reduction in conifer-dominated forest types. A future stressor on marten persistence may result from increased competition from fishers as snow packs diminish with warming trends (Zielinski 2014). Presently, there is a degree of niche partitioning among fishers and martens due to fishers’ inability to navigate easily over snow. As snow levels decline and more of the year around landscape becomes accessible to fishers, martens may be at a competitive disadvantage.

Threat from Habitat Modification

Logging, the removal of trees and other plant material, for purposes of fuels reduction and timber production has been shown to degrade marten habitat and render it unsuitable. Moriarty et al. (2011) found that all forms of harvest and vegetation management at a site in the central Sierra Nevada between 1978 and 2007 were correlated to the decline in population numbers for marten. Adverse changes in habitat conditions from vegetation management included a decrease in predicted habitat patch size, core area, and total amount of marten habitat in the study area, as well as an increase in distance between important habitat patches. The greatest change in habitat conditions occurred over a short period of time (7 years) when 39% of the forest habitat in the study area experienced some form of timber harvest. Of note here, is the rapid change in marten distribution with changed habitat conditions. More recently, Moriarty et al. (2015) found reduced use by marten of stands that have been simplified by fuels reduction. Zielinski (2015) summarizes additional research that demonstrates the threat of logging on marten habitat and its persistence.

Fire and fire suppression also have been identified as a threat to marten habitat quality (Zielinski 2014). Decades of fire suppression and logging of the largest trees have created forests that lack large live and dead structures favored by marten. Preventing fire to function as a periodic disturbance process that beneficially shapes conditions has, in some cases, created forest stands and habitat conditions that are not highly suitable. Because forest stands dominated by fir tree species have longer fire return intervals, the effects of fire suppression on the disruption of the disturbance are less than would be seen at low elevations (Zielinski 2014). Still the longer the

appropriate fire regime is not restored to these systems, the harder it will be to establish ecological resilience and habitat diversity that can support a diverse prey base – both conditions necessary to enable the persistence of marten in the plan areas.

2. Northern goshawk

Additional information in support of designation as an SCC is provided in the species account for northern goshawk included in Britting et al. (2012). This information was submitted to the Revision Team with our scoping comments in September 2014.

Substantial Conservation Concern Recognized

Northern goshawk is ranked by NatureServe as G5 and S3 in California where it is considered to be vulnerable. The State of California has designated northern goshawk as a Bird Species of Special Concern (BSSC) (Shuford and Gardali 2008). The evaluation by Shuford and Gardali (2008) is considered to be the “definitive treatment of the status of declining and vulnerable bird populations in California.” The assessment found northern goshawk to be of conservation concern due to a reduction in range of a declining population, low population numbers, moderate contribution in California to the taxon’s range, and threats. The Draft State Wildlife Action Plan being prepared by California Department of Fish and Wildlife identifies northern goshawk as a species of greatest conservation need (SGCN) (California Department of Fish and Wildlife 2015a). Key pressures identified in the SWAP for habitats occupied by northern goshawk were fire and fire suppression and logging and wood harvesting.

Northern goshawk has been designated a Forest Sensitive Species in Region 5 since the mid-1980s. Concern about low population numbers and habitat degradation from logging led Region 5 to include conservation measures in the Regional Guide (1980) prepared to support the creation of the first forest plans in the 1980s. These early conservation measures were later modified by forest plan amendments in 2001 and 2004 to improve conservation of nesting birds with the objective to maintain viable populations of this species in the plan area. These forest plan amendments identified the conservation of old forest and associated species as one of five key issues. Northern goshawk was identified as an at-risk species associated with old forests. The amendments affected eleven national forests.

In 1998, the Pacific Southwest Research Station was charged by Region 5, Forest Service to synthesize new information on issues of urgent priority at range-wide scales. The resulting report the *Sierra Nevada Science Review* (Pacific Southwest Research Station 1998) formed the basis for forest plan amendments made to eleven national forests in 2001 and 2004. This report addressed northern goshawk, its habitat requirements and relationship to threats and stressors on old forest ecosystems. Thus, science advisors to the Forest Service found in 1998 that heightened concern for northern goshawk persistence merited the development of conservation measures in the future planning process.

Best Available Science Information Indicating Conservation Concern

Restricted Range, Restricted Ecological Conditions, and Low Population Numbers

Home ranges for northern goshawks are fairly large and relatively low population numbers would be expected even in areas where threats are non-existent (Keane 2008). Territorial behavior, available prey, and suitability of nesting habitat are all factors that together are likely to regulate population numbers and distribution with habitat quality driving distribution (Keane 2008). This means that landscapes can only support a limited number of territories and the spatial distribution of habitat is critical to maintaining northern goshawk populations. Modest reductions in territory occupancy can result in substantial changes to this species distribution, especially on the Inyo, Sierra and Sequoia national forests which are located at the southernmost extent of this species range in the Sierra Nevada.

Keane (2008) highlighted several areas in California where range restriction was a concern for northern goshawk. The westside ponderosa pine zone and southern Sierra Nevada were among these areas. Extensive logging of pine forest on the westside of the Sierra Nevada was cited as a principle factor contributing to range restriction. “Goshawks are known to nest down to about 2500 ft (750 m) on the west slope, so it is likely that reductions in mature and old-growth pine have resulted in reductions in goshawk numbers in these forests” (Keane 2008). The southern Sierra Nevada was highlighted for its low nest records on the public lands south of Yosemite National Park. Keane concluded “It is uncertain whether this represents the limited survey effort expended in these areas, low breeding densities/suboptimal habitat conditions near the southern edge of goshawk distribution in the southern Sierra Nevada, or potential reductions in densities or distribution at the edge of the species’ range.” As reported by the Forest Service in 2006, densities of known breeding territories were considerably lower in the southern Sierra Nevada compared to elsewhere in the bioregion (USDA Forest Service 2006; see map below).

Northern Goshawk Breeding Territories, 1978 - 2003

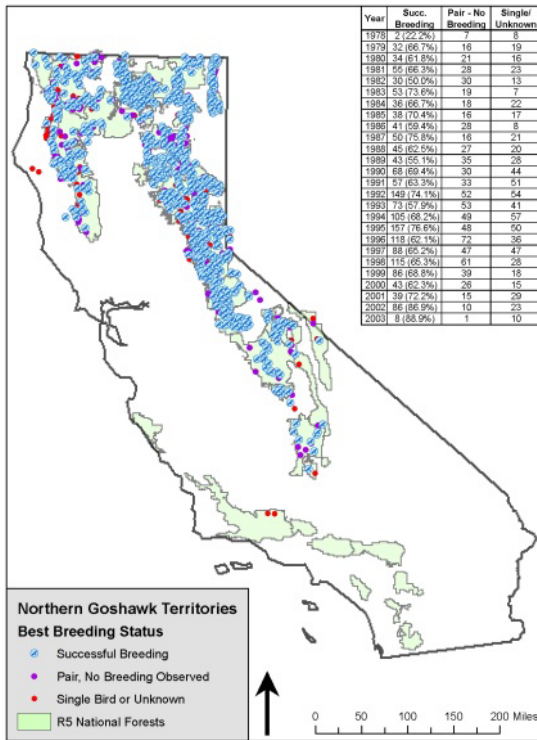


Figure 2. Northern goshawk breeding territories for the period 1978 to 2003. Map taken from USDA Forest Service (2006).

Climate Change

Siegel et al. (2014a) evaluated 168 bird species that breed in the Sierra Nevada using NatureServe’s Climate Change Vulnerability Index (CCVI) to predict vulnerability to climate change. Species range maps, information about species’ natural history traits and ecological relationships, historic and current climate data, and spatially explicit climate change projections are synthesized in the CCVI metrics. Northern goshawk was among the 17 species ranked as vulnerable. Of note, seven of the seventeen species ranked as vulnerable were associated with mixed conifer forests; this signals concern about estimated changes in this habitat type. The authors recommend using these results to develop strategies to ensure persistence of these vulnerable species and guide land management.

Threat from Habitat Modification

Keane (2008) summarizes threats to northern goshawk emphasizing habitat loss and degradation as the primary known threats (Squires and Kennedy 2006). Citing timber harvest and fire suppression policies as major stressors, Keane finds that:

...recent management policies have likely degraded goshawk habitat quality by fragmenting forests, reducing the amount and distribution of mature and old-growth forest stands and large trees, increasing understory tree density, and changing tree species composition, resulting in broad-scale reduction of the proportion of pine in forest stands.

Nest sites and territories have been lost from logging in nest stands and from stand-replacement fires.

Conservation measures on private lands are limited to the protection of a small area around the nest stand. Woodbridge and Detrich (1994) reported that short-term reoccupancy rates approached 100% for core areas that had approximately 80 ha of suitable nesting habitat. These results indicate that the management approach on private lands is likely to contribute to greater variability in nesting success and occupancy.

The threat of habitat modification to northern goshawk and a variety of species associated with old forests was a principle reason driving the forest plan amendments in 2001 and 2004 on eleven national forests in the Sierra Nevada. Protection of nesting habitat through the establishment of a protected activity center (200 acres around a nest stand) was adopted in response to the work by Woodbridge and Detrich (1994) on reoccupancy. This measure and other measures to limit logging were adopted with the objective of reducing the threats to this at-risk species and providing for its persistence.

3. Black-backed woodpecker

Additional information in support of designation as an SCC is provided in the species account for black-backed woodpecker included in Britting et al. (2012). This information was submitted to the Revision Team with our scoping comments in September 2014.

The black-backed woodpecker (*Picoides arcticus*) occurs throughout Alaska, Canada, and the northern United States. Black-backed woodpecker is rare to uncommon (Dixon and Saab 2000), yet plays important ecological roles in western forests by regulating forest beetle outbreaks (Bonnot et al. 2009), and by excavating nest sites for secondary cavity nesters (Saab et al. 2002). This species faces numerous threats that are serious and persistent, including lack of fire due to fire suppression, post-fire logging, mechanical thinning, destruction of nests, eggs and young, and climate change (Bond et al. 2012). Moreover, these threats occur in ways that are unpredictable and can be cumulatively severe. For example, in any given year, the habitat most critical to this species – severely burned mature forest (50% basal area mortality or greater) at mid to high elevation – may not occur in substantial quantity due to fire suppression. In locations where such fire does occur, the habitat can be subjected to significant post-fire logging on private and public lands in which up to 100 percent of the burned trees are removed. The persistent and targeted removals of this essential habitat condition along with the likely effects of climate change are the principle factors driving conservation concern for this species.

Substantial Conservation Concern Recognized

Black-backed woodpecker (BBWO) in California has been assigned an S2 rank (California Department of Fish and Wildlife 2015) which means it is “imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.” The US Fish and Wildlife Service has also made a 90-day finding indicating

that substantial evidence had been provided in the petition to support a finding of concern about its conservation status.

The Forest Service and other stakeholders recently completed a conservation strategy for black-backed woodpeckers (Bond et al. 2012) recognizing that this species “strong association with recently burned forest, a habitat that is ephemeral, spatially restricted, and often greatly modified by post-fire logging, as well as the species’ relative rarity, may make the woodpecker vulnerable to declines in the state.” The strategy also found that “Conserving the Black-backed Woodpecker in California likely requires appropriate management and stewardship of the habitat where this species reaches its highest density – recently burned forest – as well as appropriate management of ‘green’ forests that have not burned recently.”

Best Available Science Information Indicating Conservation Concern

Unique Ecological Requirements and Low Population Numbers

“Black-backed Woodpeckers are most abundant in stands of recently fire-killed snags (Hutto 1995, Kotliar et al. 2002, Smucker et al. 2005), although the species can be found in unburned forest stands throughout its range” (Siegel et al. 2015). Population densities of black-backed woodpecker are highly correlated with the presence of high densities of medium to large snags. Tingley et al. (2014) found that “As snag basal area increased, home-range sizes exponentially decreased” and “average snag basal area > 17 meters squared per hectare may represent a benchmark for minimum habitat needs in postfire stands.” Seavy et al. (2012) found for 31 nests that “the mean number of snags/plot was 13.3 (SD = 7.6, range = 1–29 snags/plot), whereas the mean number of snags on plots at randomly selected trees was 5.0 (SD = 5.2, range = 0–35 snags/plot). In both the Cub Fire and Moonlight Fire sites, black-backed woodpeckers preferred nest trees located in areas with high snag densities (Fig. 3).” In contrast, very low densities of this species generally are associated with green, unburned forests (Fogg et al. 2014) and detections are very low across their range in the Sierra (Siegel et al. 2015).

The dispersed and sporadic distribution of severely burned forest in the Sierra Nevada can lead to periods where very low population numbers occur in portions of the bioregion. This species risks extirpation in landscapes where too little severely burned forest habitat is available for nesting and foraging. The ephemeral nature of this habitat, i.e., providing a food source for 1 to 6 years, makes this species vulnerable to population declines. Such vulnerability is exacerbated by the post-fire logging that occurs on private and public.

Population size and isolation are important factors governing the viability of populations. These factors directly impact the ability of a species to persist and be resilient in the face of stressors. Traill et al. (2010) evaluated population size and extinction based on a review of the scientific literature on extinctions across many different species and taxa. They found that populations below a certain size are inherently at risk of loss over even relatively short time periods. Population estimates presented in Bond et al. (2012) for the Sierra Nevada suggest a population range of 700 to 6,000 birds reflecting a small population (California Department of fish and Wildlife 2013). This range is well below or just at the minimum population levels recommended by Traill et al. (2010) to reduce the risk of extinction. These low population numbers and restricted ecological conditions required by the species (i.e., severely burned forest habitat)

indicate that black-backed woodpeckers persistence is at risk in these southern Sierra Nevada forests.

Restricted Range

The populations of black-backed woodpecker in the Sierra Nevada occur at the southernmost extent of this species range and the populations on the three national forests in the Southern Sierra Nevada even more extremely so. Recent evaluations support the differentiation of this species as either a distinct population segment (DPS) or a subspecies reducing its range further. Fire suppression and actions to reduce the extent of fire, i.e., thinning, could drive population trends downward (Bond et al. 2012) and have a much stronger overall effect on this species at the edge of its range or for more narrowly defined range of the subspecies/DPS.

Threats from Habitat Modification

Recent studies demonstrate that salvage logging causes habitat for this species to become unsuitable. Campos and Burnett (2015) compared detections in post-fire habitat that had been salvage and unsalvaged. They found that detections decreased with increasing area salvaged within 100 m of surveyed areas. They concluded that these findings were generally supported by previous studies on the topic. “Many other studies have found negative effects of salvage logging on Black-backed Woodpeckers (Hutto & Gallo 2006; Koivula & Schmiegelow 2007; Saab et al. 2009), even in partially salvaged stands (Saab & Dudley 1998; Haggard & Gaines 2001; Cahall & Hayes 2009)” (Campos and Burnett 2015). Siegel et al. (2013) used radio-telemetry to evaluate the use of salvage and unsalvaged forests. They found that birds consistently avoided areas that had been salvages logged (Figure 3).

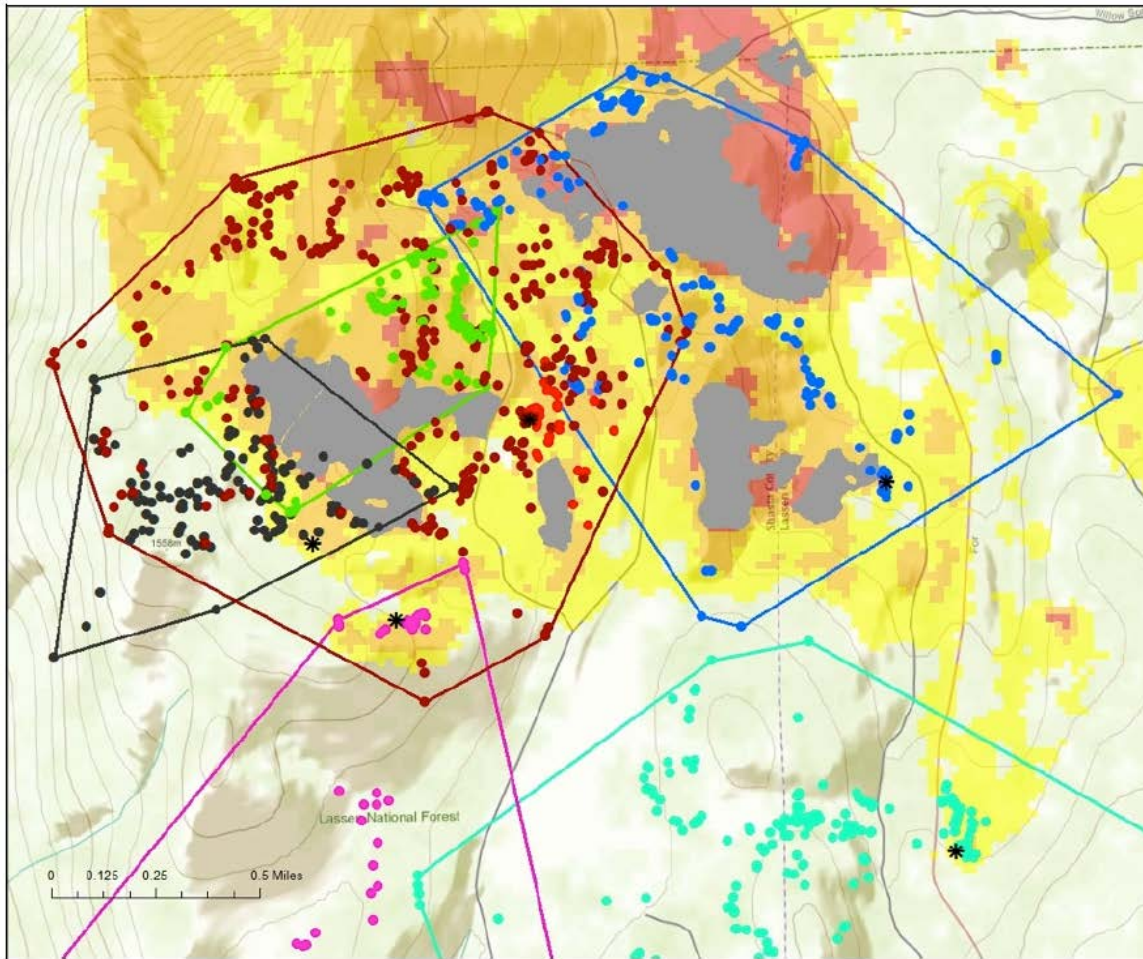


Figure 13. Close-up of Peterson fire, with observed foraging locations and MCP boundaries of Black-backed Woodpeckers. Symbology is consistent with Figure 12, with the addition of areas of post-fire snag harvest indicated by gray shading. Note the general absence of foraging locations within the post-fire harvest areas.

Figure 3. Foraging locations in relationship to salvage logging units. Taken from Siegel et al. (2013).

Cause for substantial concern also arises from the fact that the snags that are most heavily targeted for removal in modern post-fire logging projects are the very snags that these woodpeckers prefer when foraging – medium and large snags. Siegel et al. (2014b) emphasized that “Our past findings (Siegel et al. 2013) show that Black-backed Woodpeckers in burned forests of California preferentially select larger, dead trees in more severely burned areas for foraging.”

The extent of impact of salvage operations on high quality habitat for this species is extensive. Recent projects evaluated by evaluated in regional monitoring indicate that most post-fire salvage operations on private and Forest Service lands combined resulted in the loss of over 50 percent of the available burned forest habitat. This loss is of concern on its face, but is compounded by the reliance on National Park lands for burned habitat that is not salvaged. In

the future, if fires do not burn on national park land to the same degree, then an even greater proportion of the available habitat in a given period is likely to be salvaged logged.

Marginal Habitat Quality Provided by Unburned Forests

Additional habitat exists for black-backed woodpeckers in unburned forest (Fogg et al. 2014); however, the habitat quality is of lower value resulting in increasingly large home ranges to compensate. Rota et al. (2014), for populations in the Black Hills, South Dakota, found that “population growth rates were positive only in habitat created by summer wildfire” when compared to growth rates in areas affected by prescribed fire or beetle induced tree mortality. Siegel et al. (2013) found unburned forest home ranges to be significantly larger than burned forest home ranges concluding that larger size was indicative of poor quality. Further, low to very low levels of detection are known in unburned forests and the “sharp decreases” in detection observed in 2014 are thought to signal movement toward recently burned habitats (Roberts et al. 2015). This information indicates that unburned forests alone cannot be relied on to provide sufficient habitat to provide for the persistence of this species in the plan area.

An additional stressor on black-backed woodpeckers in this marginal habitat is their vulnerability to predation. Black-backed woodpeckers, with their jet-black backs, are well-camouflaged against the charred bark of fire-killed trees. The unique bone structure of their head enables them to strike harder than any other woodpecker species and feed more readily on the wood-boring beetle larvae deep under the bark of snags. Outside of snag forests, however, their coloring provides little camouflage and they may more vulnerable to predation from forest raptors (Rota 2013). In these areas, this species must work harder to find food that is less abundant and of poorer quality (Siegel et al. 2013, Rota et al. 2015) and may also be preyed upon at higher rates (Rota 2013).

Direct Loss of Nestlings from Salvage Logging Operations

It is common for post-fire logging to occur during nesting season. In such settings, recent fire attracts the species into the recently burned areas where they breed, create nests and fledge young. But post-fire salvage logging that occurs during nesting season can directly destroy eggs and kill chicks in the nest. This outcome creates an “ecological trap” for black-backed woodpeckers and compounds the impact of habitat loss and degradation. Due to the severe impacts from logging in nesting season, the Conservation Strategy for the Black-backed Woodpecker in the Sierra Nevada recommended—among other measures to conserve the species—that no post-fire logging occur during the nesting season, May 1 through July 31 (Bond et al. 2012). This recommendation is not currently incorporated into post-fire projects on public or private lands. In its absence, there is a high level of risk to egg and chick survival. Moreover, no salvage projects require any monitoring to determine the location of black-backed woodpecker nests prior to logging in order to establish avoidance measures.

Climate Change

Stralberg and Jongsomjit (2012) predict substantial range contractions for black-backed woodpecker in the coming decades due to a large-scale loss of higher-elevation montane and

subalpine conifer forests from climate change. It is expected that these changes in habitat condition and distribution could exacerbate the stressors and threats noted above.

Lack of Adopted Conservation Measures

Small population size, limited range, and limited habitat increase the risk of extirpation or extinction for this species. While a small population can potentially persist for a long time, it can also be lost very quickly as stressors accumulate. For the black-backed woodpecker, their small population size exists along with a number of factors that could lead quickly to their loss of viability in the plan area:

- The ephemeral nature of black-backed woodpecker habitat: there is no guarantee that in any given year or years, that substantial new habitat will be created by fire. Instead, due to fire suppression, or a lack of ignitions in areas where black-backed woodpeckers can exist, very little black-backed woodpecker habitat might occur.
- The lack of protections for black-backed woodpecker habitat on private or Forest Service lands.
- Climate change may lead to a significant reduction in the range of this species in California.
- Unknowns: Even when black-backed woodpecker habitat is protected, there is no guarantee that it will all be used or that black-backed woodpeckers will find it.

4. Bi-state Distinct Population Segment of the Greater Sage-Grouse

Additional information in support of designation as an SCC is provided in detailed comments on bi-state sage grouse that we provided in scoping comments submitted to the Revision Team in September 2014.

The bi-state Distinct Population Segment (DPS) of greater sage-grouse (bi-state sage-grouse) is a genetically unique subpopulation of sage-grouse that inhabits the Mono Basin area of east-central California and southwestern Nevada. The current mean annual population is approximately 5,000 birds (*see* 78 Fed. Reg. 64362, Table 1; 80 Fed. Reg. 22830);⁸ the historic population probably exceeded twice that number (80 Fed. Reg. 22831). Many factors have contributed to the population's decline, including livestock grazing, invasive species, unnatural fire, mining, conifer encroachment, residential development and off-road vehicle use that fragments and degrades sagebrush habitat.

Petitioned in 2005, the U.S. Fish and Wildlife Service (Service) proposed to list the bi-state sage-grouse as "threatened" under the Endangered Species Act (ESA) with a Section 4(d) rule (78 Fed. Reg. 64358) and designate more than 1.8 million acres of critical habitat to support the population's recovery (78 Fed. Reg. 64328) in October 2013. The Service's 2014 Candidate Notice of Review assigned the bi-state sage-grouse a listing priority number of '3,' the highest

⁸ Discounting inflated counts for the Desert Creek-Fales and Mount Grant subpopulations (80 Fed. Reg. 22831).

ranking possible for the population (79 Fed. Reg. 72491). On April 23, 2015, the Service withdrew its proposed listing rule for the bi-state sage-grouse, as well as the proposed Section 4(d) rule and critical habitat designation (80 Fed. Reg. 22828). The agency based its decision in part on existing and future efforts to conserve the DPS.

Federal lands comprise 89 percent of remaining range for bi-state sage-grouse (USFWS Status Assessment 2015: 33). These lands will be critical to the species conservation and recovery. Federal lands in California include all or portions of the following:

U.S. Forest Service:

Humboldt-Toiyabe National Forest: Carson Ranger District*

Inyo National Forest: Mono Lake Ranger District

Mammoth Ranger District very little habitat , if any)

White Mountain Ranger District

Substantial Conservation Concern Recognized

The USFWS decision not to list the bi-state distinct population segment (DPS) in April 2015⁹ was largely based on the conservation actions and commitments from stakeholders and agencies participating in the Bi-state Action Plan. According to the Action Plan and the letter of support submitted to the US Fish and Wildlife, The Forest Service intends to rely on implementation of the 2012 planning rule to provide for this at-risk species. Specifically, the Forest Service commitments related to the Inyo National Forests are:

The Inyo National Forest is currently revising its Forest Plan. Bi-state sage-grouse is identified as an at-risk species in the plan revision process. As required by the 2012 Planning Rule (36 CFR 219), the revised plan will include direction to provide the ecological conditions necessary to support the persistence of the Bi-State sage grouse in the plan area. Species-specific plan components, including standards and guidelines, will be included in the revised plan as needed to provide the ecological conditions necessary to conserve this species.

(US Department of Agriculture 2014) This letter of commitment establishes the conservation concern for the persistence of this species.

The Inyo National Forest is a signatory to the Bi-State Action Plan (BSAP 2012: iv). The failure of the BSAP to conserve bi-state sage-grouse could result in ESA listing for the population. It is the responsibility of the Inyo National Forest to address the ongoing and future work of the bi-state working group as directed by the action plan and for the agency to take an active role in providing conditions to support viable populations. A vital step in supporting the work of the bi-state working group is to acknowledge the threats to this species by listing them as a SCC. A second step essential to support the conservation outcomes described in the action plan is to evaluate the effectiveness of the proposed plan and alternatives in providing for the persistence of this species and maintaining a viable population across the plan area. Lastly, the cooperation between multiple state and federal agencies regarding Sage Grouse conservation will be

⁹ We do not agree with the decision by the USFWS and continue to support the listing of this DPS.

facilitated by the Forest taking the leadership to address this species in the context of SCC status and the revised forest plan.

Recognizing both the threats to bi-state sage-grouse and the potential to conserve and recover the population, the Humboldt-Toiyabe National Forest began developing a plan amendment to specially manage the grouse and its habitat in 2012. The Forest published a Greater Sage-grouse Bi-state Distinct Population Segment Forest Plan Amendment Final Environmental Impact Statement and Greater Sage-grouse Bi-state Distinct Population Segment Forest Plan Amendment Draft Record of Decision (ROD) in March 2015, and is expected to publish a final ROD within the next month that will significantly affect land use and development in sage-grouse habitat. The Humboldt-Toiyabe plan amendment is both an example and a reminder of the considerable changes in management required to conserve sage-grouse.

The conservation status of this species is not assured and depends, in the view of the USFWS, on the implementation of the action plan. Simply identifying bi-state sage grouse as a species of interest, another species designation allowed by the planning rule, will not provide the needed assurance that conservation actions designed to ensure its persistence will be implemented or that population numbers and habitat conditions will be monitored on the Inyo National Forest.

Best Available Science Information Indicating Conservation Concern

The Inyo National Forest Assessment identifies multiple threats to the bi-state sage-grouse, including pinyon-juniper expansion and conifer encroachment into sagebrush habitats, invasive species, habitat loss from wildfire, predation by ravens and anthropogenic development (Assessment: 90-91). There is also substantial evidence that cattle and sheep grazing affect sage-grouse, especially with compounding threats to sagebrush habitat. Livestock grazing promotes the spread of cheatgrass (Reisner et al. 2013, 2015) and conifer encroachment into sage-grouse habitat and also degrades habitat characteristics critical to the sage-grouse life cycle.

Additionally, livestock can compete with sage grouse for forage, depriving the birds of essential nutrients, especially during the later brood-rearing period. Notably, the current Inyo National Forest Land and Resource Management Plan (1988, as amended) lacks direction for maintaining and restoring specific sage-grouse habitat characteristics (e.g., minimum grass height) to conserve the species (BSAP 2012: Appendix G). Designating the bi-state sage-grouse as an SSC will help ensure that the forest develops and implements needed conservation measures for the species.

The SSC designation would also support the Inyo National Forest to plan long-term for conservation of sage-grouse and other sagebrush-dependent species. A recent analysis conducted by NatureServe, which incorporates much of the information presented above, suggests a substantial contraction of both sagebrush and sage-grouse range in the bi-state area by 2060 (Comer et al. 2012: 142, 145). Furthermore, Gardali et al. (2012: 8) ranked sage-grouse as the most vulnerable bird species to climate change in comparison to other at-risk bird species in California. Managing the bi-state sage-grouse as a Species of Conservation Concern will support agency planners to develop needed plan components to manage for habitat resiliency in the face of climate change and other, cumulative threats to the bird.

There are a limited number of populations of this species on the Inyo National forests. And some, like the Parker Bench population, are near extinction and down to less than a dozen birds with plans for translocation. We question why sage-grouse is missing among SSC, given that planners have indicated that the Inyo forest plans will include specific plan components that address contributing to the species persistence and recovery.

5. Desert Bighorn Sheep

Occupying the northern and southern Whites, Deep Springs¹⁰ and the Inyo Mountains¹¹, this species has scientifically recognized threats to its persistence. Currently a draft conservation plan exists for this species because of threats and stresses to the species across its range (Wehausen 2013). The plan points out the potential uniqueness of the northern Whites population. There is great variation in desert bighorn habitat across its southern California range and the northern meta-population unit faces genetic diversity constraints. The conservation plan outlines reasons for substantial concern to their persistence due to a variety of factors including: risk of contact with domestic sheep and goats, lack of adequate water sources in summer months due to changing climate and drought, habitat degradation from cattle grazing, and mountain lion predation.

There have been repeated respiratory disease problems with bighorn in the Whites because plan direction has not mandated USFS to deal with the problem of contact with domestic sheep and goats. CDFW veterinarian Ben Gonzales documented *Mycoplasma ovipneumoniae* to cause respiratory disease and die offs in bighorn sheep in the White Mountains population. *Mycoplasma ovipneumoniae* was also present in the lung of a bighorn lamb that died of pneumonia. The ongoing contact of domestic sheep and goats on private land, where animals stray onto lands managed by USFS, pose a significant threat to this species persistence. It is the responsibility of the agency to enforce the prevention of domestic animals crossing over onto public land. Furthermore, where there is straying onto public land in other management jurisdictions such as BLM, the status of SCC will facilitate coordination between agencies. In the Northern Whites, there are several instances of bighorn contracting respiratory disease from other populations in Nevada. Furthermore, the Inyo's SCC status for bighorn will provide for coordination with Nevada DOW and Humboldt-Toiyabe National Forest to prevent disease contact.

We suggest coordination with CDFW regarding the reevaluation of this species as a SCC. Other Forests, such as the Shoshone, have completed quantitative risk assessments for wild bighorn

¹⁰ This population vanished in the 1970s coincident with the development of a sympatric feral goat population that apparently originated from Deep Springs College. Those goats did not persist, and bighorn sheep re-colonized this area near the end of the 20th century, probably from the Last Chance Range.

¹¹ Except for occasional wandering rams, current populations are known only to use the east side of this range above Saline Valley, where water is abundant in every canyon. The current population is known to include separate northern and southern subpopulations of females and a total population of unknown size that may exceed 100 (Epps et al. 2003). Sheep on the west side of the Inyo Mountains may have suffered the fate of almost all other populations that inhabited mountain ranges immediately adjacent to the domestic sheep driveway. There is a need to investigate whether there is any use around water sources on the west side of the range by bighorn sheep females. In the absence of evidence of such use, translocation(s) of small numbers of sheep caught on the east side of that range should be considered in attempts to re-establish bighorn sheep on the west side of the Inyo Mountains.

sheep populations. Risk assessments are a commonly used method to attempt to determine where risks exist and how they can be mitigated. It may be helpful for the Forest to complete such an assessment based on data available from CDFW and possibly NDOW.

III. Plant Species that Should Be Included on the SCC list

Within the limited time provided for review, specialists with the California Native Plant Society (CNPS) generally agree that those species included on the draft SCC list for each national forest are appropriate. They, however, find the draft SCC list to be incomplete in the ways described below.

There are several rare native plant species that occur within the respective national forests and meet the criteria of concern that should also be included as SCC but are not on the draft list. All of these species have California Rare Plant Ranks 1.B.3, 2.B.1, 2.B.2, or 2.B.3 and have been determined by the State of California to meet the definition of rare, threatened, or endangered in California. These ranks are defined by the State (California Department of Fish and Wildlife 2015) as:

1B: Plants Rare, Threatened, or Endangered in California and Elsewhere (Includes Rare Plant Ranks 1B.1, 1B.2, 1B.3)

The plants of Rank 1B are rare throughout their range with the majority of them endemic to California. Most of the plants that are ranked 1B have declined significantly over the last century. California Rare Plant Rank 1B plants constitute the majority of plant taxa tracked by the CNDDDB, with more than 1,000 plants assigned to this category of rarity.

2B: Plants Rare, Threatened, or Endangered in California, but More Common Elsewhere (Includes Rare Plant Ranks 2B.1, 2B.2, 2B.3)

The plants of Rank 2B are rare, threatened or endangered in California, but more common elsewhere. Plants common in other states or countries are not eligible for consideration under the provisions of the **Federal** Endangered Species Act; however they are eligible for consideration under the **California** Endangered Species Act. This rank is meant to highlight the importance of protecting the geographic range and genetic diversity of more widespread species by protecting those species whose ranges just extend into California. Note: Plants of both Rank 1B and 2B are rare, threatened or endangered in California; the only difference is the status of the plants outside of the state.

Species with these ranks are recognized as a high priority for conservation. Plants of equal rarity ranking and similar threat status do appear on the draft SCC list. The plants listed in Table 2 require consideration by the Forest Service as SCC. If not included on the SCC list we request that you provide us with documentation of the rationale for not including them. We list these plant species below for each national forest in Tables, 1, 2 and 3, respectively.

A. Inyo National Forest

1. Native plant species with documented occurrences within the INF and with NatureServe G/T1 or G/T2 status ranks that are not on the INF's draft proposed SCC list.

Cryptantha incana [G1 / S1 / CRPR 1B.3] one occurrence documented within INF based on a 1904 collection. *C. incana* is not included in the INF SCC list, but is included in the SQF SCC list. Field surveys must be performed to relocate the INF population. If the 1904 occurrence is confirmed and updated within the INF, the INF plan must be amended to include *C. incana* on the INF SCC list, and conservation and management actions prescribed for this species for the SQF populations must be extended by addition to the INF plan. [FSH 1909.12, Chpt. 20 at 21.22b] If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

Draba asterophora var. *asterophora* [G2T2 / S2 / CRPR 1B.2] one occurrence documented within the INF based on a 1916 collection. Field surveys must be performed to relocate this population. If the 1916 occurrence is confirmed and updated within the INF, the INF plan must be amended to include this species on the INF SCC list, and conservation and management actions developed and added to the INF plan. [FSH 1909.12, Chpt. 20 at 21.22b] If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

Erigeron multiceps [G2 / S2 / CRPR 1B.2] one occurrence documented within the INF. The documented population occurs in two parts that straddle the INF and SQF border along the Pacific Crest Trail, and in areas of severe cattle grazing. Yet *E. multiceps* is not included on the SCC list for either the INF or SQF. This species must be included on both the INF and SQF SCC list. If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

Erythranthe calycicola - [G2 / S2 / CRPR 1B.3] two occurrences documented within the INF, in 1986 and 2011. This species must be considered for inclusion on the INF SCC list. If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

Lupinus magnificus var. *hesperius* [G3T2Q / S2 / CRPR 1B.3] four occurrences documented within the INF. One (1906) is confirmed to variety *hesperius* while the other three could either be specimens of var. *hesperius* or var. *glarecola*. Not included on the INF SCC list. Field surveys must be performed to relocate and confirm the taxonomy of INF occurrences. If the other three occurrences are confirmed and updated within the INF, the INF plan must be amended to include this species on the INF SCC list, and conservation and management actions developed and added to the INF plan. [FSH 1909.12, Chpt. 20 at 21.22b] If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

Poa abbreviata spp. *marshii* [G5T2 / S1 / CRPR 2B.3] one occurrence documented within the INF (1987). This species must be considered for inclusion on the INF SCC list. If not included

on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

Senecio pattersonensis [G2 / S2 / CRPR 1B.3] one occurrence documented within the INF (1987). This species must be considered for inclusion on the INF SCC list. If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

2. Native plant species with documented occurrences within the INF and with a NatureServe S1 (G/T3-5) status rank that are not on the INF's draft proposed SCC list.

Astragalus kentrophyta var. *ungulatus* [G5T3T4 / S1 / CRPR 2B.2] is known in California from only one occurrence in the INF. With the core of its population occurring in NV, the single occurrence in CA represents a segment of this S1-ranked species at the edge of its range and under potential threat from grazing and logging, and thus meets the criteria for inclusion on the INF SCC list. If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

Boechera pendulina [G5 / S1 / 2B.3] is known in California from only one historic occurrence in the INF (1926). With the core of its population occurring across several states to the east, the single occurrence in CA represents a segment of this S1-ranked species at the edge of its range. Field surveys must be performed to relocate this population. If the 1926 occurrence is confirmed and updated within the INF, this species must be included on the INF SCC list, and conservation and management actions developed and added to the INF plan. [FSH 1909.12, Chpt. 20 at 21.22b] If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

Cryptantha fendleri [G5 / S1 / CRPR 2B.2] is known in California from two occurrences, one within the INF, and one on private lands within Owens Valley, Mono County. With the core of its population occurring across several states to the east and north of CA, the two occurrences in CA represent a segment of this S1-ranked species at the edge of its range. The loss of these populations would extirpate *C. fendleri* from CA, and eliminate a potentially important evolutionary opportunity for the species. Its status and importance meet the criteria for consideration on the INF SCC list. If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

Draba lonchocarpa [G5 / S1 / CRPR 2B.3] is known in California from two occurrences, both within the INF. With the core of its population occurring across several states to the east and north of CA, the two occurrences in CA represent a segment of this S1-ranked species at the edge of its range. The loss of these populations would extirpate *D. lonchocarpa* from CA, and eliminate a potentially important evolutionary opportunity for the species. Its status and importance meet the criteria for consideration on the INF SCC list. If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

Eriogonum alexanderae [G2G3 / S1 / CRPR 1B.1] An independent botanist preparing a flora of Mono County has collected specimens of *Eriogonum alexanderae* on specific microhabitat soils

on INF lands, and in an area where it co-occurs with *Physaria lucoviciana* and other rare plant species (Ann Howald, pers. comm., August 2015). We urge the INF to consult with Ms. Howald in advance of finalizing the SCC plant list for the INF, in order to review her new findings and include *E. alexanderae* on the final SCC list.

Gentiana prostrata [G5 / S1 / CRPR 2B.3] is known in California from three occurrences, all within the INF. With the core of its population occurring across several states to the east and north of CA, the three occurrences in CA represent a segment of this S1-ranked species at the edge of its range. The loss of these populations would extirpate *G. prostrata* from CA, and eliminate a potentially important evolutionary opportunity for the species. Its status and importance meet the criteria for consideration on the INF SCC list. If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

Penstemon barnebyi [G3G4 / S1 / CRPR 2B.1] is known in California from only one occurrence in the INF. With the core of its population occurring in NV, the single occurrence in CA represents a segment of this S1-ranked species at the edge of its range and under potential threat from grazing, and thus meets the criteria for inclusion on the INF SCC list. If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

Poa abbreviata ssp. *pattersonii* [G5T5 / S1 / CRPR 2B.3] is known in California from only the one INF occurrence. With the core of its population occurring across several states to the east and north of CA, the one INF occurrence represents a segment of this S1-ranked species at the edge of its range. The loss of these populations would extirpate *P. abbreviata* ssp. *pattersonii* from CA, and eliminate a potentially important evolutionary opportunity for the species. Its status and importance meet the criteria for consideration on the INF SCC list. If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

Potentilla concinna var. *proxima* [G4?T4T5 / S1 / CRPR 2B.3] is known in California from only one occurrence in the INF. With the core of its population occurring in NV / AZ, the single occurrence in CA represents a segment of this S1-ranked species at the edge of its range and under potential threat from grazing, and thus meets the criteria for inclusion on the INF SCC list. If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

Transberingia bursifolia ssp. *virgata* [G4T? / S1 / CRPR 2B.3] is known in California from two occurrences, both within the INF. With the core of its population occurring across several states to the east and north of CA, the two INF occurrences represent a segment of this S1-ranked species at the edge of its range. The loss of these populations would extirpate *T. bursifolia* ssp. *virgata* from CA, and eliminate a potentially important evolutionary opportunity for the species. Its status and importance meet the criteria for consideration on the INF SCC list. If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

3. Native plant species with documented occurrences within the INF and with a NatureServe S2 [G/T3] status rank that are not on the INF's draft proposed SCC list.

Polygala intermontana [G3? / S2 / CRPR 2B.1] is known in California from four occurrences, all threatened by either vehicle activity and/or solar development. Half of the known population of *P. intermontana* in CA occurs within the INF. With the core of its population occurring across several states to the east of CA, the four occurrences in CA represent a segment of this S1-ranked species at the edge of its range. The loss of these populations could lead to the extirpation of *P. intermontana* from CA, and eliminate a potentially important evolutionary opportunity for the species. Its status and importance meet the criteria for consideration on the INF SCC list. If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

4. Additional rare native plants within the INF that meet the criteria of concern and are not included in the proposed INF SCC plant list.

During the time provided to the public for comments on the SCC lists, we have been unable to ascertain through consultation with USFS staff and/or local botanical experts reasons for *not* including the species presented in Table 1, below, on the draft SCC list for the Inyo National Forest.

Table 1. Rare native plant species meeting the criteria for concern that are not included in proposed INF SCC plant list. Grank = NatureServe global rank; Srank = NatureServe state rank; CRPR = California Rare Plant Rank.

Scientific Name	#EO ¹² s in INF	Grank	Srank	CRPR
<i>Draba incrassata</i>	1	G3	S3	1B.3
<i>Draba sierrae</i>	12	G3	S3	1B.3
<i>Erigeron aequifolius</i>	1	G3	S3	1B.3
<i>Eriogonum microthecum</i> var. <i>panamintense</i>	1	G5T3	S3	1B.3
<i>Lupinus gracilentus</i>	1	G3	S3	1B.3
<i>Viola pinetorum</i> var. <i>grisea</i>	33	G4G5T3?	S3?	1B.3
<i>Atriplex pusilla</i>	1	G4	SH	2B.1
<i>Astragalus platytropis</i>	4	G5	S2	2B.2
<i>Cladium californicum</i>	1	G4	S2	2B.2
<i>Mentzelia torreyi</i>	2	G4	S2	2B.2
<i>Parnassia parviflora</i>	4	G4	S2	2B.2
<i>Stuckenia filiformis</i> ssp. <i>alpina</i>	1	G5T5	S3	2B.2
<i>Tetradymia tetrameres</i>	5	G4	S2	2B.2
<i>Thelypodium integrifolium</i> ssp. <i>complanatum</i>	6	G5T5	S2	2B.2
<i>Thelypodium milleflorum</i>	1	G5	S3?	2B.2
<i>Boechera cobrensis</i>	10	G5	S2	2B.3

¹² EO = Element Occurrence record within the California Natural Diversity Database (CNDDDB); retrieved from CNDDDB version updated 08/04/15.

Scientific Name	#EO ¹² s in INF	Grank	Srank	CRPR
<i>Boechera dispar</i>	18	G3	S3	2B.3
<i>Boechera lincolnensis</i>	2	G4?	S2	2B.3
<i>Draba cana</i>	7	G5	S2	2B.3
<i>Draba praealta</i>	6	G5	S3	2B.3
<i>Elymus scribneri</i>	2	G5	S1S3	2B.3
<i>Eremothera boothii</i> ssp. <i>boothii</i>	9	G5T4	S2	2B.3
<i>Eremothera boothii</i> ssp. <i>intermedia</i>	3	G5T3T4	S3	2B.3
<i>Festuca minutiflora</i>	4	G5	S2	2B.3
<i>Hymenopappus filifolius</i> var. <i>nanus</i>	16	G5T4	S2	2B.3
<i>Jaffueliobryum wrightii</i>	1	G4G5	S2?	2B.3
<i>Juncus nodosus</i>	1	G5	S3	2B.3
<i>Lupinus pusillus</i> var. <i>intermontanus</i>	1	G5T5?	S2	2B.3
<i>Meesia longiseta</i>	1	G5	S2	2B.3
<i>Micromonolepis pusilla</i>	2	G5	S3?	2B.3
<i>Mimulus parryi</i>	6	G3G4	S3	2B.3
<i>Minuartia stricta</i>	14	G5	S3	2B.3
<i>Myurella julacea</i>	2	G5	S2	2B.3
<i>Phacelia gymnoclada</i>	2	G4	S2	2B.3
<i>Poa abbreviata</i> ssp. <i>marshii</i>	1	G5T2	S1	2B.3
<i>Poa lettermanii</i>	11	G4	S3	2B.3
<i>Pohlia tundrae</i>	3	G3	S3	2B.3
<i>Potamogeton robbinsii</i>	3	G5	S3	2B.3
<i>Salix nivalis</i>	8	G5	S2	2B.3
<i>Silene oregana</i>	1	G5	S2	2B.3
<i>Triglochin palustris</i>	3	G5	S3	2B.3

B. Sierra National Forest

1. Native plant species with documented occurrences within the SNF and with NatureServe G/T1 or G/T2 status ranks that are not on the SNF's draft proposed SCC list.

Erigeron inornatus var. *keilii* [G5T1 / S1 / CRPR 1B.3] is known from four documented occurrences; two within the SQF, one in adjacent habitat in the Sequoia National Park (SQNP), and one along the boundary between the SQF and SNF. It is appropriate for this species to be included on the SCC list for both the SNF and SQF to ensure coordinated management of this species. Field surveys must be performed to relocate these populations. A rationale for its exclusion from the SQF and SNF SCC plant lists must be provided in the project file supporting the DEIS.

Ribes menziesii var. *ixoderme* [G4T2 / S2 / CRPR 1B.2] is known from only six occurrences, one of which (in SQNP) has likely been extirpated from California. The occurrence within the SNF represents the northern extent of this plant's range and might or might not occur on an inholding property within the SNF. Field surveys must be performed to relocate this population.

If the occurrence is confirmed on SNF lands, the SNF plan must be amended to include *Ribes menziesii* var. *ixoderme* on the SNF SCC list. [FSH 1909.12, Chpt. 20 at 21.22b] If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

2. Additional rare native plants within the SNF that meet the criteria of concern and are not included in the proposed SNF SCC plant list.

During the time provided to the public for comments on the SCC lists, we have been unable to ascertain through consultation with USFS staff and/or local botanical experts reasons for *not* including the species presented in Table 2, below, on the draft SCC list for the Sierra National Forest.

Table 2. Rare native plant species meeting the criteria for concern that are not included in proposed SNF SCC plant list. Grank = NatureServe global rank; Srank = NatureServe state rank; CRPR = California Rare Plant Rank.

Scientific Name	#EO ¹³ in SNF	Grank	Srank	CRPR
<i>Allium abramsii</i>	5	G2G3	S2S3	1B.2
<i>Hulsea brevifolia</i>	2	G3	S3	1B.2
<i>Draba sierrae</i>	4	G3	S3	1B.3
<i>Erigeron aequifolius</i>	2	G3	S3	1B.3
<i>Viola pinetorum</i> var. <i>grisea</i>	1	G4G5T3?	S3?	1B.3
<i>Mielichhoferia elongata</i>	3	G4	S3	2B.2
<i>Potamogeton epihydrus</i>	1	G5	S2S3	2B.2
<i>Sphenopholis obtusata</i>	1	G5	S2	2B.2
<i>Utricularia intermedia</i>	1	G5	S3	2B.2
<i>Brasenia schreberi</i>	1	G5	S3	2B.3
<i>Draba praealta</i>	1	G5	S3	2B.3
<i>Glyceria grandis</i>	1	G5	S2	2B.3

C. Sequoia National Forest

1. Native plant species with documented occurrences within the SQF and with NatureServe G/T1 or G/T2 status ranks that are not on the SQF’s draft proposed SCC list.

Carpenteria californica [CA Threatened / G1? / S1? / CRPR 1B.2] has one occurrence documented within the SQF with the majority of its range occurring within the Sierra National Forest (SNF). As with many other plants on the proposed SQF SCC list, *C. californica* should be included on the SQF SCC in order to coordinate habitat conservation among adjacent habitat units with SNF. If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

¹³ EO = Element Occurrence record within the California Natural Diversity Database (CNDDDB); retrieved from CNDDDB version updated 08/04/15.

Erigeron inomatus var. *keillii* [G5T1 / S1 / CRPR 1B.3] is known from four documented occurrences within the SQF and adjacent habitat units in the Sequoia National Park (SQNP). Field surveys must be performed to relocate these populations. A rationale for its exclusion from the SQF SCC plant list must be provided in the project file supporting the DEIS.

Erigeron multiceps [G2 / S2 / CRPR 1B.2] has multiple populations documented within the SQF and in adjacent habitat units in both SQNP and the INF where subject to grazing and vehicle activity. Yet *E. multiceps* is not included on the SCC list for either the SQF or the INF. This species must be included on both the INF and SQF SCC list. If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

Heterotheca monarchensis [G1 / S2 / CRPR 1B.3] is known from three historic occurrences within the SQF. This species must be considered for inclusion on the SQF SCC list. If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

Hosackia oblongifolia var. *cuprea* [G5T2 / S2 / CRPR 1B.3] occurs within the SQF and in adjacent habitat within the SQNP, and should be included on the SQF SCC list. If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

Hulsea vestita ssp. *pygmaea* [G5T2 / S1 / CRPR 2B.3] has one occurrence documented within the SQF (1897). This species must be assumed to be present within the SQF and considered for inclusion on the SQF SCC list. Field surveys must be performed to relocate the SQF population. If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

Lupinus lepidus var. *culbertsonii* [G3T2 / S2 / CRPR 1B.3] occurs within the SQF and in adjacent habitat units within the SQNP. This species must be included on the SQF SCC list. If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

Monardella linoides ssp. *oblonga* [G5T2 / S2 / CRPR 1B.3] has one documented occurrence within the SQF that represents the northern most extent of this taxon's range. Additional populations co-occur on adjacent habitat units to the south among and near other rare plant taxa currently on the proposed SQF SCC list (e.g., *Streptanthus cordatus* var. *piutensis*, *Deinandra mojavensis*, *Hesperocyparis nevadensis*). This species must be included on the SQF SCC list. If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

Ribes menziesii var. *ixoderme* [G4T2 / S2 / CRPR 1B.2]. Several historic occurrences for this plant documented within and adjacent to the SQF must be assumed to be present. Field surveys must be performed to relocate populations. This species must be considered for inclusion on the SQF SCC list. If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

2. Native plant species with documented occurrences within the SQF, listed as Rare by the State of California and identified as a high priority for conservation, and that are not on the draft proposed SCC list for the SQF.

Eriastrum tracyi [California Rare / G3Q / S3 / CRPR 3.2] is listed as Rare in California. *E. tracyi* was originally designated Rare under the California Native Plant Protection Act (NPPA). The NPPA’s Rare designation for plants was carried forward into the California Endangered Species Act (CESA) when CESA was enacted in 1984. CA Rare is a CESA designation unique to a number of rare native plants in California (i.e., there are no Rare-designated animals under CESA). Through its listing,, this species has been designated by the State of California as having a high priority for conservation. *E. tracyi* occurs within and in habitat units adjacent to the SQF. This species must be considered for inclusion on the SQF SCC list. If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

Carex tomkinsii [California Rare / G4 / S4/ CRPR 4.3], as with *Eriastrum tracyi* noted above, is listed as Rare in the State of California. This designation indicates a high priority for conservation. *C. tomkinsii* occurs within the SQF, and in adjacent habitat units within the SQNP and SNF. This species must be considered for inclusion on the SQF SCC list. If not included on the SCC, the rationale for not including it must be provided in the project file supporting the DEIS.

3. Additional rare native plants within the SQF that meet the criteria of concern and are not included in the proposed SQF SCC plant list.

During the time provided to the public for comments on the SCC lists, we have been unable to ascertain through consultation with USFS staff and/or local botanical experts reasons for *not* including the species presented in Table 3, below, on the draft SCC list for the Sequoia National Forest.

Table 3. Rare native plant species meeting the criteria for concern that are not included in proposed SQF SCC plant list. Grank = NatureServe global rank; Srank = NatureServe state rank; CRPR = California Rare Plant Rank.

Scientific Name	#EO ¹⁴ s in SQF	Grank	Srank	CRPR
<i>Allium abramsii</i>	5	G2G3	S2S3	1B.2
<i>Phacelia novemmillensis</i>	17	G2G3	S2S3	1B.2
<i>Delphinium recurvatum</i>	1	G3	S3	1B.2
<i>Calochortus palmeri</i> var. <i>palmeri</i>	21	G3T3?	S3?	1B.2
<i>Draba cruciata</i>	1	G3	S3	1B.3
<i>Galium angustifolium</i> ssp. <i>onycense</i>	2	G5T3	S3	1B.3
<i>Viola pinetorum</i> var. <i>grisea</i>	15	G4G5T3?	S3?	1B.3

¹⁴ EO = Element Occurrence record within the California Natural Diversity Database (CNDDDB); retrieved from CNDDDB version updated 08/04/15.

Scientific Name	#EO ¹⁴ s in SQF	Grank	Srank	CRPR
Sphenopholis obtusata	2	G5	S2	2B.2
Mielichhoferia elongata	2	G4	S3	2B.2
Utricularia intermedia	2	G5	S3	2B.2
Boechera cobrensis	1	G5	S2	2B.3
Chaenactis douglasii var. alpina	1	G5T5	S2	2B.3
Glyceria grandis	2	G5	S2	2B.3
Sidalcea multifida	17	G3	S2	2B.3
Jaffueliobryum wrightii	1	G4G5	S2?	2B.3
Boechera dispar	2	G3	S3	2B.3
Brasenia schreberi	1	G5	S3	2B.3
Juncus nodosus	1	G5	S3	2B.3
Potamogeton robbinsii	1	G5	S3	2B.3
Viburnum ellipticum	1	G4G5	S3?	2B.3

IV. Herpetofauna that Should Be Included on the SCC list for the Inyo National Forest

A. Panamint Alligator Lizard

This species has a very limited range on the Inyo, occupying limited riparian areas with adequate vegetation (cottonwood, willow and rose) in the White Mountains. This lizard has a NatureServe ranking of G3 and CA: S1S2. California Department of Fish and Wildlife (2015) also lists this species as a species of special concern. Drought and climate change are anticipated stressors to this species due to isolated population sources and water shortages in the White Mountains. Cattle may be a stressor where grazing occurs.

B. Owens Valley Web-toed Salamander

This species has a very limited range on the Inyo with documented locations along Rock Creek and in isolated riparian patches among rocky streams of the sierra escarpment. Drought and climate change are anticipated stressors to this species due to its extremely limited habitat requirements. This species meets criteria 1 and 2 on the flow chart provided with the draft SCC list and has a NatureServe ranking of G1-2. However, no information is given why it has not been brought forward as a SCC for the Inyo National Forest.

V. Forest Service Sensitive Species not on SCC List

Numerous species are designated by the Regional Forester as “sensitive species” and not included on the SCC list. According to FSM 2670.5, sensitive species are:

Those plant and animal species identified by a Regional Forester for which population viability is a concern, as evidenced by:

- a. Significant current or predicted downward trends in population numbers or density.

b. Significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.

Although we have not been provided with the rational for why was any species were omitted from the SCC list, we expect that for each species currently on the Regional Forster's sensitive species list, for which the Regional Forester has an ongoing concern about the viability of the species due to current or predicted downward trends in population, habitat, or distribution, you will provide clear and concise biological rational and evidence defining why population viability is no longer a concern.

VI. Conclusion

As stated above, we have not been given sufficient time to review the list for other omissions. In this regard, we have not fully reviewed the fish and herpetofauna taxa. We also believe that there are additional forest birds that meet the requirements of SCC that are not on the draft list. We may send you information on additional species as we continue to review the draft list

If you have questions or would like to discuss these comments, please contact Sue Britting (britting@earthlink.net; 530-295-8210).

Thank you for your consideration of our comments.

Sincerely,



Susan Britting, Ph.D.
Sierra Forest Legacy
PO Box 377
Coloma, CA 95633



Greg Suba
Conservation Director
California Native Plant Society
Sacramento, CA



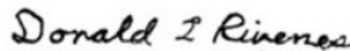
Justin Augustine
Center for Biological Diversity



Pamela Flick
California Representative
Defenders of Wildlife

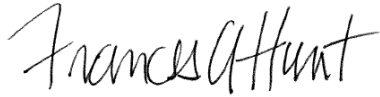


Stan VanVelsor, Ph.D.
Regional Conservation Representative
The Wilderness Society



Don Rivenes, Conservation Director
Sierra Foothills Audubon Society

Jerry Bloom, Science Director
Forest Issues Group
Nevada City, CA



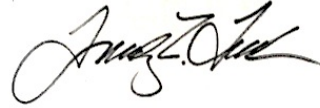
Frances A. Hunt
Eastern Sierra Organizer
Sierra Club



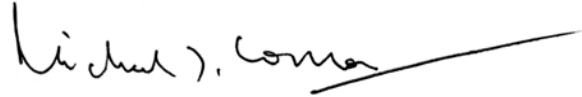
Alan Carlton
Sierra Nevada Team Leader, Sierra Club
San Francisco, CA

Joe Fontaine
Kern-Kaweah Chapter, Sierra Club
Tehachapi, CA

Peter Pumphrey
Eastern Sierra Audubon



Trudy L. Tucker
National Forest Chair
Tehipite Chapter, Sierra Club



Michael J. Connor, Ph.D.
California Director
Western Watersheds Project
Reseda, CA

Lisa Cutting
Eastern Sierra Policy Director
Mono Lake Committee
Lee Vining, CA

References

Bond, M. L., R. B. Siegel, and D. Craig, editors. 2012. A conservation strategy for Black-backed Woodpecker (*Picoides arcticus*) in California. Version 1.0. The Institute for Bird Populations and California Partners in Flight. Point Reyes Station, California.

Britting, S., Brown, E., Drew, M., Esch, B., Evans, S. Flick, P., Hatch, J., Henson, R., Morgan, D., Parker, V., Purdy, S., Rivenes, D., Silvas-Bellanca, K., Thomas, C. and VanVelsor, S. 2012. *National Forests in the Sierra Nevada: A Conservation Strategy*. Sierra Forest Legacy. August 27, 201; revised in part March 14, 2013. Available at: <http://www.sierraforestlegacy.org>

Bi-State Action Plan 2012.

California Department of Fish and Wildlife, Natural Diversity Database 2013. Black-backed woodpecker status evaluation. May 6, 2013. <https://3A%2F%2Fnm.dfg.ca.gov%2FFileHandler.ashx%3FDocumentID%3D65595&ei=KyH0VcbkMIWoyATlo4f4AQ&usg=AFQjCNHDjPa7tEGOxMFG690QsQE1vRg-Uw&sig2=oV79OW1hAUir00rLPtM1kg&bvm=bv.99804247.d.aWw>

California Department of Fish and Wildlife, Natural Diversity Database 2015a. Draft State Wildlife Action Plan. May 2015. <https://www.wildlife.ca.gov/SWAP/Interim-Products>

California Department of Fish and Wildlife, Natural Diversity Database 2015b. Rarefind. August 12, 2015. <https://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp>

California Department of Fish and Wildlife, Natural Diversity Database 2015c. Special Animals List. July. Quarterly publication. 125 pp.

California Department of Fish and Wildlife 2015d. Vascular Plants, Bryophytes, and Lichens List. July. Quarterly publication. 125 pp.

Campos, B. R. and Burnett, R. D. 2015. Avian monitoring of the Storrie and Chips Fire Areas: 2014 report. Point Blue Conservation Science, Petaluma, CA.

Comer, P., P. Crist, M. Reid, J. Hak, H. Hamilton, D. Braun, G. Kittel, I. Varley, B. Unnasch, S. Auer, M. Creutzburg, D. Theobald, L. Kutner. 2012. Central Basin and Range Rapid Ecoregional Assessment Report. Prepared for the U.S. Department of Interior, Bureau of Land Management.

Dixon, R. D., & Saab, V. A. (2000). Black-backed Woodpecker (*Picoides arcticus*). *The birds of North America*, (509), 20.

Freel, M. 1991. A literature review for management of the marten and fisher on National Forests in California : USDA Forest Service Pacific Southwest Region.

Fogg, A. M., L. J. Roberts, and R. D. Burnett. 2014. Occurrence patterns of Black-backed Woodpeckers in green forest of the Sierra Nevada Mountains, California, USA. *Avian Conservation and Ecology* 9(2):3. <http://dx.doi.org/10.5751/ACE-00671-090203>

Gardali, T., Seavy, N. E., DiGaudio, R. T., & Comrack, L. A. 2012. A climate change vulnerability assessment of California's at-risk birds. *PLoS One*, 7(3), e29507.

Keane, J. 2008. Northern goshawk. In: Shuford, W. D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

Lawler, J.J.; Safford, J.D.; Girvetz, E.H. 2012. Martens and fishers in a changing climate. In: Aubry, K.; Zielinski, W.; Raphael, M.; Proulx, G.; Buskirk, S., eds. Biology and conservation of martens, sables, and fishers: a new synthesis. Ithaca, NY: Cornell University Press.

Moriarty, K. M., Zielinski, W. J., & Forsman, E. D. (2011). Decline in American marten occupancy rates at Sagehen Experimental Forest, California. *The Journal of Wildlife Management*, 75(8), 1774-1787.

Moriarty, K. M., Epps, C. W., Betts, M. G., Hance, D. J., Bailey, J. D., & Zielinski, W. J. (May) 2015. Experimental evidence that simplified forest structure interacts with snow cover to influence functional connectivity for Pacific martens. *Landscape Ecology*, 1-13.

Pacific Southwest Research Station 1998. Sierra Nevada Science Review. Albany, CA.

Reisner, M.D., J.B. Grace, D.A. Pyke, P.S. Doescher. 2013. Conditions favouring *Bromus tectorum* dominance of endangered sagebrush steppe ecosystems. *J. Applied Ecol.* 50(4): 1039-1049.

Reisner, M.D., P.S. Doescher, D.A. Pyke. 2015. Stress-gradient hypothesis explains susceptibility to *Bromus tectorum* invasion and community stability in North America's semi-arid *Artemisia tridentata wyomingensis* ecosystems. *J. Vegetation Sci.* doi: 10.1111/jvs.12327.

Roberts, J. L., Fogg, A. M., and Burnett R. D. 2015. Sierra Nevada National Forests Avian Management Indicator Species Project: 2014 Annual Report. Point Blue Conservation Science, Petaluma, CA.

Rota, C. T. 2013. Not all forests are disturbed equally: Population dynamics and resource selection of black-backed woodpeckers in the Black Hills, South Dakota. Dissertation. University of Missouri-Columbia.

- Rota, C. T., Rumble, M. A., Millsbaugh, J. J., Lehman, C. P., & Kesler, D. C. 2014. Space-use and habitat associations of Black-backed Woodpeckers (*Picoides arcticus*) occupying recently disturbed forests in the Black Hills, South Dakota. *Forest Ecology and Management*, 313, 161-168.
- Rota, C. T., Rumble, M. A., Lehman, C. P., Kesler, D. C., & Millsbaugh, J. J. 2015. Apparent foraging success reflects habitat quality in an irruptive species, the Black-backed Woodpecker. *The Condor*, 117(2), 178-191.
- Saab, V.A., Brannon, R., Dudley, J., Donohoo, L., Vanderzanden, D., Johnson, V., and Lachowski, H. 2002. Selection of fire created snags at two spatial scales by cavity nesting birds. In P.J. Shea, W.F. Laudenslayer Jr., B. Valentine, C.P. Weatherspoon, and T.E. Lisle (eds.), *Proceedings of the symposium on the ecology and management of dead wood in western forests, November 2-4, 1999, Reno, Nevada*. USDA Forest Service General Technical Report PSW-GTR-181, pp. 835-848.
- Seavy, N.E., R.D. Burnett, and Taille, P. 2012. Black-backed woodpecker nest-tree preference in burned forests of the Sierra Nevada, California. *Wildlife Society Bulletin* 36: 722-728.
- Shuford, W. D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. *Studies of Western Birds* 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.
- Siegel, R.B., M.W. Tingley, R.L. Wilkerson, M.L. Bond, and C.A. Howell. 2013. Assessing home range size and habitat needs of Black-backed Woodpeckers in California: Report for the 2011 and 2012 field seasons. Institute for Bird Populations.
- Siegel, R. B., Pyle, P., Thorne, J. H., Holguin, A. J., Howell, C. A., Stock, S., & Tingley, M. W. 2014a. Vulnerability of birds to climate change in California's Sierra Nevada. *Avian Conservation and Ecology*, 9(1), 7.
- Siegel, R. B., M. W. Tingley, and Wilkerson, R. L. 2014b. Assessing home-range size and habitat needs of Black-backed Woodpeckers in California: Report for the 2013 field season. Report to USFS Pacific Southwest Region. The Institute for Bird Populations, Point Reyes Station, CA
- Siegel, R. B., M. W. Tingley, and Wilkerson, R. L. 2015. Black-backed Woodpecker MIS Surveys on Sierra Nevada National Forests: 2014 Annual Report. Report to USFS Pacific Southwest Region. The Institute for Bird Populations, Point Reyes Station, CA.
- Spencer, W. and Rustigian-Romsos, H. 2012. Decision support maps and recommendations for conserving rare carnivores in the inland mountains of California. Conservation Biology Institute. August 2012.

Spencer, W. D., Rustigian-Romsos, H., Ferschweiler, K. and Bachelet, D. in press. Simulating Effects of Climate and Vegetation Change on Distributions of Martens and Fishers in the Sierra Nevada, California, Using Maxent and MC1 In: Bachelet, D. and Turner, D. eds., *Global Vegetation Dynamics: Concepts and Applications in the MC1 Model, Geophysical Monograph 214*, First Edition. American Geophysical Union. John Wiley & Sons, Inc.

Stralberg, D., and D. Jongsomjit 2012. Modeling bird distribution response to climate change: a mapping tool to assist land managers and scientists in California. Available at: <http://data.prbo.org/cadc2/index.php?page=maps>.

Tingley, M. W., R. L. Wilkerson, M. L. Bond, C. A. Howell, and R. B. Siegel. 2014. Variation in home range size of Black-backed Woodpeckers (*Picoides arcticus*). *The Condor: Ornithological Applications*. 116:325–340.

Trall, L. W., Brook, B. W., Frankham, R. R., & Bradshaw, C. J. 2010. Pragmatic population viability targets in a rapidly changing world. *Biological Conservation*, 143(1), 28-34.

USDA Forest Service 2006. Life history and analysis of management indicator species of the Sierra National Forest. October 2006. Pacific Southwest Region.

US Department of Agriculture 2014. Assurance of implementation of bi-state action plan for greater sage grouse. Letter from Jason Weller (Natural Resources conservation Service) and Thomas Tidwell (Forest Service). May 2014.

Wehausen, J. 2013. DRAFT: A Conservation Plan for Desert Bighorn Sheep in California. Submitted to California Department of Fish and Wildlife, Version 3, April 2013.

Woodbridge, B., and Detrich, P. J. 1994. Territory occupancy and habitat patch size of Northern Goshawks in the southern Cascades of California. *Studies Avian Biol.* 16:83–87.

Zielinski, W. J. 2014. The forest carnivores: marten and fisher. In: Long, J.W.; Quinn-Davidson, L.; Skinner, C.N., eds. Science synthesis to support socioecological resilience in the Sierra Nevada and southern Cascade Range. Gen. Tech. Rep. PSW-GTR-247. Albany, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station: 393-435. Chap. 7.1.