



United States Department of Agriculture

Biennial Monitoring Evaluation Report (BMER) For the Siuslaw National Forest

Fiscal Years 2020 - 2021



For More Information Contact:

Katie Isacksen
Forest Planner/Environmental Coordinator
3200 SW Jefferson Way
Corvallis, OR 97331
541-750-7077

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Monitoring Results Summary

The current condition of the Siuslaw National Forest is improving in many resource areas as its restoration emphasis continues. Aquatic habitats are slowly improving across the landscape. Timber/vegetation programs that target thinning simplistic plantations to provide diversity and structure are producing a steady volume output. Objectives for wildlife show progress in improvements in habitat characteristic trends such as old growth and late successional structure but not similarly for dependent species such as the northern spotted owl (NSO). For recreation, monitoring indicates that the Forest is making satisfactory progress toward desired conditions for visitor satisfaction, developed recreation sites, and wilderness stewardship. However, the Siuslaw needs to amend the Forest Plan to align with the 2019 designation of Devil’s Staircase. There is also a need to update the Forest Plan’s Off-highway vehicle (OHV) noise standards to align with current conditions and use patterns.

Table 1. Summary of Monitoring results by item for the Siuslaw National Forest

Monitoring Item	Do monitoring results demonstrate intended progress or trend toward Plan targets?	Based on the evaluation of monitoring results, may changes be warranted?	If a change may be warranted, where may the change be needed?
How many watershed restoration action plans (WRAPs) have been completed?	Yes	No	No need for change.
What are the spatial trends in seral conditions including age and structural distribution for Northern Spotted Owl Forest Cover Types	Yes	Maybe	Change may be warranted in increasing the pace of Large-Giant structure and the NSO Suitable Habitat while attention should be given to minimizing fragmentation of the OGS1 80 Core structure
What are the spatial trends in seral conditions including age and structural distribution for Late-Successional and Old-Growth Forests	Yes	No	No need for change
What are the spatial trends in seral conditions including age and structural distribution for Forest Vegetation Structure and Species Composition and Classes	Yes	Maybe	Attention should be paid toward the decline in open seral classes. While this type of habitat may be available on private land, the quality of those available may be less - and this forest stage provides habitat for many different species.
Are aquatic habitats being restored to a condition that increases the viability of TES species, as well as other aquatic organisms?	Yes	No	No need for change

Monitoring Item	Do monitoring results demonstrate intended progress or trend toward Plan targets?	Based on the evaluation of monitoring results, may changes be warranted?	If a change may be warranted, where may the change be needed?
Is the population for Northern Spotted Owls decreasing, stabilizing, or increasing?	Yes	Yes	While potential habitat on the Siuslaw National Forest is increasing, populations are decreasing. Work will continue to address not only the age but functionality of future habitat.
What is the health of the Western Snowy Plover, specifically, is the population decreasing, stabilized or increasing?	Yes	Yes	Potential expansion of snowy plover management area due to increasing populations
Do the Forest's recreation sites meet agency standards for operations, maintenance, accessibility, and facility condition?	Yes	No	No need for change
Is off-highway vehicle use at the Oregon Dunes National Recreation Area complying with noise emission standards established in the Forest Plan?	No	Yes	The Forest should consider adaptive management for noise on the Oregon Dunes
To what extent are visitors satisfied with the recreation opportunities and amenities available to them?	Yes	Maybe	Review the 2022 NVUM data and consider improvements to recreation services
Is the management of the Siuslaw's designated wilderness areas meeting performance standards for preservation of wilderness character?	Yes	Yes	For Devils Staircase, amend the Forest Plan to establish desired conditions, standards, and guidelines for this area. Prioritize improvements to the <i>invasive species, water, agency management actions, and opportunities for primitive and unconfined recreation</i> elements for Devil's Staircase

Monitoring Item	Do monitoring results demonstrate intended progress or trend toward Plan targets?	Based on the evaluation of monitoring results, may changes be warranted?	If a change may be warranted, where may the change be needed?
Are acres impacted by damage agents within the acceptable limits?	Yes	No	No need for change
Is the timber sale quantity similar to the level predicted in the Forest Plan, after amended by the Northwest Forest Plan?	Yes	No	No need for change
Are BMPs effective for longer term sustainability of project objectives?	Yes	No	No need for change

Introduction

Purpose

The purpose of the biennial monitoring evaluation report is to help the responsible official determine whether a change is needed in forest plan direction, such as plan components or other plan content that guide management of resources in the plan area. The biennial monitoring evaluation report represents one part of the Forest Service's overall monitoring program for the Siuslaw National Forest. The biennial monitoring evaluation report is not a decision document—it evaluates monitoring questions and indicators presented in the Plan Monitoring Program chapter of the forest plan, in relation to management actions carried out in the plan area.

Monitoring and evaluation are continuous learning tools that form the backbone of adaptive management. For this reason, we will produce an evaluation report every two years. This is our first written report of this evaluation since the Siuslaw National Forest Plan (1990) had a Monitoring Plan designed under the 2012 Planning Rule finalized.

This report indicates whether a change to the forest plan, management activities, monitoring program or forest assessment may be needed based on the new information. This report is available online on our website at: https://www.fs.usda.gov/detail/siuslaw/landmanagement/planning/?cid=fsbdev7_007246

How Our Plan Monitoring Program Works

Monitoring and evaluation requirements have been established through the National Forest Management Act at 36 CFR 219. Additional direction is provided by the Forest Service in Chapter 30 – Monitoring – of the Land Management Handbook (FSH 1909.12).

The Siuslaw National Forest Plan Monitoring Program was updated in May 2015 for consistency with the 2012 planning regulations [36 CFR 219.12 (c) (1)]. The Siuslaw National Forest Land Management Plan was administratively changed to include the updated plan monitoring program. For a copy of the current monitoring program go to this [web link](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprd3837863.pdf): https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprd3837863.pdf

Monitoring questions and indicators were selected to inform the management of resources on the plan area and not every plan component was determined necessary to track [36 CFR 219.12(a)(2)]. The monitoring evaluation implementation guide (monitoring guide) is part of the overall plan monitoring program and provides more specific direction for implementing the more strategic plan monitoring program and details monitoring methods, protocols, and roles and responsibilities. The Monitoring Guide is not part of the plan decision and is subject to change as new science and methods emerge.

In the context of forest management there are three main monitoring goals:

- Are we implementing the Land Management Plan properly? Are we meeting our management targets and project guidelines? (implementation monitoring)
- Are we achieving our Forest Plan management goals and desired outcomes? (effectiveness monitoring)
- Does our hypothesis testing indicate we may need to change the Forest Plan? (validation monitoring)

Implementation monitoring is important for tracking progress and accomplishments. However, it is effectiveness and validation monitoring that drive and support the adaptive management process. Effectiveness monitoring

evaluates condition and trend relative to desired conditions. Validation monitoring tests hypotheses and provides information that might necessitate changes to desired conditions in the plan (e.g. is what we think the desired state should be really accurate?)

Providing timely, accurate monitoring information to the responsible official and the public is a key requirement of the plan monitoring program.

Roles and Responsibilities

The Forest Plan Monitoring Program requires a coordinated effort of many people, from the people who collect the data, to the people outside the Forest Service who provide feedback and assistance, to the decision maker.

Robert Sanchez, Forest Supervisor, is the Responsible Official for the Siuslaw National Forest Plan. He has reviewed this Monitoring Evaluation Report to determine what actions will be needed immediately with respect to recommendations in the report, public comments given and in anticipation of upcoming forest plan revision.

This biennial monitoring report was prepared by an interdisciplinary team of the following Forest Program Managers and resource specialists: Guenther Castillon, Forest Silviculturist; Raymond Davis, Older Forests Monitoring Lead; Zach Heath, RO, Remote Sensing Lab specialist; Katie Isacksen, Environmental Coordinator; Brandy Langum, Forest Fish Biologist; Chelsea Monks, Forest Botanist; Trevor Robinson, Forest Recreation Specialist; Deanna Williams, Forest Wildlife Biologist

Monitoring Activities

Monitoring questions focus on providing necessary information to evaluate effectiveness of plan components and land management in maintaining or achieving progress towards desired conditions and objectives of the plan area. Indicators are like performance measures used in answering the respective monitoring question. Indicators should be practical, measurable, and relevant to answering monitoring questions for the plan area. They should also help to test relevant assumptions or track relevant changes. The Forest's monitoring program contains monitoring questions and identifies associated indicators that address each of the following:

- i. The status of select watershed conditions.**
- ii. The status of select ecological conditions including key characteristics of terrestrial and aquatic ecosystems.**
- iii. The status of focal species to assess the ecological conditions required under 219.9.**
- iv. The status of a select set of ecological conditions required under 219.9 to contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern.**
- v. The status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives.**
- vi. Measurable changes on the plan area related to climate change and other stressors that may be affecting the plan area.**
- vii. Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities.**
- viii. The effects of each management system to determine that they do not substantially and permanently impair the productivity of the land (16 U.S.C. 1604(g) (3) (C)).**

Forest Supervisor's Certification

This report documents the results of monitoring activities that occurred through Fiscal Year 2021-2022 on the Siuslaw National Forest. Monitoring on some topics occurs over a span of five years or more and these topics rely on the most recent data collection period.

I have evaluated the monitoring and evaluation results presented in this report. I have examined the recommended changes to the 1990 Land Management Plan, as amended at this time. I therefore consider the 1990 Land Management Plan sufficient to continue to guide land and resource management of Siuslaw National Forest for the near future and plan a deeper examination of the recommended changes through engagement with resource specialists and the public.

Robert Sanchez

Forest Supervisor

Monitoring Evaluation

The following section presents the most current information (data and evaluations) for all monitoring questions contained within the Siuslaw National Forest Plan. Each monitoring item includes 1) a summary of the monitoring question, its indicator(s), and the plan components the monitoring question is assessing; 2) monitoring results and discussion; and 3) evaluation of the results to determine an adaptive management finding on whether recommended management changes are warranted or not.

Status of Select Watershed Conditions

Watershed Improvements

Question: How many watershed restoration action plans (WRAPs) have been completed?

- **Monitoring Indicator:** Completed actions in the Watershed Condition Frameworks
- **Background & Drivers:** The Watershed Condition Framework (Framework) was established in 2010 to assess existing watersheds conditions and identify work needed to restore or maintain functioning conditions for the watersheds. The list of actions developed for each watershed is known as a watershed restoration action plan (WRAP.) Since then, the Siuslaw National Forest has been working on implementation of essential integrated restoration activities, post-project monitoring and national reporting.

Table 2. Year of development and completion of projects by Watershed

Year Framework Designated and WRAP completed	Watershed Name	Year Completed (all essential project work obligated)
2010	Farmer Creek – Nestucca River	2015
2010	Eckman Lake Frontal – Alsea River	2018
2010	Lower Drift Creek – Alsea River	2016
2010	Upper North Fork Siuslaw – Siuslaw River	2015
2010	Tahkenitch Lake Frontal	Expected Completion 2023
2015	Lower North Fork Siuslaw – Siuslaw River	2021
2017	Schooner Creek – Siletz River	2020
2021	Sandlake Frontal	On-going as funding is available

2021	Deadwood Creek – Siuslaw River	On-going as funding is available
2021	Smith River	On-going as funding is available

Monitoring Results:

To date, the Siuslaw has completed six WRAPs, meaning all restoration projects identified for these six watersheds have been completed and the watershed is now moved into properly functioning status. To date, 300 acres of riparian habitat and over 60 miles of stream have been restored and over 38 miles of critical habitat has been opened to migratory aquatic species by removing failing barrier culverts.

The Siuslaw has identified four additional watersheds under the Framework, that we are currently working to restore. Essential restoration projects within those watersheds are ongoing as funding becomes available, with anticipated completion dates of 2024-2028.

Recommendations:

Continue progress, but more funds are needed to complete upcoming years restoration projects and goals within the three identified watersheds under the Framework.



Status of Select Ecological Conditions

Forest Conditions

Question: What are the spatial trends in forest conditions associated with; a) Northern Spotted Owl forest cover types, b) late-successional and old-growth forests, and c) general forest vegetation structural classes as they relate to wildlife habitat relationships?

- **Monitoring Indicator:** Measure forested conditions using temporal datasets, such as GNN (1986–current year) or like data. Indicators include forest type distribution, forest age-class distribution, forest structural distribution, distribution of old forests and can include spatial measures of total area, patch size, interior core area and connectivity.
- **Background & Drivers:** As the majority of land allocations on the Siuslaw are late-successional reserves, our goal as land managers is to increase the availability of quality habitat for species associated with these forest conditions. In other locations, it is important to ensure a span of high quality habitat exists across seral stages, as each supports a different array of species and would exist naturally.

The northern spotted owl (NSO) prefers to use older (>125 year) Douglas-fir/western hemlock forests for nesting, roosting, and foraging (Lesmeister et al. 2018); but have been documented to use younger stands (including managed stands) as long as they contain adequate nesting and roosting structure (e.g., remnant old trees or snags). The Northwest Forest Plan (NWFP)

Monitoring Program produces annual maps of NSO forest type and habitat maps (Davis et al. 2022a). A conceptual diagram of nesting and roosting forest type map classes is shown in Figure 1.

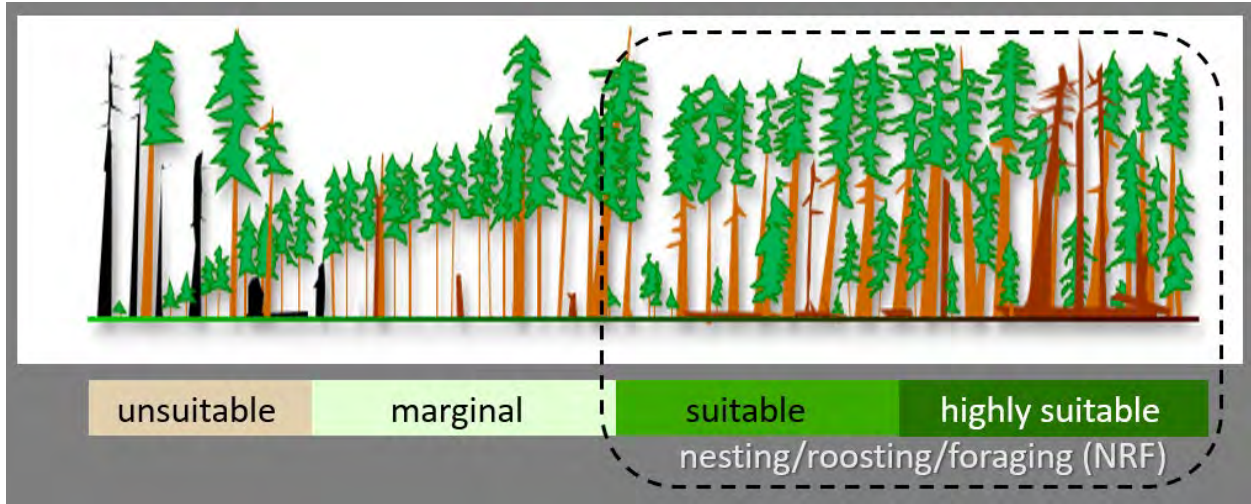


Figure 1. Conceptual diagram of northern spotted owl nesting/roosting forest types.

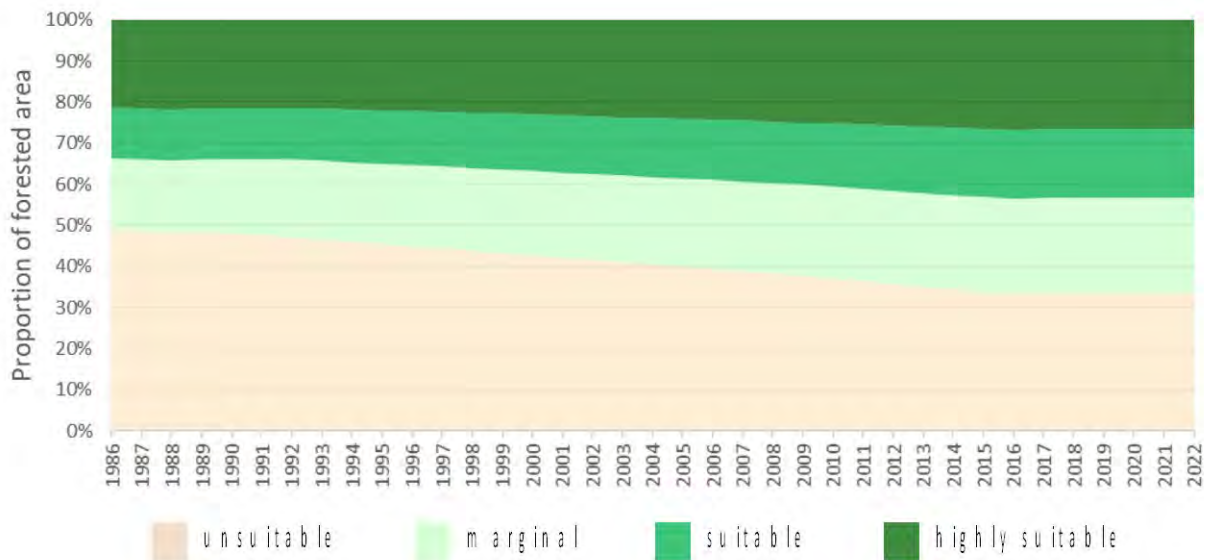
Monitoring Results

Northern Spotted Owl Forest Cover Types – Status and Trends

During the monitoring period from 1986 to 2022, suitable nesting and roosting forest cover types (combined) increased by 58,500 acres (28 percent) owing to forest succession (Figure 1). These gains primarily occurred in historic wildfire footprints (mid-late 1800s) and older clear cuts (e.g., Blodgett Track from the 1930s).

The proportion of suitable nesting/roosting forest that occurs interior to a patch (having cooler microclimates) increased slightly by 1.4% during this period, indicating a small, but measurable decrease in fragmentation. The amount of nesting/roosting that occurs along edges of patches, or as extensions of patches (fingers) or scattered pieces still accounts for about 75-percent of this forest type (Figure 2).

Figure 2. Changes in northern spotted owl nesting/roosting forest types.



Dispersal forest includes the suitable nesting/roosting forest type that NSO primarily move within, but also stands with mean conifer d.b.h. ≥ 11 inches and canopy cover ≥ 40 percent, which provide some cover for dispersing owls. This type of forest has increased by 40,000 acres (10.2 percent) since 1986 (Figure 3). However, the dispersal-capable landscape, which requires at least 40 percent dispersal forest cover within a 15.5-mi roving window radius, is about where it was in 1986. It experienced a temporary increase in area as older plantations developed into dispersal forests, then began to decrease owing to second-rotation regeneration harvesting of these plantations on adjacent surrounding nonfederal forest lands, which increased in extent around 2010. The effect of this regeneration harvesting resulted in a loss of NSO connectivity between the Hebo Ranger District and the rest of the Forest. It also resulted in a loss of connectivity between the Coast Range and the Cascade Mountain Range, essentially making the Siuslaw National Forest an “island” of NSO forest types in the central Oregon Coast Range.

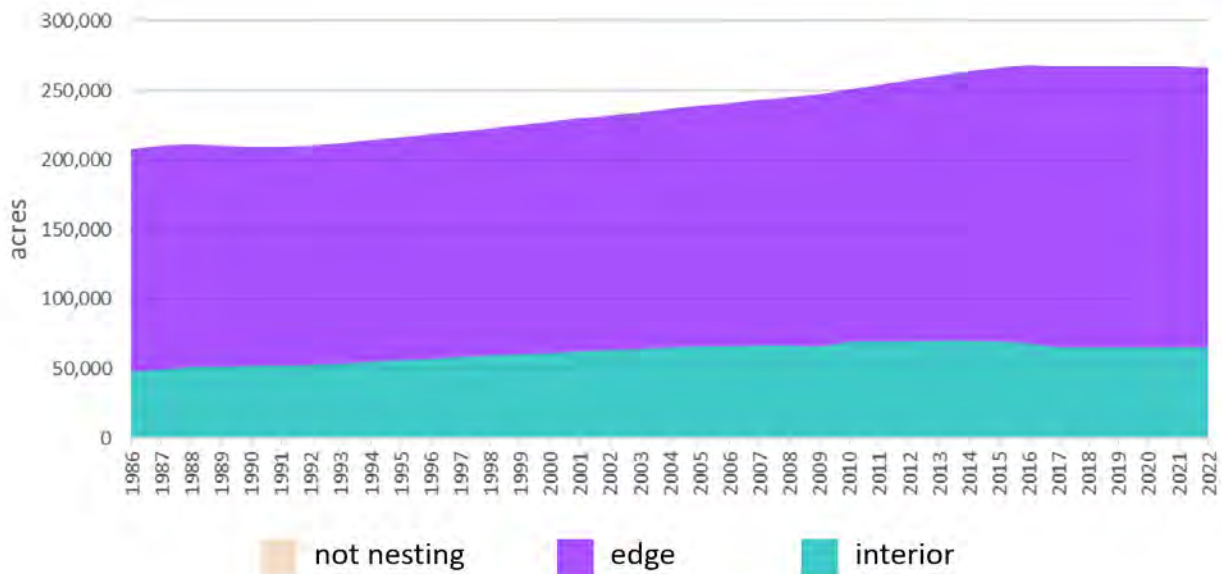


Figure 3. Changes in spatial patterns of the suitable nesting/roosting forest type (includes suitable and highly suitable).

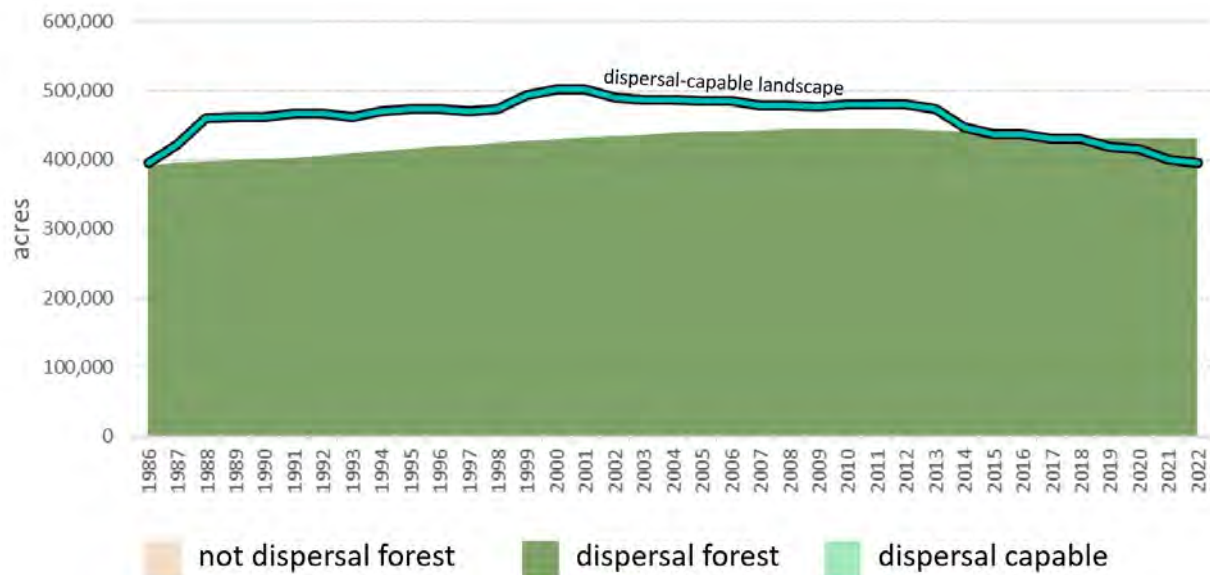


Figure 4. Changes in spatial patterns of dispersal forest and dispersal-capable landscapes.

In summary, the NWFP monitoring data indicates gradual recruitment of NSO forest types associated with nesting, roosting, foraging and dispersal is occurring on the Siuslaw National Forest. The process of forest succession is moving younger forest types (e.g., unsuitable nesting/roosting) into older forest types more commonly used by the owl. The forest changes surrounding the Forest have had some influence on how NSO use and move through the landscape on and in the vicinity of this forest.

These trends indicate that management of NSO forests on the Siuslaw has been consistent with the standards and guidelines of the NWFP, which are largely focused on the maintenance and restoration of the older forest types. Bookend changes (start and stop year for this monitoring period) and net changes are summarized in Table 3. Gains and losses are accounted for from 1986 to 2017 (Davis et al. 2022a), but only losses are accounted for 2018 to 2022. Future monitoring will account for both losses and gains on an annual basis, instead of the periodic 5-year reporting cycle which produces periodic monitoring reports (e.g., 10-yr, 15-yr, 20-yr, and most recently the 25-yr reports).

Table 3. Forest cover types used by northern spotted owls from Davis et al. (2022a).

Forest Cover Type	1986 (acres)	2022 (acres)	Net change since 1986
Unsuitable nesting/roosting	305,500	208,500	31.8% decrease
Marginal nesting/roosting	104,600	143,000	36.8% increase
Suitable nesting/roosting	76,300	102,300	34.0% increase
Highly suitable nesting/roosting	132,000	164,600	24.7% increase
Interior nesting/roosting	48,100	65,400	35.9% increase
Edge nesting/roosting	160,200	201,500	25.8% increase
Dispersal	390,800	430,800	10.2% increase

Late-Successional and Old-Growth Forests – Status and Trends

The definition of late-successional and old-growth (LSOG) forest used in this monitoring report conforms to the old-growth structure index (OGSI) definition used by the NWFP monitoring program (Davis et al. 2015, 2022). The old-growth structure index was designed to reflect the continuous nature of ecological succession and is conceptually similar to the suitability index used for monitoring NSO nesting/roosting forests (Figure 5). The OGSI is calculated using up to four measurable old-growth structure elements, including; (1) density of large live trees, (2) diversity of live-tree size classes, (3) density of large snags, and (4) percentage cover of down woody material (Figure 5). These are elements commonly considered as key ecological and structural attributes of old-growth forests within the NWFP area and vary by vegetation zone. The index ranges from 0 to 100, where higher values indicate old-growth structure.

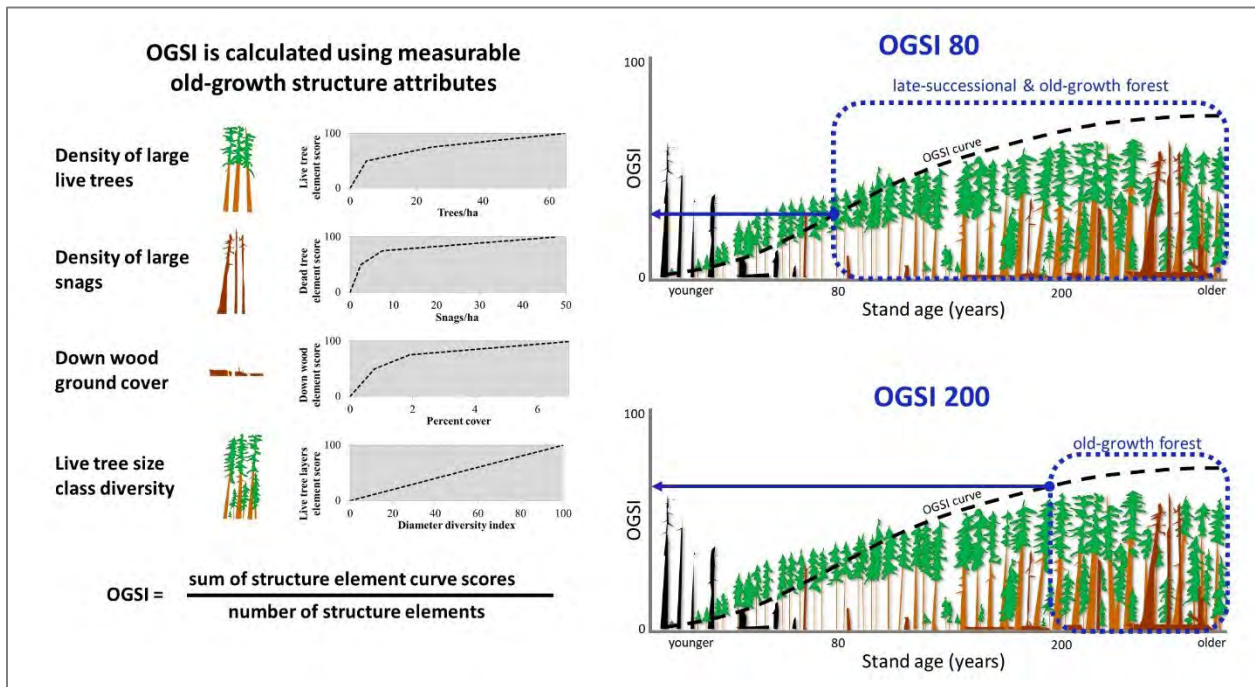


Figure 5. Conceptual diagram of the old growth structure index (OGSI).

For monitoring purposes, mapping thresholds for LSOG (OGSI 80) and for OG (OGSI 200) are used. The OGSI 80 threshold was based on a stand age of ≥ 80 years that is used to describe the point on the forest succession time scale at which young forests in the NWFP area generally begin to “mature” and start exhibiting stand structure associated with older forests (Spies et al. 2018, Davis et al. 2022b). The OGSI 200 threshold is based on a ≥ 200 -year stand age (≥ 160 years for oak woodlands and lodgepole). Maps of older forest based on these thresholds are not maps of stand age, per se. Rather, they are maps of old-growth forest structure that represent two different points in the continuum of forest succession and stand development.

During the monitoring period from 1986 to 2022, OGSI 80 forests have increased by 94,400 acres (33.0 percent) and a subset of these, which is OGSI 200, increased by 47,900 acres (23.1 percent). The largest proportional change occurred in the OGSI 80 “core” class that represents the interior of a patch that is ≥ 2 acres in size. This indicates that older forests are becoming less fragmented as fingers and scatter grow into patches. This is occurring to a lesser degree for OGSI 200.

Figure 6. Wildlife habitat relationships example (left) and conceptual diagram of forest seral (structural) stages (right) from Thomas, Jack Ward [Technical Editor] 1979. Wildlife Habitats in Managed Forests the Blue Mountains of Oregon and Washington. Agriculture Handbook No. 553. U.S. Department of Agriculture, Forest Service. 512 p.

The Landscape Ecology Modeling, Mapping, and Analysis (LEMMA) Program produces annual maps of forest vegetation structure and composition in support of the NWFP Monitoring Program. Here, we used the forest structural condition categorical map to represent general forest seral stages (Table 5).

Table 5. Structural condition types based on wildlife habitat relationships (O’Neil et al. 2001).

Forest Structural Condition Type	1986 (acres)	2017 (acres)	Net change since 1986
Sparse (canopy cover < 10%)	23,900	12,200	48.9% decrease
Open (canopy cover 10–40%)	22,800	18,300	19.8% decrease
Sapling/pole - moderate/closed (canopy cover > 40, quadratic mean diameter of dominant trees < 25 cm)	125,400	38,900	69.0% decrease
Small/medium tree - moderate/closed (canopy cover > 40%, quadratic mean diameter of dominant trees 25–50 cm)	171,300	185,700	8.4% increase
Large tree - moderate/closed (canopy cover >= 40%, quadratic mean diameter of dominant trees 50–75 cm)	94,300	122,700	30.1% increase
Large/giant tree - moderate/closed (canopy cover >= 40%, quadratic mean diameter of dominant trees >= 75 cm)	180,600	240,500	33.1% increase

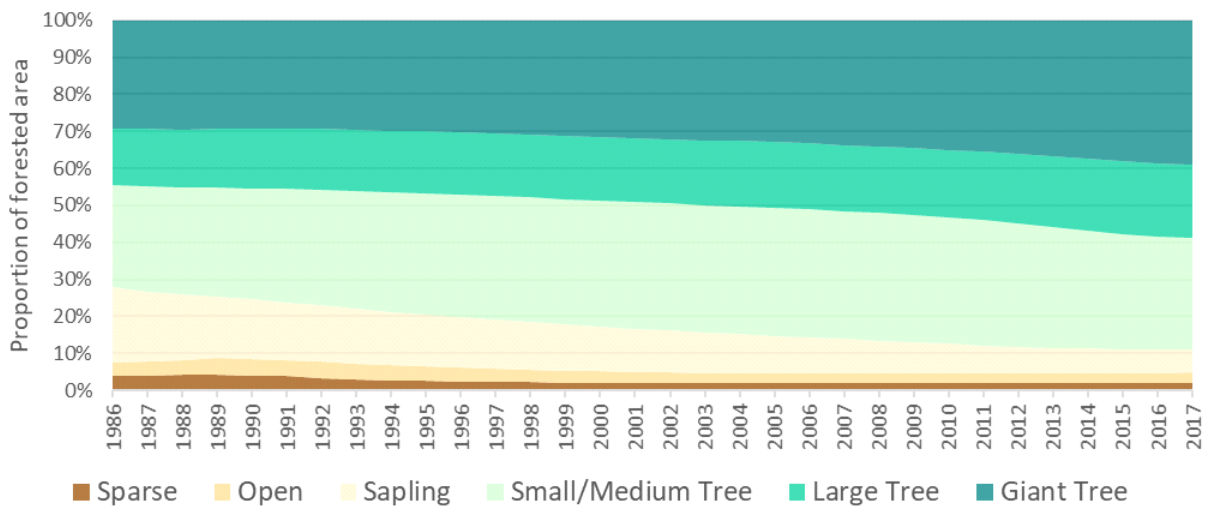


Figure 7. Changes in amounts of forest structure types used to represent broad wildlife use seral stage relationships

During the monitoring period from 1986 to 2017 (we did not have maps beyond 2017) we see a gradual decrease in early-seral forest structure (sparse, open and sapling/pole) and a gradual increase in late-seral forest structure (large and giant tree). The mid-seral (small/medium tree) class only increased slightly (8.4%) as it incurred gains from early seral stages that more than compensated for losses from forest succession that resulted in mid-seral to late-seral transitions. The largest change occurred in the

sapling/pole stage where many clearcut plantations grew into the small/medium tree class. The decrease in early seral stages on the forest is partially compensated for at the landscape-scale by recent 2nd rotation clearcutting on the surrounding adjacent nonfederal forest lands (Figure 7).

Recommendations:

- Change may be warranted in increasing the pace of Large-Giant structure and the NSO Suitable Habitat while attention should be given to minimizing fragmentation of the OSGI 80 Core structure
- Continue restoration work aimed at thinning young plantations that aims to enhance structure and diversity
- Attention should be paid toward the decline in open seral classes. While this type of habitat may be available on private land, the quality of those available may be less - and this forest stage provides habitat for many different species.



Status of Focal Species

Aquatic Habitat Restored

Question: Are aquatic habitats being restored to a condition that increases the viability of Threatened and Endangered Species (TES), as well as other aquatic organisms?

- **Monitoring Indicator:** Miles of fish-bearing streams restored using large wood and miles of restored access (Aquatic Organism Passage or removal of barrier).
- **Background & Drivers:** This monitoring element allows us to know if we have successfully enhanced and restored critical fish habitat. Degraded conditions in some of our streams are symptoms caused by lack of large wood due to the historic removal of instream wood, roads cutting off instream wood transfer routes, and over harvest of riparian trees. By completing these restoration projects, we are addressing key habitat indicators for Oregon Coast coho for future delisting of the species. These projects meet our Forest Plan Aquatic Conservation Strategy goals and the overall restoration goals of the Northwest Forest Plan.

Monitoring Results

The objective is to maintain fish habitat near present levels and restore habitat to pre-1960 levels. Although habitat capability may continue to decline in the short term due to decay of large woody debris, this will be offset somewhat in the long term by ongoing watershed restoration activities, and completion of essential projects in Watershed Restoration Action Plans particularly under planting of conifers and reestablishment of healthy, diverse, uneven-aged forests in late seral stages in most riparian areas. Many large conifer trees are growing where they can either fall into channels of streams supporting salmonid fishes or become nurse logs for conifer regeneration in otherwise marginally hospitable streamside soils. Generally cool water temperatures are within tolerances of aquatic organisms naturally found in the

system, and channels contain many pools and well-distributed complexes of large logs that interact over time and through a wide range of flows to create a high diversity of aquatic habitat types.

Since 2020 over 1,300 logs have been placed in Oregon Coast coho salmon habitat streams on the Siuslaw National Forest, totaling over 28 miles of restored habitat. This work is implemented yearly in the fall and ranges from 400 to 800 pieces of large wood per year. In addition, five barrier culverts have been removed and replaced with Aquatic Organism Passages, this work is done during the low flow season on Forest and/or on adjacent private lands. Over eight acres of riparian habitat have been planted with a variety of conifer and native hardwoods.

Recommendations:

No need for change.



Status of Select Set of Ecological Conditions Required to Contribute to Species Recovery

Northern Spotted Owl Habitat

Question: Is the habitat for Northern Spotted Owls decreasing, stabilizing, or increasing?

- **Indicator:** Is the population for Northern Spotted Owls decreasing, stabilizing, or increasing?
- **Background & Drivers:** Northern spotted owl population recovery is a primary goal for lands within the range of the species. The desired future condition is a well distributed, genetically interacting, demographically diverse population of northern spotted owls that inhabit a high percent of their native range. The Forest Service’s role in supporting this effort is increasing potential habitat through land management practices.

Monitoring Results

Monitoring is conducted by the NWFP Monitoring Program (Franklin et al. 2021, Davis et al. 2022a), which has one of its 8 demographic study areas (Oregon Coast Ranges) located on the Forest. This study area covers 172 territories, of which 90 have their territory center on the Siuslaw. The most recent population meta-analysis results (Franklin et al. 2021) indicate that the population within this study area has decreased by 81.1% between 1995 and 2017 (Figure 8a) and mean occupancy rates of historic territories have decreased from 72% to 15% during the 1993 to 2018 time period (Figure 8b).

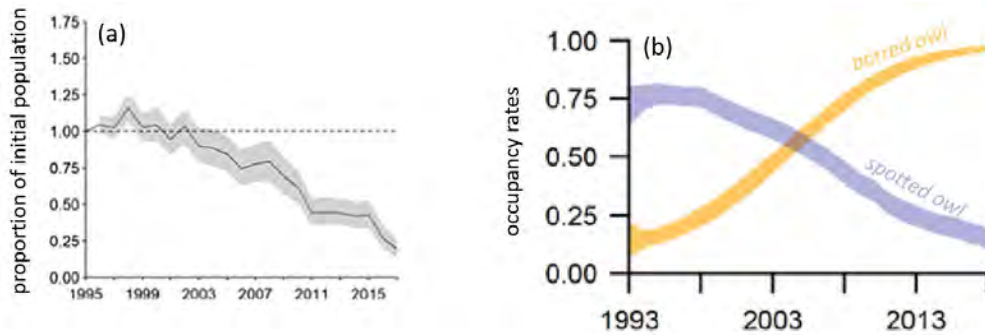


Figure 8. Trends between 1995–2017 for the realized northern spotted owl population (a) and territory occupancy (1993–2018) for northern spotted owl pairs and barred owls (b) in the Oregon Coast Ranges study area (from Franklin et al. 2021).

Habitat consists of suitable forest types in sufficient amounts and arrangements, adequate prey and water sources, and protection from the elements and predators (Lesmeister et al 2018). Here, we use NSO habitat maps developed by the NWFP monitoring program, following methods outlined in Glenn et al. (2017). Results showed that while the amount of suitable NSO habitat increased from 252,100 acres to 297,600 acres (18-percent increase) between 1993 to 2022, the potential population carrying capacity on the Forest decreased slightly (1.2 percent) because of the spatial arrangement of the remaining and recruited nesting/roosting forest in relationship to how NSOs locate and defend their territory centers (median nearest neighbor distance = 1.6 mi; Dugger et al. 2016, table 3).

In 1993, the Siuslaw’s potential carrying capacity was estimated between 338 to 343 NSO pair territories (mean = 340). In 2022, it was estimated between 333 to 339 (mean = 336). When considering occupancy rates, which factor in the effects of barred owls and other environmental conditions, the estimates for 1993 and 2022 were 213–278 (mean = 249) and 37–64 (mean = 50), respectively. The steep decline in NSO pair territories of 79.4 percent (Davis et al. 2022) is with the error bounds of the decline (73.5–87.0 percent, mean = 81.1) in the realized population change between 1993 and 2017, for all NSOs detected regardless of pair status from Franklin et al. (2021).

In summary, while maintenance on restoration of nesting/roosting forest on the Siuslaw is occurring, it has not resulted in the stabilization of NSO populations as was expected to occur during the first few decades of the NWFP’s implementation. This is owing to the barred owl invasion that continues to play out. Future NSO population monitoring will no longer be based on demographic indicators as demographic surveys are being phased out and replaced with a random statistical census of federal forests using passive bioacoustics monitoring. Coupled with annual remote-sensed forest data (e.g., forest types, forest disturbances, etc.) the NWFP monitoring program will be able to provide improved occupancy rate information from which to estimate population size and distribution (Lesmeister et al. 2021).

Recommendations:

While potential habitat on the Siuslaw National Forest is increasing, populations are decreasing. Work will continue to address not only the age but functionality of future habitat.

Viability of the Snowy Plover

Question: What is the health of the Western Snowy Plover, specifically, is the population decreasing, stabilized, or increasing?

- **Monitoring Indicator:** Trend in the number of western snowy plover nest sites on the Forest, Trend in reproductive success of nest sites on the Forest, Trend in the over wintering western snowy plover population, Western snowy plover winter use from ongoing investigations by Oregon Biodiversity Information Center (ORBIC), Central Coast Ranger District/Oregon Dunes NRA, U.S. Fish and Wildlife Service, and volunteers.
- **Background and Drivers:** Western snowy plover population recovery is a primary goal for the Central Oregon Coast. The desired future condition is a well distributed, genetically interacting, demographically diverse population of western snowy plovers that inhabit the Central Oregon Coast. Recovery goal: 1 chick fledged per male.

Annual breeding season window surveys are coordinated by US Fish and Wildlife Service in late May. Breeding season window surveys are conducted at both currently active and historic nesting areas (Elliott-Smith and Haig 2007). Historic nesting areas searched during the breeding window survey included: Clatsop Spit, Necanicum Spit, Nehalem Spit, Bayocean Spit, Netarts Spit, Sand Lake South Spit, Nestucca Spit, South Beach (Newport), Whiskey Run to Coquille River, Elk River, Euchre Creek, Otter Point to Rogue River, and Myers Creek to Pistol River.

Monitoring Results

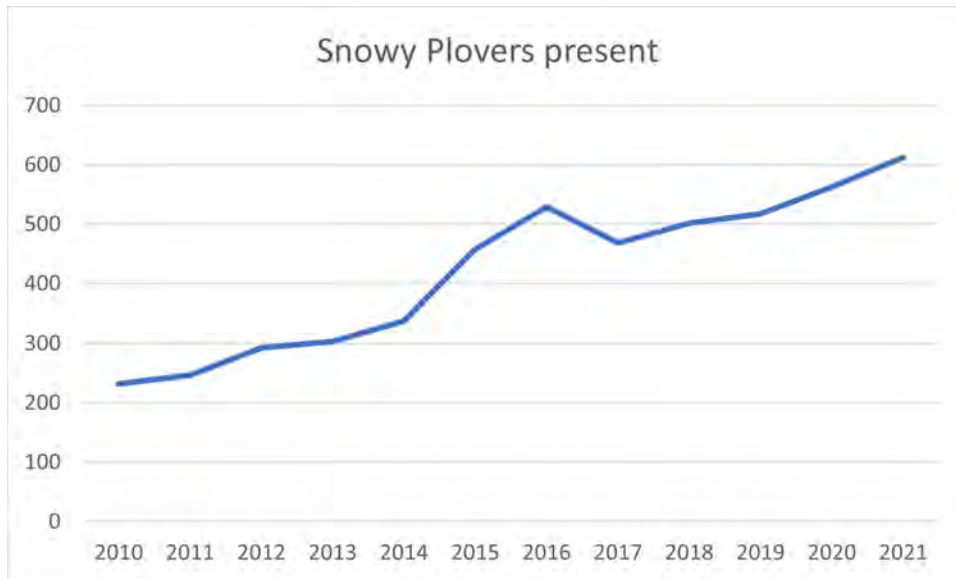
Breeding season fieldwork was conducted from April 2 to September 10, 2021. Surveys and monitoring for plover activity included, from north to south, Sutton Beach, Siltcoos River estuary, the Dunes Overlook, Tahkenitch Creek, Tenmile Creek, Coos Bay North Spit, Bandon Snowy Plover Management Area, New River Habitat Restoration Area (HRA) and adjacent lands, and Floras Lake.

We estimated the resident number of Snowy Plovers in Oregon at 604 individuals, the highest number since monitoring began in 1990. We monitored 712 nests in 2021. Overall apparent nest success was 27%. Nest failures were attributed to unknown depredation, unknown cause, unknown avian depredation, corvid depredation, mammalian depredation, harrier depredation, abandonment, one egg nest, gull depredation, wind/weather, overwashing, and infertility. We sampled 140 of 217 known broods that produced 162 fledglings and estimated 250 total fledglings. Overall brood success was 75%, fledging success was 44%, and based on the overall number of resident males, 0.62 chicks fledged per resident male.

In 2021 we measured plover productivity. Overall plover numbers were at their highest, and while the total number of fledglings was lower than the previous four years, productivity was reasonably good. This monitoring effort has shown that effective predator management within the project area has significant impacts on the entire northwestern Pacific coast, and management efforts should focus on prioritizing plover productivity at the main nesting sites between Siltcoos and New River.

Full report is available here: <https://inr.oregonstate.edu/biblio/distribution-and-reproductive-success-western-snowy-plover-along-oregon-coast-2021>

Figure 9. Snowy Plovers present from Sutton Beach to Floras Lake



Recommendations:

Potential expansion of snowy plover management area due to increasing populations.



Visitor Use, Satisfaction, and Progress on Recreation Objectives

Recreation Site Conditions

Question: Do the Forest’s recreation sites meet agency standards for operations, maintenance, accessibility, and facility condition?

- **Monitoring Indicator:** Percentage of active sites that are *managed to standard*, based on data entered into the Natural Resource Manager (NRM) application.
- **Background & Drivers:** The Siuslaw manages 132 active recreation sites, including trailheads, campgrounds, picnic sites, boat ramps, off-road vehicle staging areas, and similar types of facilities. Forest Service policy prescribes minimum standards for the operations and maintenance of these sites, and those standards consider health, safety, accessibility, facility condition, and other critical attributes. NRM serves as the definitive agency database for recreation site conditions and management accomplishments; at the end of each fiscal year, NRM data is pulled

and key data inputs are compared to agency standards. If the data shows that a recreation site meets those standards, it is considered to be *managed to standard* for the fiscal year.

The Great American Outdoors Act (GAOA) and Bipartisan Infrastructure Law have dramatically increased the funding that is available for deferred maintenance projects. Similarly, the Forest’s RSA program of work emphasizes deferred maintenance reductions. Based on these conditions, the Forest expects to raise the FCI scores for many of its sites in the coming years, and these higher scores will translate into a larger percentage of sites that are managed to standard.

Monitoring Results

In fiscal year 2021, the Siuslaw managed 123 active recreation sites with minor constructed features and/or buildings. The Forest managed nine additional sites with no agency-owned constructed features, and the *managed to standard* criteria were not applied to those nine sites. Parking lots and access roads are also excluded from analysis. The table below shows the number of sites that were managed and not managed to standard, along with applicable percentages. Based on NRM data, 63% of the Forest’s recreation sites with constructed features were managed to standard in 2021.

	Count	Percent
Managed to Standard	78	63%
Not Managed to Standard	45	37%
Total	123	100%

Recommendations:

No need for change.

Off Highway Vehicles (OHV)

Question: Is off-highway vehicle use at the Oregon Dunes National Recreation Area complying with noise emission standards established in the Forest Plan?

- **Monitoring Indicators:** Percentage of monitored OHVs that comply with noise emission standards, based on decibel (dB) output maximums measured from individual machines. This report will examine the following sub-indicators:
 - Overall compliance rate for all OHVs measured through sound checks.
 - Compliance rate for vehicles with a model year of 2016 or more recent.
- **Background & Drivers:** The Oregon Dunes is one of the premier OHV destinations on the Oregon Coast, with open riding areas, designated OHV trails, and OHV-oriented dispersed camping. However, OHV noise can have effects on wildlife, other visitors, and adjacent property owners. The Siuslaw has an OHV noise limit of 93 dB on the Oregon Dunes, as measured from individual machines.

The Forest has implemented an OHV noise monitoring program for the past several decades. Under this program, field data is collected through a variety of different methods: Voluntary courtesy checks at OHV staging areas/access points, monitoring stations in riding areas, and law enforcement checks. Due to staffing, leadership direction, and external factors, the implementation of each monitoring method has varied from year to year. For example, in 2021 all sound monitoring was conducted through courtesy checks, whereas courtesies contributed only 43% of the monitoring data in 2019. This variation makes year-over-year trend analysis difficult. Monitoring data is not necessarily statistically valid for the entire population of OHVs on the Oregon Dunes.

Monitoring Results

The Forest conducted 161 courtesy OHV noise checks in 2021. These checks were performed at eight locations on 13 different dates between June 25 and September 14, 2021. All courtesy checks were voluntary. Monitoring occurred in two-hour increments during daylight hours only.

Of the OHVs that participated in courtesy checks, 30% had maximum noise outputs at or below 93 dB. Of the remaining 70%, 34% were between 94 and 99.9 dB, and 36% were at or above 100 dB.

OHV Noise Monitoring Results, 2021

dB output	Count	%	Comply with current limit
93 or less	48	30%	YES
94 - 99.9	55	34%	NO
100 +	58	36%	NO
TOTAL	161	100%	

As mentioned above, it is difficult to make judgments based on multi-year trends in monitoring results. However, the available data shows that compliance rates with the 93 dB limit are on a downward trend. With a 30% compliance rate, the 2021 data aligns with this trend: For 2017, 2018, and 2019, the 93 dB compliance rates were 41%, 37%, and 36%, respectively. The gradual drop in compliance is likely due to changes in OHV manufacturing and market demands. In recent years, OHV users have increasingly favored four-stroke engines and aftermarket mufflers; these specifications increase the performance of the vehicle but also cause it to emit more noise, relative to models that were more popular in the past. OHVs of different classes also have different average noise levels, but that distinction was not evaluated in this report.

OHV users encounter different noise limits across various states, counties, and land management agencies. This variation may contribute to the low compliance rates on the Oregon Dunes. The Siuslaw is considering an increase to its 93 dB noise limit, in order to align with adjacent land managers and accommodate recent OHV market trends. An increase to the dB limit would change compliance rates; for example, if the limit was 95 dB instead of 93 dB, 42% of the vehicles monitored in 2021 would have met the standard. However, noise is recognized as an issue for nearby residents and recreationists. Overall, there is a need to revitalize all three pillars of the originate compliance strategy as well as greater monitoring, to gauge whether the enhanced field presence leads to improved sound compliance.

Recommendations:

The Forest should consider adaptive management to reduce impacts of noise on the Oregon Dunes

Levels of Satisfaction

Question: To what extent are visitors satisfied with the recreation opportunities and amenities available to them?

- **Monitoring Indicators:**
 - Percentage of National Visitor Use Monitoring (NVUM) respondents who were *very satisfied* or *somewhat satisfied* with their overall recreational experience on the Siuslaw National Forest.
 - Percentage of NVUM respondents who were satisfied with various amenities at developed sites, undeveloped areas, and designated wilderness areas on the Siuslaw National Forest.
- **Background & Drivers:** The Forest Service strives to provide a variety of safe and high quality recreation opportunities for forest visitors. To evaluate attainment of this goal, the Forest Service measures visitor satisfaction with agency-provided services and amenities. Visitor satisfaction data is collected through the agency's NVUM program; all National Forest units implement NVUM through a consistent data collection protocol, and each National Forest collects NVUM data every five years. The last data collection occurred in 2016.

The NVUM protocol asks all respondents the following question about visitor satisfaction: Overall, how satisfied or dissatisfied are you with your recreation experience on this National Forest during this visit? This question, along with the rest of the NVUM survey, is asked in person as the respondent is concluding their visit to a recreation site or undeveloped area.

Additionally, NVUM asks a subset of respondents about their satisfaction with various agency provided infrastructure and services; as with overall satisfaction, five response options are available. These amenities were grouped into four attribute categories: developed facilities, access, services, and feeling of safety. The NVUM analysis computed the percentage of respondents who were satisfied with each attribute category at three different types of recreation locations: developed sites, non-wilderness undeveloped areas, and designated wilderness. These calculations yield the Percent Satisfied Index.

The USDA Strategic Plan for fiscal years 2018-2022 has a performance measure for *percent of customers satisfied with recreation facilities, services, and settings on National Forests*. In fiscal year 2022, the target for this performance measure is 95% of customers satisfied. Similarly, for the NVUM Percent Satisfied Index, the Forest Service's target is 85% of visitors satisfied.

Monitoring Results

Just over 95% of respondents were either very satisfied or somewhat satisfied with their recreation experience on the National Forest. This data indicates that the Siuslaw is meeting the visitor satisfaction performance measure in the current USDA strategic plan. The percentage of satisfied visitors was higher

in 2016 than it was during the previous NVUM cycle (2011).

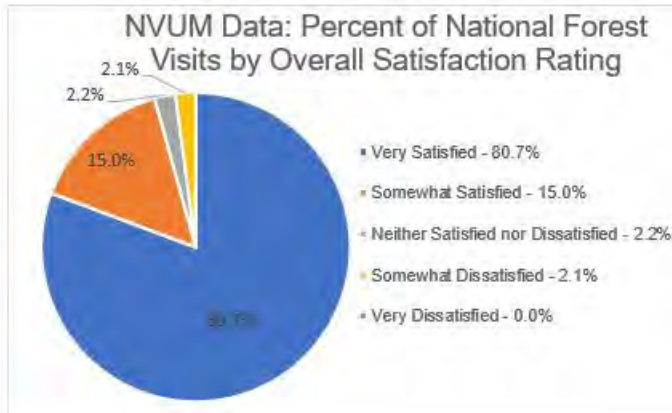


Figure 10. Percent of national forest visits by Overall Satisfaction Rating

The 2016 NVUM data shows that the Siuslaw met the agency target (85% of respondents satisfied) for feeling of safety at all three types of recreation areas. The Forest also met the target for developed facilities in wilderness areas and access in undeveloped areas and wilderness areas. For all other site types and attribute categories, the percentage of satisfied respondents was below 85%. These findings suggest that the Forest should make improvements to some of its recreation amenities and services.

2016 is the most recent year with NVUM data available for the Siuslaw. NVUM data collection is underway in fiscal year 2022 and results will be available in 2023. The Forest should refer the more recent NVUM findings prior to making any changes to plans or processes.

Attribute	Satisfied Survey Respondents (%)		
	Developed Sites	Undeveloped Areas	Designated Wilderness
Developed Facilities	75.1	78.8	100
Access	83.5	86.3	86.4
Visitor Services	80.5	79.3	67.5
Feeling of Safety	95.9	95.4	100

Recommendations:

Review the 2022 NVUM data and consider improvements to recreation services

Wilderness Management

Question: Is the management of the Siuslaw’s designated wilderness areas meeting performance standards for preservation of wilderness character?

- **Monitoring Indicator:** Wilderness Stewardship Performance (WSP) scores for each wilderness area. Each wilderness has a maximum WSP score of 104. Points are awarded across ten scoring elements (up to ten points each) with two additional scoring milestones (two points each).
- **Background & Drivers:** The Siuslaw stewards four congressionally-designated wilderness areas: Cummins Creek, Drift Creek, Rock Creek, and Devil’s Staircase. The former three wilderness areas were designated in 1984, and Devil’s Staircase Wilderness was designated in 2019. To help improve the agency’s management of wilderness, the Forest Service’s WSP framework lays out accomplishment milestones for units’ internal processes, programs, coordination, and controls relating to wilderness stewardship. Attainment of these milestones is documented and reported upwards at the end of every fiscal year. WSP focuses on agency management processes and outputs, rather than wilderness character outcomes. A wilderness area is considered to be *meeting baseline performance for preserving wilderness character* if its WSP score is at least 60.

Monitoring Results

Each wilderness area’s WSP score is based on ten scoring elements, and each element includes a progressive series of scoring milestones from two points to ten points. There are also two standalone 2-point “checkboxes” of additional requirements.

The following table shows the total WSP score for each wilderness area at the end of fiscal year 2021. Cummins Creek, Drift Creek, and Rock Creek each exceed the baseline performance threshold. WSP scores for these three wildernesses have been steadily increasing since WSP was adopted in 2014, and all three areas first met the performance threshold in fiscal year 2017. Devil’s Staircase Wilderness is just over three years old, and the Forest is still working to bring this new area’s WSP score up to the baseline performance level. The WSP score for Devil’s Staircase is trending upwards; at the end of fiscal year 2020, the area’s WSP score was 28.

Wilderness Area	Designation Year	Total WSP Score (FY21)
Cummins Creek	1984	70
Drift Creek	1984	70
Rock Creek	1984	70
Devil's Staircase	2019	32

The next table shows the individual WSP element scores for each wilderness area. Italicized elements are mandatory (must be used for all wildernesses) and the non-italicized elements were chosen from a list of electives.

As the table shows, Cummins Creek, Drift Creek, and Rock Creek wildernesses have accomplished all scoring milestones for invasive species and air quality values. For the other scoring elements, there are remaining opportunities to increase WSP scores. The scores for Agency Management Actions and Opportunities for Primitive & Unconfined Recreation are especially low, and the Forest will be emphasizing improvements to those elements in the coming years. There are also opportunities to increase all of the element scores for Devil’s Staircase (other than the Additional Requirements checkboxes). For this particular wilderness, the Forest expects to prioritize improvements to the invasive species, water, agency management actions, and opportunities for primitive and unconfined recreation elements. Improvements to a WSP score indicate that a unit has improved its wilderness management processes, programs, and coordination.

Table 6. Wilderness Stewardship Performance Element Scores by Area

WSP Element Scores	Wilderness Area			
	Cummins Creek	Drift Creek	Rock Creek	Devil's Staircase
Invasive Species	8	8	8	2
Water	N/A	N/A	N/A	2
Air Quality Values	10	10	10	N/A
Recreation Sites	6	6	6	N/A
Trails	6	6	6	6
Motorized Equipment & Mechanical Transport Authorizations	N/A	N/A	N/A	2
<i>Agency Management Actions</i>	2	2	2	2
Opportunities for Solitude	10	10	10	0
Opportunities for Primitive & Unconfined Recreation	2	2	2	2
<i>Workforce Capacity</i>	6	6	6	4
<i>Education</i>	8	8	8	0
<i>Wilderness Character Baseline</i>	8	8	8	8
Additional Requirements	4	4	4	4
TOTAL	70	70	70	32

Recommendations:

As a means of improving the WSP score for Devil’s Staircase Wilderness, the following actions are recommended for the next biennial monitoring cycle:

- *Invasive Species*: Complete invasive plant inventories along the closed roads within the wilderness and the open roads along the wilderness boundary (in progress). Use this inventory data to develop an integrative invasive species management plan and a long-term monitoring strategy for Devil’s Staircase Wilderness.
- *Trails*: Complete a baseline survey of all known user-created trails in the Wasson Creek drainage. Develop a management plan for user-created trails in all areas of the wilderness.
- *Motorized Equipment & Mechanical Transport Authorizations*: Improve communication and coordination with the Douglas County sheriff’s office and other local agencies regarding search & rescue and other emergency activities in this wilderness.
- *Opportunities for Solitude*: Complete a baseline inventory of current conditions for opportunities for solitude in this wilderness. Incorporate direction for protecting opportunities for solitude into the upcoming Forest Plan amendment for wilderness.
- *Education*: Incorporate interpretive themes for Devil’s Staircase into the Forest’s wilderness education plan. Pilot at least one interpretive activity or product with a focus on this wilderness.

Detailed WSP accomplishment reports and the Forest Service’s WSP Guidebook are available upon request.

Additionally, the Forest Plan's management direction for wilderness was developed in 1990, and neither the plan components nor the management area boundaries reflect the recent designation of Devil's Staircase Wilderness. Due to this situation, Forest Service staff should amend the wilderness management direction in the Forest Plan to include updated goals, desired conditions, standards, and guidelines for this new wilderness area.



Measurable changes on the plan area related to climate change and other stressors that may be affecting the plan area.

Insect and Disease Outbreaks

Question: What are the extent of outbreaks and infestations?

- **Monitoring Indicator:** Acres of stands affected by various insects and disease.
- **Background & Drivers:** These types of disturbances are natural. The goal of this monitoring is to track damage extends to inform an understanding of potential changes in existing trends and to help inform the need for adaptive management if levels of outbreaks are reaching thresholds where the ability to meet forest plan goals are threatened.

Monitoring Results

Acres affected by damage agents and Douglas-fir bark beetle are episodic in nature. While all attributes have increased over time, they are within acceptable levels and appear to be stable. Reference data show that population spikes, have been associated with fire and windthrow, and this will likely continue to be the case even with elevated background levels.

Within the Siuslaw National Forest boundary, the primary damage agents (based on historical detection flights dating back to 1947) in order of total acres damaged across time are: fire (up to 100% of the forest), Douglas-fir bark beetle (up to 37% in one year - following large fire events), miscellaneous diseases (up to 13%), windthrow (up to 5%), and bear damage (up 1% in one year's time). During the last 30-year period, no conclusive trend can be associated with the number of acres affected by damage agents, although there appears to be an increase in background levels from an average 0.04% (1952-1999) to 0.19% (2000-2021). The amount of acres affected within the Siuslaw National Forest administrative boundary has been below 1% of forest lands and within acceptable levels within the last 10-year period.

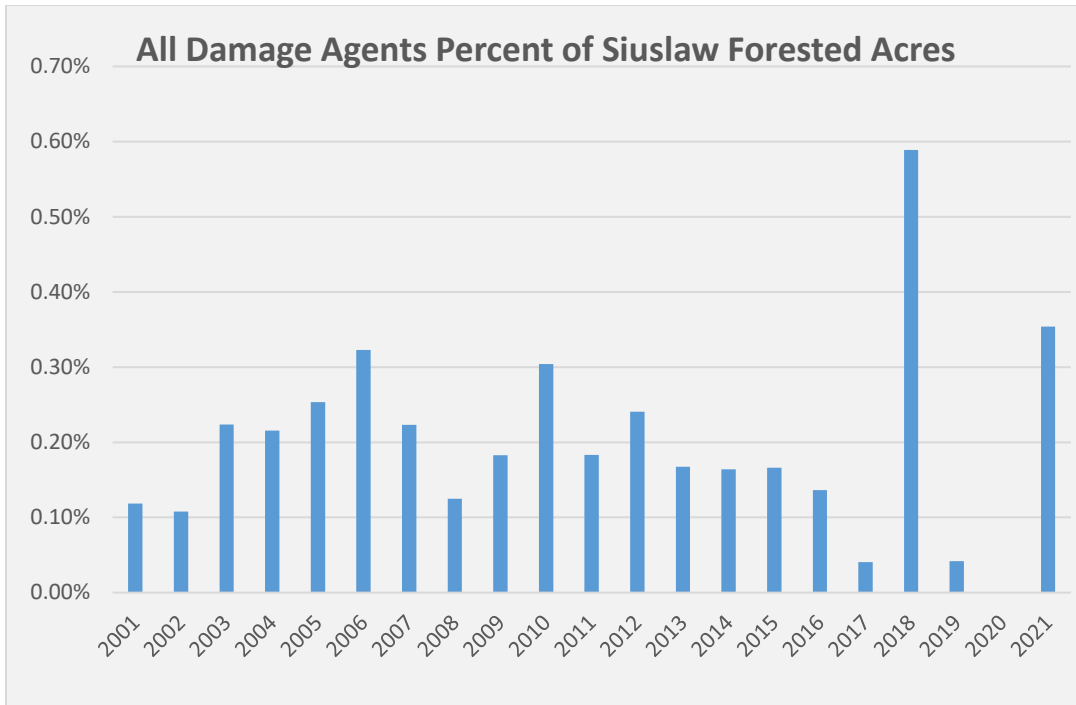
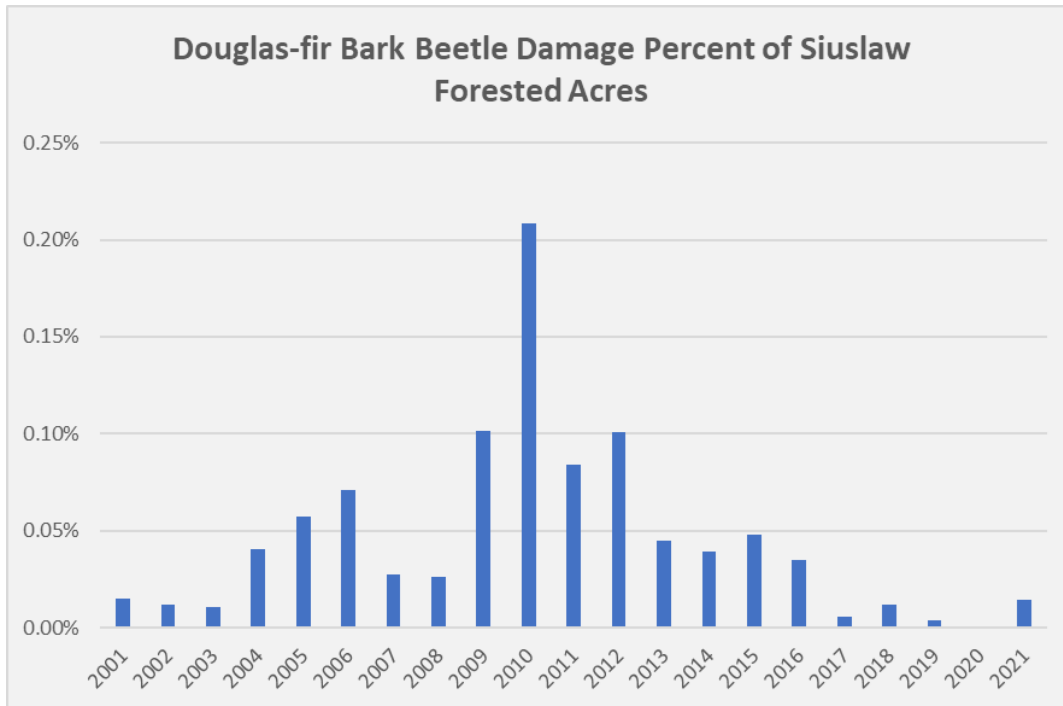


Figure 11. Percent of Siuslaw forested acres affected by all damage agents, from R6 Forest Health detection flights. 2001-2021

Figure 12. Percent of Forest acres affected by Douglas-fir Bark Beetle, from R6 Forest Health detection flights. 2001-2021



Based on historical detection flights dating back to 1952, there is a constant yearly background amount of Douglas-fir bark beetle damage on the forest (appx. 0.03% average of forested acres). The background level of damage from Douglas-fir bark beetle spikes episodically as populations increase modestly after windthrow (appx. 0.3% - 3%) and substantially after large fires (appx. 3% - 37%). During the last 30-year period, no conclusive trend can be associated with the number of acres affected by Douglas-fir bark beetle, although there appears to be an increase in background levels from an average 0.02% (1952-2003) to 0.04% (2004-2017). The acres affected within the Siuslaw National Forest administrative boundary have been within acceptable levels in the last 10-year period.

Climate may affect such trends, but there is no current correlation that has been determined to potentially be the primary influence. The possible increase referenced may also be associated with a large portion of the forest within the analysis boundary being in young developmental stages with high tree stocking levels (LEMA GNN vegetation analysis). Douglas-fir bark beetle populations will also continue to be monitored to assess if snag and down wood creation may be contributing to increasing reference background acreage trends. A balance between the benefits of these actions and potential risk of causing outbreaks will continue to be evaluated and balanced. Climate information will also be continued to look at for any potential relationships.

Data is compiled by R6 Remote Sensing Lab specialists. More information on methods: <https://www.fs.usda.gov/foresthealth/>

Recommendations:

No need for change



Progress Toward Meeting Desired Conditions and Objectives

Timber Production

Question: Is the timber sale quantity similar to the level predicted in the Forest Plan, as amended by the NWFP?

- **Monitoring Indicator:** Cut and sold timber volume.
- **Background & Drivers:** The goal is to determine if the Forest is effectively planning future sale areas in a manner that allows us to meet our obligation for sold timber for the local economy that is consistent and dependable.

SNP Management Goal #1: Produce wood fiber to satisfy national needs and benefit local economies, while being consistent with multiple resource objectives, environmental concerns and economic efficiency. With the NWFP, the Probable Sale Quantity was adjusted for the Forest, resulting in a PSQ of 23 (FEIS 3&4). However, that did not take into consideration the amount of riparian reserves, so the actual PSQ is 5 mmbf

Monitoring Results

The amount of timber volume sold in the Siuslaw National Forest has been above the Planned Sale Quantity (PSQ) of 5MMBF/year every year over the last decade. The Siuslaw has balanced its predominant Late-successional Reserve Land Allocation with restoration goals and public trust to reach a stable level of timber production of 40.0 million board-feet per year (8 times its planned and anticipated sale quantity). This trend has been stable over the last ten years on average and in actual deliverable outputs in the last five years.

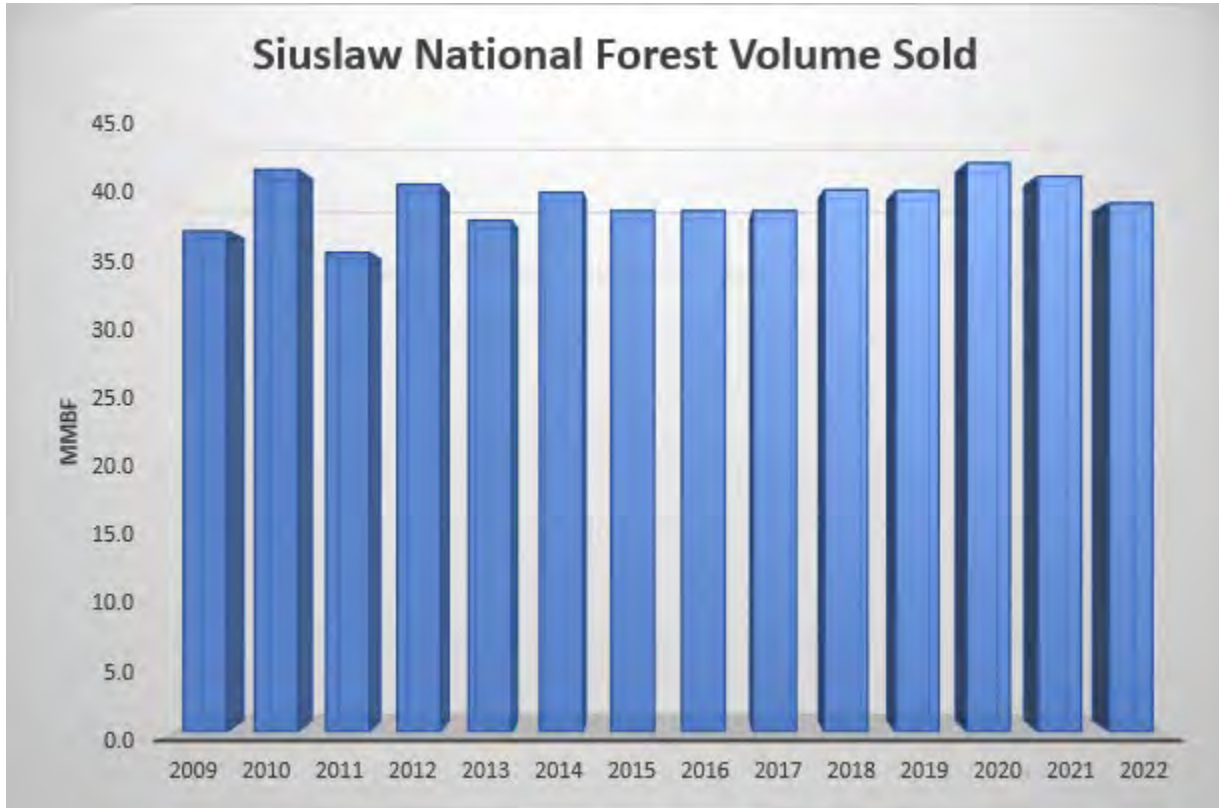


Figure 13. Volume Sold – Siuslaw National Forest 2009-2022

Recommendations:

No need for change



Effects of Management Systems on Productivity of the Land

Best Management Practices

Question: Are Best Management Practices (BMP) effective for longer term sustainability of project objectives?

- **Monitoring Indicator:** BMP monitoring protocols
- **Background & Drivers:** The National Best Management Practices (BMP) Program was developed to improve management of water quality consistently with the Federal Clean Water Act (CWA) and State water quality programs. BMPs are specific practices or actions used to reduce or control impacts to water bodies from nonpoint sources of pollution, most commonly by reducing the loading of pollutants from such sources into storm water and waterways.

The goal is to review projects to ensure BMPs are being followed, which helps us determine if, during implementation, we are in compliance with these national standards - a link to the national guidance is located here:

https://www.fs.usda.gov/naturalresources/watershed/pubs/FS_National_Core_BMPs_April2012.pdf

Monitoring Results

The Siuslaw National Forest is collecting Best Management Practices data for a minimum of seven randomly selected sites on an annual basis. The BMP projects visited span all project types, across all resource areas and include an Interdisciplinary Team. The Siuslaw National Forest is meeting our Best Management Practices requirements nationally. Findings of field data collected indicate that 60% of our projects are in compliance for implementation and 100% are effective when implemented.

Recommendations:

No need for change

Appendix A: References

- Davis, Raymond J.; Lesmeister, Damon B.; Yang, Zhiqiang; Hollen, Bruce; Tuerler, Bridgette; Hobson, Jeremy; Guetterman, John; Stratton, Andrew. 2022a.** Northwest Forest Plan—the first 25 years (1994–2018): status and trends of northern spotted owl habitats. Gen. Tech. Rep. PNW-GTR-1003. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 38 p.
- Davis, Raymond J.; Bell, David M.; Gregory, Matthew J.; Yang, Zhiqiang; Gray, Andrew N.; Healey, Sean P.; Stratton, Andrew E. 2022b.** Northwest Forest Plan—the first 25 years (1984–2018): status and trends of late-successional and old-growth forests. Gen. Tech. Rep. PNW-GTR-1004. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 82 p.
- Franklin, A.B.; Dugger, K.M.; Lesmeister, D.B.; Davis, R.J.; Wiens, J.D.; and many others. 2021.** Range-wide declines of northern spotted owl populations in the Pacific Northwest: a meta-analysis. *Biological Conservation*. 259: 109168.
- Glenn, E.M.; Lesmeister, D.B.; Davis, R.J.; Hollen, B.; Poopatanapong, A. 2017.** Estimating density of a territorial species in a dynamic landscape. *Landscape Ecology*. 32: 563–579
- Lesmeister, D.B.; Davis, R.J.; Singleton, P.H.; Wiens, J.D. 2018.** Northern spotted owl habitat and populations: status and threats In: Spies, T.A.; Stine, P.A.; Gravenmier, R.; Long, J.W.; Reilly, M.J., tech. coords. 2018. Synthesis of science to inform land management within the Northwest Forest Plan area. Gen. Tech. Rep. PNW-GTR-966. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station: 245–299
- Lesmeister, Damon B.; Appel, Cara L.; Davis, Raymond J.; Yackulic, Charles B.; Ruff, Zachary J. 2021.** Simulating the effort necessary to detect changes in northern spotted owl (*Strix occidentalis caurina*) populations using passive acoustic monitoring. Res. Pap. PNW-RP-618. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 55 p.
- O’Neil, T.A., Bettinger, K.A., Vander Heyden, M., Marcot, B.G., Barrett, C., Mellen, T.K., Vanderhaegen, W.M., Johnson, D.H., Doran, P.J., Wunder, L. and Boula, K.M., 2001.** Structural conditions and habitat elements of Oregon and Washington. *Wildlife habitats and relationships in Oregon and Washington*. OSU Press, Corvallis, Oregon, pp.115-139
- Spies, T.A.; Stine, P.A.; Gravenmier, R.; Long, J.W.; Reilly, M.J., tech. coords. 2018.** Synthesis of science to inform land management within the Northwest Forest Plan area. Gen. Tech. Rep. PNW-GTR-966. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 1020 p. 3 vol