Oregon Sage-Grouse Action Plan: Evaluation and Recommendations

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Input from the SageCon Staff Implementation Team was incorporated into this final document.

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List of Acronyms

ARMPA: Bureau of Land Management Approved Resource Management Plan Amendment
BLM: Bureau of Land Management
ESA: Endangered Species Act
CCA: Candidate Conservation Agreement
CCAA: Candidate Conservation Agreement with Assurances
DLCD: Department of Land Conservation and Development
NRCS: Natural Resources Conservation Service
LIT: Local Implementation Team
ODF: Oregon Department of Forestry
ODFW: Oregon Department of Fish & Wildlife
OWEB: Oregon Watershed Enhancement Board
MOA: Memorandum of Agreement
MOU: Memorandum of Understanding
PAC: Sage-Grouse Priority Area for Conservation
RFPA: Rangeland Fire Protection Association
SWCD: Soil and Water Conservation District
USFWS: U.S. Fish and Wildlife Service

Executive Summary

The 2015 Oregon Sage-Grouse State Action Plan and Governor's Executive Order 15-18 outlined a comprehensive approach to promote long-term conservation of sage-grouse habitat and populations in Oregon. The SageCon Partnership, which coordinates implementation of the Plan across local, state and federal levels, convened an interagency working group to evaluate Plan implementation status, summarize lessons learned, and make recommendations for future implementation.

Plan implementation: Due to the comprehensive nature of the Plan and broad scope (329 actions are identified), implementation is difficult to measure. For simplicity, the working group measured Plan implementation based on items in the Executive Order and overarching monitoring actions identified in the Action Plan. Of the 13 items in the Executive Order, seven have been fully implemented, four partially implemented, and two have not been implemented. *Key gaps include evaluating the economic effects of the Plan, coordinating biennial budgets across state agencies, and evaluating the effectiveness of the Plan.* Seven state-wide monitoring items were identified in the Plan, and all have been fully implemented, with systems in place to continue coordinated monitoring. However, monitoring the effectiveness of actions remains a gap.

Plan outcomes: The Plan outlines overarching goals for both sage-grouse populations and sagebrush habitat in the state. *Both statewide population and habitat goals are not being met*. The population goal is to maintain a statewide sage-grouse population of 30,000 birds; the 2021 estimated population is roughly 16,000. The habitat goal is to maintain 70% of the sage-grouse range as sagebrush habitat; recent estimates indicate that 61% of the sage-grouse range is considered sagebrush habitat. Furthermore, a significant portion of the remaining sagebrush habitat is compromised by invasive species.

Lessons learned: The ambitious and comprehensive nature of the Action Plan supported the determination that sage-grouse was not warranted for listing under the Endangered Species Act in 2015 but proved challenging in implementation. The Plan took a 'kitchen sink' approach by including all threats, and there are too many actions to track. Although the Plan took a tiered approach to large-scale planning and site-specific management, it has been difficult for Local Implementation Teams to use the Plan as an overarching framework for local Strategic Action Plans due to its complexity and lack of local coordination capacity. Critically, the plan cannot be adaptively managed as written due to a lack of specific and measurable objectives and mechanisms to adjust actions to work more effectively toward meeting objectives. Challenges relating to lack of local capacity, scaling of efforts to address the scale of the threats, consistency of data collection, and funding remain.

Recommendations for future implementation: The following recommendations are made *in addition to existing programs and capacity*, which must be sustained. The working group recognizes their ambitious nature but maintains that this level of commitment will be necessary to reverse the negative trends in Oregon's rangelands, with benefits for sage-grouse, other wildlife, and ranching communities.

1. Sharpen our focus on outcomes. An *interagency adaptive management work group* is needed to develop shared, measurable objectives, establish a process to connect monitoring with decision-making, and set shared geographic priorities.
2. Address long-term local capacity needs. *The scope and scale of action needed cannot be achieved without significant and permanent investments in local capacity,* including Local Implementation Teams, voluntary conservation agreements, and weed control.
3. Create a mechanism for coordinated and targeted investment in the conservation and restoration of sagebrush habitat. Creation of a *Sagebrush and Sage-grouse Recovery Fund* would secure resources for strategic implementation to advance the goals of the SageCon Partnership.

Background

The greater sage-grouse currently occupies approximately 12 million acres of sagebrush habitat in southeastern Oregon (Figure 1). Sage-grouse habitat faces many threats in Oregon, primarily large wildfires, invasive annual grasses and weeds, and juniper encroachment. Propelled by petitions to list the species under the ESA and the 2010 USFWS finding that the species was warranted for listing but was precluded due to higher priority listing actions,[1] conservation efforts to address threats to greater sage-grouse populations and habitat accelerated across the western US. Following substantial conservation efforts, in addition to increased collaboration and regulatory changes, the USFWS determined in September 2015 that the greater sage-grouse was not warranted for listing under the Endangered Species Act at that time.[2] This determination was based on significant underlying work across western states, including on-the-ground conservation actions and investments by federal, state, and private land and wildlife managers, management plans such as the BLM ARMPA[3] and state action plans, and regulatory measures, including comprehensive mitigation plans at both the state and federal level. In Oregon, this effort was coordinated through the SageCon Partnership.

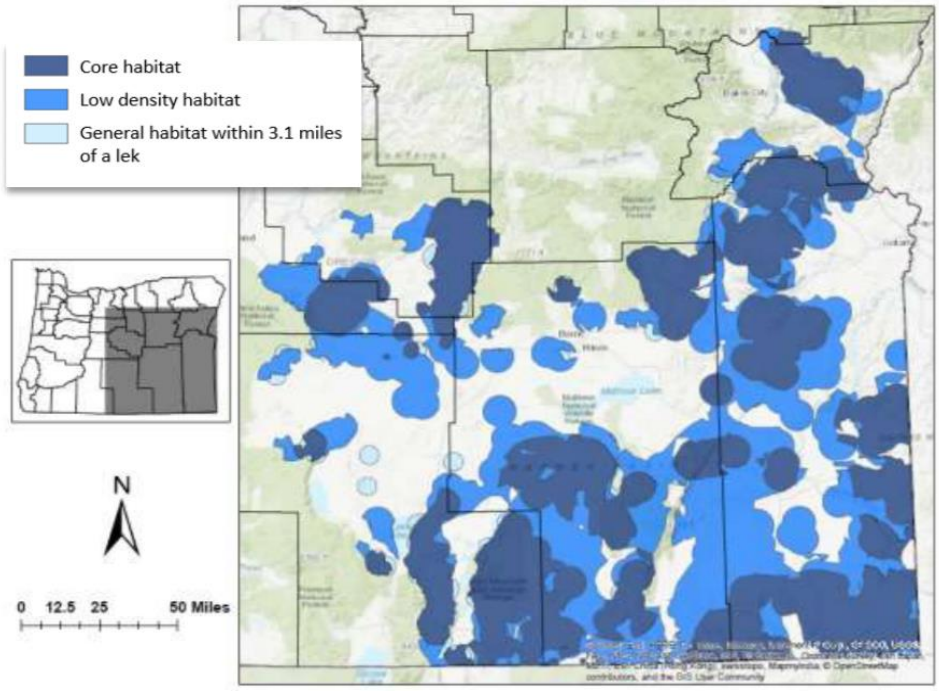

Figure 1. Mapped sage-grouse habitat in Oregon covers ~12 million acres across 7 eastern Oregon counties. Core habitat shown in the map is synonymous with priority areas for conservation (PACs).

Oregon finalized its Sage-Grouse Action Plan[4] (hereafter referred to as Action Plan or Plan) in 2015 with a goal to promote "long-term conservation of healthy sage-grouse habitat and populations coupled with promotion of healthy rural economies and communities" (page 3). The Plan included several major components (Box 1) and was based on the premise that conservation strategies and actions must be science-based, prioritized on a landscape-scale, adaptable to local conditions and needs, and supported by long-term investments and regulatory commitments. This Action Plan built upon multiple foundational documents, including the 2011 ODFW Oregon Sage-Grouse Conservation Strategy,[5] which lays out a core area approach to sage-grouse conservation, and the threats listed in the USFWS Conservation Objectives report.[6] The State of Oregon and BLM worked closely to coordinate state and federal plans, resulting in common elements in several areas, including mapping of priority habitat (sage-grouse PACs and low density habitat), development thresholds, and others. Prioritized conservation actions were also coordinated to leverage investments by NRCS and OWEB in private lands conservation as well as the framework

established by the 'Greater Sage-Grouse Programmatic Candidate Conservation Agreement with Assurances (CCAA) for Private Rangelands' implemented by the USFWS, SWCDs and other CCAA permit holders. RFPAs were established to coordinate fire response across private and public lands with the goal to prevent megafires such as the large fires that occurred in 2012 and 2014. To secure partnership commitments, Governor Brown signed Executive Order 15-18 directing state agencies to implement the Action Plan.[7]

Box 1. An excerpt from the Oregon Sage-Grouse Action Plan (page 5) outlines four areas providing the foundation for a comprehensive approach to sage-grouse conservation, developed by a diverse set of partners.

- Aligning State, federal, and local government programs and priorities, as well as voluntary efforts implemented by participating private landowners and nongovernment organizations, to focus investments on the highest priorities for sage-grouse conservation.
- Providing for major new state investments—that will also leverage additional investments from federal and local partners—to promote habitat health and resilience, including funds focused on the biggest drivers of habitat-based threats to sage-grouse in Oregon: wildfire, invasive weeds, and encroachment of juniper trees.
- Establishing additional protections for significant sage-grouse habitat under the State's already strong land-use laws.
- Creating a new policy framework to provide flexibility and mitigation for economic development in sage-grouse habitat and ensure that any permitted habitat losses are more than offset by other conservation actions.

Since 2015, the focus has been on implementing state and federal plans in Oregon by addressing the known threats to sage-grouse and delivering meaningful conservation at a landscape level. A key mechanism for local implementation of the Plan is through Local Implementation Teams (LITs), collaborative groups organized across five geographic areas in southeastern Oregon to bring local staff and partners from agency and interest groups together for strategic planning and prioritization of actions. A cross-government memorandum of understanding (MOU) secures the commitments and roles of government actors across the landscape. The Partnership developed technical tools to support coordinated implementation and produced the SageCon Dashboard, which provides an overview of the status and trends of sagebrush rangelands in Oregon. Currently, the Western Association of Fish and Wildlife Agencies (WAFWA) Conservation Assessment Team is compiling the 2020 Sage-Grouse Conservation Assessment with input from 11 Western states, which will describe the status of sage-grouse across the Great Basin.

After nearly six years of Action Plan implementation, this report provides an overview of where we stand with Action Plan implementation in Oregon and where we would like to go.

Purpose and Audience

The SageCon Partnership convened an interagency group for the following **purposes**:

1) Evaluate Action Plan implementation status and identify gaps.

2) Provide a retrospective look at the Action Plan, including strengths, challenges, and lessons learned that are applicable to both future sage-grouse planning efforts as well as other landscape-scale, cross-boundary natural resource conservation issues.

3) Provide recommendations for coordinated implementation and adaptive management over the next 5 years. These recommendations will be delivered to the SageCon Coordinating Council, consisting of decision-makers from the various agencies and interest groups in the Partnership.

It is worth noting that this group set out to evaluate the Action Plan through an adaptive management lens but found that **it is not possible to adaptively manage the Plan with its current structure**. As currently written, the Plan contains too many specific actions to track consistently, many objectives that are not measurable, and there is limited information on many of the specific metrics in the Plan. See the Recommendations section for more information about how to support future adaptive management.

The **audience** for this document includes stakeholders interested in the sagebrush ecosystem and sage-grouse conservation in Oregon and across the Great Basin, including:

- Agency and partner staff coordinating implementation of the State Action Plan and related plans such as the BLM ARMPA[3]. This includes state-level staff across federal and state agencies and organizations, as well as local staff working in agency District Offices, Local Implementation Teams, and other collaborative groups.
- Agency leadership tasked with allocating resources to programs and directing staff to agency priorities. Recommendations will be presented to agency leadership through the SageCon Coordinating Council to highlight key issues and prioritize future work.

Action Plan Evaluation

The Action Plan lays out an ambitious vision for "all hands, all lands" conservation of sage-grouse in southeastern Oregon, and includes policies, programs, goals, objectives, monitoring items, and specific actions. The Plan was organized according to each of the threats to sage-grouse identified in the 2010 USFWS "warranted but precluded finding"[1], as well as the USFWS conservation objectives report[6]. Within its 221 pages and particularly within Appendix 3 (Metrics Tables), conservation objectives and actions relevant to each threat were identified, along with an ambitious set of metrics to be measured and reported for the purposes of tracking and accounting for these actions. Overall, 329 different actions were described to address the three primary threats to sage-grouse (juniper encroachment, invasive annual grasses, and wildfire) along with 17 other threats to sage-grouse habitat and viability. Although this list of actions at first appeared to be a good starting point to evaluate the implementation status of the plan, there were simply too many of them, not all were readily measurable, and in most cases we lack information to evaluate these actions across the geographic range covered by the Plan. Therefore, our interagency evaluation team took a pragmatic approach and focused our assessment on three components, which are summarized in this section:

1. **Implementation** of the Action Plan is measured in two sections:
    a. **Implementation of Executive Order 15-18 items**, which summarize the broad areas within the Action Plan and directs state agencies to coordinate actions.
    b. **Implementation of monitoring items** in the Plan, as a snapshot of the measurements being taken to assess the status of habitat, populations, threats and actions.
2. **Outcomes** of the Action Plan are measured in terms of the status of the **statewide population and habitat goals**, the overarching measurable conservation goals currently included in the Plan.
3. **Lessons Learned**: In the last section we summarize the main strengths, challenges and lessons learned to guide future planning efforts.

Implementation: Governor's Executive Order Items

The Oregon Governor's Executive Order 15-18 directed state agencies to implement the Action Plan and committed resources to plan implementation. As shown in Table 1, **seven items in the Executive Order have been fully implemented, four partially implemented, and two not implemented**. Major gaps include setting up a framework for evaluating effectiveness and adaptively managing the Action Plan, assessing the economic impacts of the Action Plan, and coordinating budgets across state agencies implementing components of the Plan. Coordination could also be improved in prioritization of on-the-ground conservation actions across federal, state and private boundaries. *Note that many items assigned to DLCD were completed by SageCon coordination staff, and continued Partnership funding will be needed for Action Plan coordination and Executive Order implementation.*

Table 1: Oregon Governor's Executive Order 15-18 items (paraphrased), section number and responsible entity, and implementation notes. Colors of the cells indicate items that are fully implemented (green), partially implemented (yellow), or not implemented (pink).

Executive Order Item (paraphrased)	Section #; Entity	Implementation Notes
Technical and financial support to RFPAs to improve capacity and effectiveness in limiting adverse impacts of fire on sage-grouse habitat; Develop memorandum between ODF and BLM to assist in rangeland fire coordination and safety.	Sec 3A; ODF	RFPA coordination, capacity, and ability to rapidly respond to fire events has improved dramatically over the last several years, with 24 active RFPAs. ODF has an agreement with each RFPA and provides coordination, financial and technical support. BLM also has a MOU or cooperative agreement with each RFPA to assist with technical support and coordination.
Create a central registry that establishes baseline development levels and tracks new development across all land ownerships in each PAC.	Sec 3B; DLCD	The Sage-Grouse Development Registry tracks development and calculates percent developed area in each PAC, which syncs with the BLM SDARTT tool to capture development on all lands.
Coordinate actions of state agencies in implementing the Plan, under supervision of the Governor's Natural Resource Office.	Sec 3C; DLCD	Coordination has been carried out by SageCon coordination staff without Executive Branch authority and minimal supervision from the Governor's office. This coordination includes state, federal, and local partners.
Adopt or update state agency coordination agreements with DLCD to ensure land use rule compliance; Ensure agency actions are consistent with mitigation rules.	Sec 3D; Multiple agencies	State Agency Coordination Agreements for relevant state agencies were reviewed by DLCD in 2020 and determined to be adequate to implement the sage-grouse rules.
Coordinate mitigation for impacts to sage-grouse habitat consistent with mitigation rules; Ensure mitigation credit availability to facilitate responsible economic development.	Sec 3E; ODFW	The ODFW sage-grouse mitigation program is operational and staffed with a full-time mitigation coordinator. The Program has established an In-Lieu Fee mitigation option and has been consulting with mitigation banking entities to establish sage-grouse mitigation banks in Oregon. The Sage-Grouse Development Siting Tool provides site-specific information on sage-grouse mitigation for developers.

Executive Order Item (paraphrased)	Section #; Entity	Implementation Notes
Report on the status & trends of threat reduction work to reverse the spread of juniper and invasive plant species and improve pre and post-fire resilience.	Sec 3F; DLCD	The SageCon Dashboard contains an overview of rangeland status and trends. Threat reduction work has have been compiled and summarized in the SageCon Conservation Actions Report and is available through the SageCon Landscape Planning Tool.
Report on the status & trends of direct development in PACs and types of compensatory mitigation.	Sec 3F; DLCD and ODFW	The Sage-Grouse Development Registry tracks new development relative to the thresholds set in the Plan, which is summarized annually for the Land Conservation and Development Commission. As mitigation credit projects are implemented, a system will be needed to track those projects.
Report on sage-grouse population surveys and habitat condition trends.	Sec 3F; DLCD	The SageCon Dashboard contains an overview of status and trends. Annual sage-grouse population reports are produced by ODFW and the SageCon Rangeland Condition Report summarizes rangeland condition and trend.
Report on areas of the Plan not functioning as intended, and recommendations for improving the Plan's efficacy.	Sec 3F; DLCD	The purpose of this document is to evaluate implementation and provide recommendations. Follow-up on these recommendations (particularly recommendation #1) will be needed to achieve this goal of improving efficacy.
Report on the economic effects of Plan implementation on communities within sage-grouse habitat.	Sec 3F; DLCD	This has not been completed; funding was set aside for this evaluation, but a contractor was not available to perform this work.
Ensure funding is directed to priority actions identified in the Action Plan, and that monitoring of the effectiveness of funding investments is sufficient to evaluate overall Plan effectiveness and adapt the Plan as appropriate.	Sec 3G; OWEB and other agencies	Agencies often use sage-grouse PACs to help target work geographically. Priority actions are not identified in the Action Plan; there are 329 actions without a system for determining the most important ones. There is also not consistent effectiveness monitoring across agencies and landownerships (see Recommendations).
Memoranda between the state, federal agencies, local governments and others related to integration and coordination across relevant plans, programs and entities.	Sec 3H; DLCD and ODFW	A coordination MOU has been established and signed by the state, BLM and USFWS, and signature by NRCS is pending. Seven Counties containing sage-grouse habitat are invited to sign. A MOA between the state and BLM has been signed and establishes coordination specific to the mitigation program.
Biennial proposed budget identifying and prioritizing funding and resources required for successful implementation of the Plan.	Sec 3I; DLCD, ODFW, OWEB	Proposals from SageCon coordination staff working with partners have not been adequately integrated into agency and Governor's office budgets.

Implementation: Monitoring Actions

The Plan has a strong emphasis on monitoring, stating "Monitoring is an essential feature of this Action Plan and is critical to successful implementation of an adaptive management approach designed to benefit sage-grouse populations. This Plan outlines five broad categories for which monitoring is required: 1. sage-grouse biological data; 2. human development within sage-grouse habitat; 3. conservation and mitigation actions; 4. landscape-level habitat quantity and quality; and 5. site-specific habitat condition" (page 73). These broad monitoring actions listed in the Plan are shown in the table below with an evaluation of their current status. This information is important for future adaptive management because it shows what is being consistently monitored across the state to inform actions and measure progress toward shared goals. However, note that there are also many other specific monitoring items Appendix 3: Metrics Tables that are not summarized here and are not being consistently monitored state-wide.

As outlined in Table 2, **the state has fulfilled all its state-wide monitoring commitments** in the Plan. A suite of databases and decision support tools have been developed and are maintained to support compilation of monitoring data and coordinate efforts. However, monitoring focuses on status, trends and implementation. Executive Order 15-18 (Table 1) directs agencies to monitor effectiveness of funding investments, and a *lack of effectiveness monitoring has limited the ability to critically evaluate and adaptively manage our efforts* (see Recommendations).

Table 2: Implementation status of overarching Action Plan monitoring items (items MON 1-7). Colors of the cells indicate monitoring that is fully implemented (green), partially implemented (yellow), or not implemented (pink).

Monitoring Item (paraphrased)	Notes
Monitor sage-grouse population trends at multiple spatial scales. Assess sage-grouse population trends within PACs to determine if BLM "hard" or "soft" thresholds have been triggered.	Sage-grouse leks are surveyed annually and ODFW uses these surveys to calculate population estimates and trends at the statewide, BLM District, wildlife management unit, and PAC scales. Sage-grouse monitoring results are documented in the ODFW annual population reports. See the Outcomes section of this report for an assessment of sage-grouse population trends in the context of State population objectives. Based on ODFW monitoring data, the status of the population thresholds is documented in Informational Bulletins released annually by BLM.
Monitor and research sage-grouse habitat utilization in response to conservation actions or habitat degradation.	Research evaluating habitat management actions and wildfire and raven impacts is being conducted on sage-grouse populations within the Baker, Bully Creek, Cow Lakes, Soldier Creek, Trout Creeks, and Warners PACs. Funding is provided by multiple agencies.
Monitor and report direct footprint impacts from current and new human development and cultivated agriculture within PACs.	The Sage-Grouse Development Registry contains baseline development datasets and calculates development thresholds for proposed, approved, and completed projects. Cultivated agriculture in each PAC is being monitored by the BLM.

Monitoring Item (paraphrased)	Notes
Monitor and report conservation and mitigation actions advanced by a variety of stakeholders.	Conservation actions through 2018 are compiled through the Conservation Efforts Database and summarized in the SageCon Conservation Actions Report. Updates to this database are expected in future years. Compensatory mitigation actions will be tracked by ODFW.
Assess sage-grouse habitat trends within PACs to determine if the State habitat objectives are being met and if BLM "hard" or "soft" thresholds have been triggered.	The status of the state habitat objective is reported in the Outcomes section of this document. BLM habitat triggers are assessed annually and documented in Informational Bulletins released annually by BLM.
Monitor rangeland condition according to vegetation states.	Newly developed vegetation maps (Ecostate Time Series maps) capture rangeland vegetation condition and trend as summarized in the SageCon Rangeland Condition Report. Monitoring data is being collected on public land through the AIM program and others, summarized in the *Oregon/Washington State Office Implementation Monitoring Report for WAFWA 2020 Sage-Grouse Conservation Assessment*.
Conduct site-specific monitoring of rangeland condition according to vegetation states.	Vegetation condition ecostates have been mapped across 1.9 million acres enrolled in CCA and CCAA voluntary conservation agreements, and other groups have used similar methods. Most of these maps are not publicly accessible but aid in local management decisions.

Outcomes: Statewide Population and Habitat Goals

The 2011 Greater Sage-Grouse Conservation Assessment and Strategy for Oregon[5] (hereafter, Conservation Assessment) is the most recent plan describing ODFW's management of greater sage-grouse. It was developed as a strategy to maintain and enhance sage-grouse populations and habitat in Oregon and provides guidance to public land management agencies and land managers for effective sage-grouse conservation in Oregon. The Conservation Assessment set sage-grouse population and habitat goals for Oregon based on the best science and information available at the time. Statewide monitoring of sage-grouse leks in Oregon increased substantially in 1980, providing a long-term dataset for assessing population trends. Population and habitat goals in the Conservation Assessment were set using data from 1980–2003.

The statewide population goal is to maintain or enhance sage-grouse abundance and distribution at the 2003 spring breeding population level of approximately 30,000 birds over the next 50 years. The Conservation Assessment notes that meeting the statewide population goal is largely dependent upon meeting two overarching habitat goals; 1) maintaining or enhancing the current range and distribution of sagebrush habitat in Oregon, and 2) managing the sagebrush habitat in a range of structural stages to benefit sage-grouse. As such, the Conservation Assessment recommends maintaining at least 70% of sage-grouse range as sagebrush habitat, where the sagebrush consists of predominantly advanced structural stages.

Population Goal Status: Oregon's sage-grouse population **is not meeting the population goal** of 30,000 birds. The estimated spring sage-grouse population in 2021 was 15,927 individuals, approximately 47% below the statewide population goal (Figure 2). These population trends are variable across the state (Figure 3) but are largely on a declining trend or remain at a stable level below the goal. See additional details in the annual ODFW sage-grouse population reports.

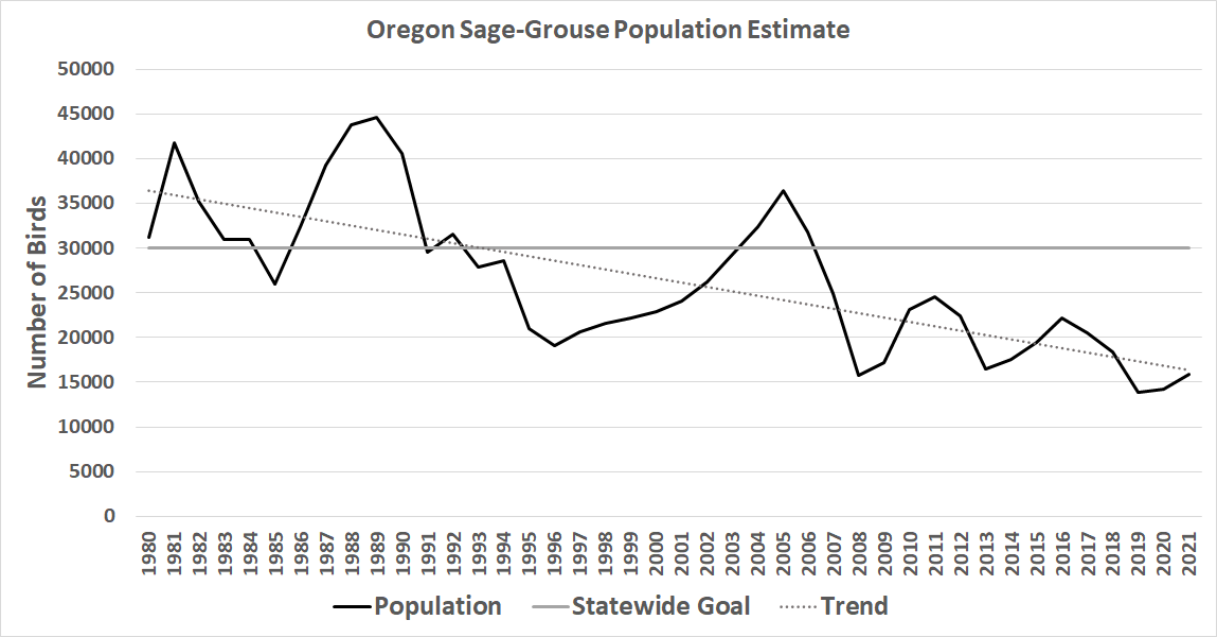

Figure 2. Oregon sage-grouse population estimates from 1980-2021, relative to the statewide goal of 30,000 birds.

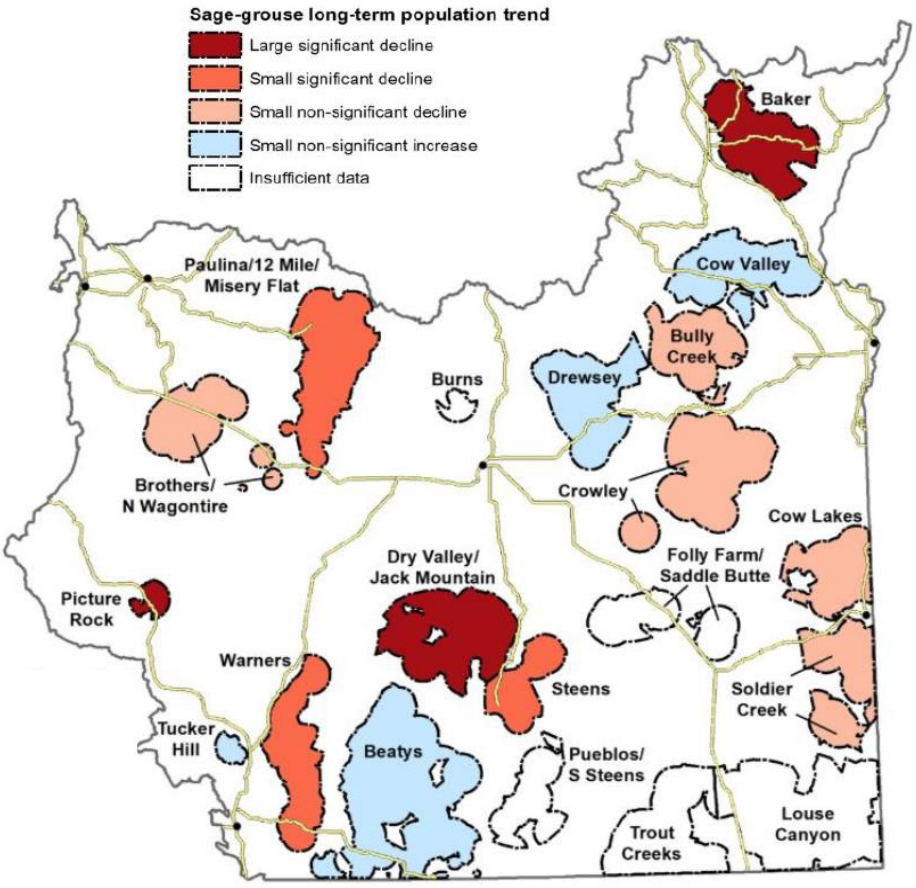

Figure 3. Long-term sage-grouse population trends across 20 Priority Areas for Conservation (PACs) in southeastern Oregon, 2003-2021, labeled by name on the map.

Habitat Goal Status: Oregon's sage-grouse habitat goal is to maintain at least 70% of the sage-grouse range as sagebrush habitat in advanced structural stages. **Oregon is not currently meeting the habitat goal**. Based on the most recent rangeland vegetation maps[8], sagebrush habitat covers an estimated **61%** of the sage-grouse range in the state (shown as ecostates A, A-C, and C in Figure 4), down from roughly 71% in the previous decade. It is also worth noting that the habitat goal addresses sagebrush cover but does not address invasive species, which are a widespread threat to rangeland vegetation condition and ecosystem function. Many of the areas considered sagebrush habitat as defined in the 2011 Conservation Assessment also have invasive annual grasses. An estimated 11% of the habitat that meets the goal for sagebrush cover is heavily compromised by invasive grasses (Ecostate C: Poor condition shrubland) and at risk of complete habitat loss following wildfire. An additional 34% of areas with adequate sagebrush cover have levels of annual grass invasion that may be concerning in the future (Ecostates A-C: Intermediate condition shrubland) if invasion increases. Cumulatively, the low percentage of sagebrush habitat along with the widespread distribution of invasive species across southeastern Oregon warrants a **high level of concern about the condition of sage-grouse habitat**. See Appendix 1 for more information about the methodology used to evaluate the habitat goal.

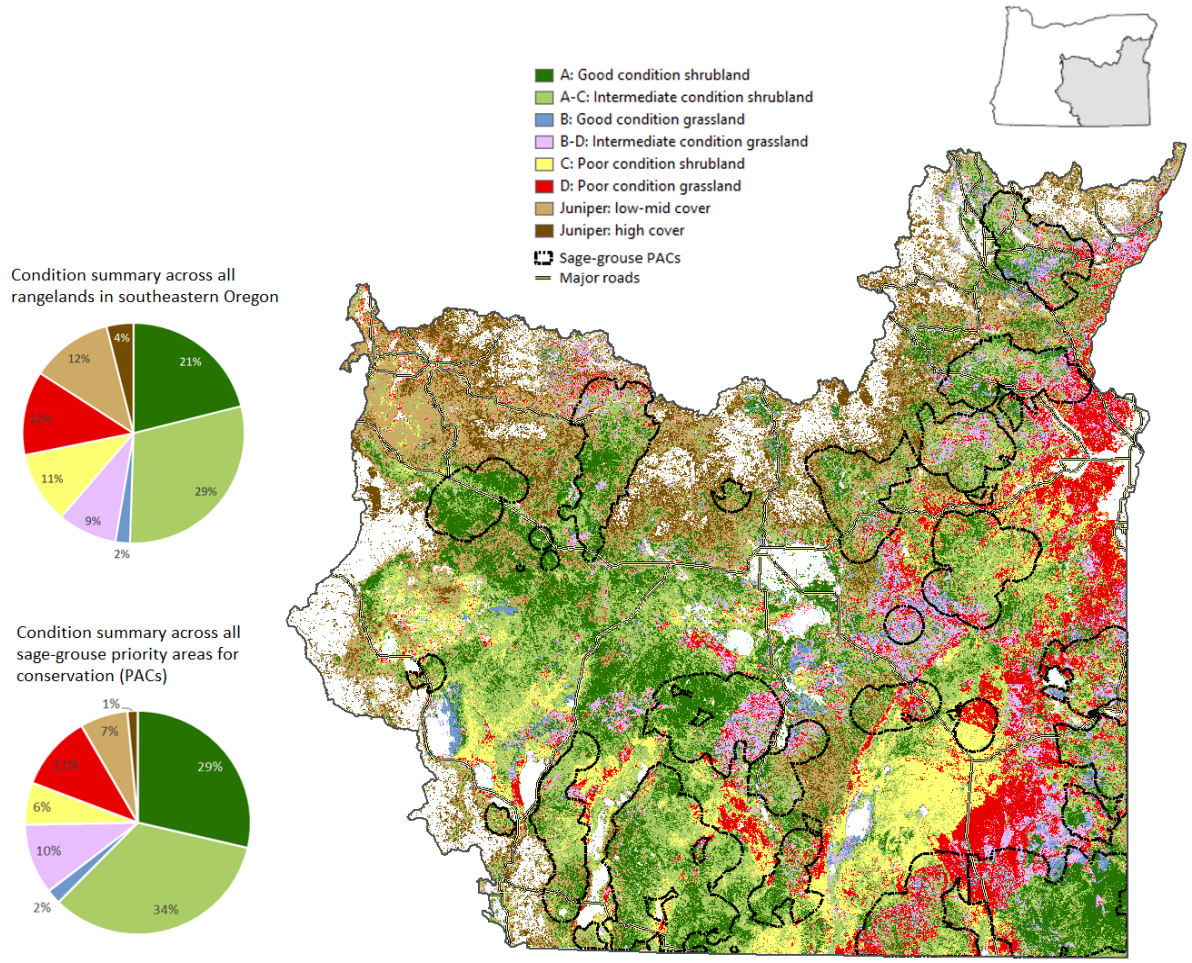

Figure 4. Rangeland vegetation condition according to threat-based ecostates, based on a snapshot of 2015-2019 conditions. The pie charts show the breakdown of condition classes across all southeastern Oregon rangelands (top) and all sage-grouse priority areas for conservation (PACs; bottom).

Action Plan Lessons Learned

Following six years of implementation, several Action Plan strengths, challenges, and lessons learned have emerged that may be applicable to future implementation and planning efforts. These reflections may also be relevant for those constructing strategic plans related to other natural resources in Oregon and beyond. In this section we provide a retrospective look at the process of developing the Action Plan, its organizational structure, and its implementation.

Plan Development and Process: The Plan development process brought together diverse stakeholders and facilitated strong cooperation and partnership while co-creating the Plan. This collaborative, transparent process provided many opportunities for stakeholder engagement, maximizing the 'buy in' of participants. The Plan development process also facilitated alignment with BLM sage-grouse conservation plans such as geographic agreement in defining priority habitat through mapping of PACs. The rules related to development and mitigation in sage-grouse habitat are widely recognized as major accomplishments in gaining buy-in from a very diverse set of interest groups, and those rules were subsequently supported by a suite of technical tools, personnel capacity, and programmatic support.

Ultimately, *the plan's development supported the decision by USFWS to not list the sage-grouse under the ESA, highlighting the value of collaborative and voluntary conservation*. While the plan development process had several strengths, the accountability of stakeholders to implement the plan was diffuse and limited, contributing to lack of investment in critical capacity such as LIT coordinators. Furthermore, in framing the Plan as an "action plan", we may have lost sight of a broader strategy to provide the framework for those actions.

Plan Structure: The Action Plan is a comprehensive, *all-hands, all-lands* attempt to cover a long list of identified threats to sage-grouse, serving as a useful reference point for key information on the bird and sagebrush steppe conservation in Oregon. It successfully outlined a common vision across government agencies and programs that connects to, and draws from, a broadly supported conservation framework based on ecology rather than bureaucracy. However, the 'kitchen-sink' approach of including extensive actions related to every identified threat led to a complex and cumbersome document that can be hard to utilize without a succinct and operable roadmap for coordinating the top-down and bottom-up strategies. Further, the structural organization and identification of actions, objectives, and strategies is not always clear, and objectives are often not measurable. Therefore, although the Action Plan and Executive Order contain a stated commitment to adaptive management, *the Plan cannot be adaptively managed as currently written and there is no mechanism to adjust our collective actions to work more effectively toward meeting our goals.* The Plan attempted to take a multi-scale tiered approach (including levels for large-scale planning and site-specific management) with the thought that LITs would guide local strategic planning and implementation. However, the Plan did not provide an adequate framework to guide and streamline local planning efforts; because it contains such a broad mixture of state-wide policy, relatively broad and vague objectives, and many specific implementation actions, it has been difficult for local groups to use the Plan as a guiding document.

Plan Implementation: In combining a top-down and bottom-up approach, the plan commits to a broad array of monitoring, baseline data collection, and technical support to cover each action area at scale across sage-grouse habitats in Oregon. To date, many conservation actions and technical support tools have been implemented and/or completed since the plan was adopted. However, the Action Plan has not reached its potential in part due to issues related to capacity, scaling of efforts, data collection, and funding. Some specific examples are provided below:

- Related to capacity, only three of five LITs have been established; these key bottom-up drivers of plan implementation were not established for many years following Plan completion and have lacked clear direction from the Plan. Similarly, the CCAA is a 30-year commitment between landowners, permit holders, and the FWS, yet funding for coordination among permit holders and for local staff is provided on a short-term basis, creating major challenges in staffing, implementation, monitoring, and reporting (see Recommendation 2).
- It is difficult to keep up with the scale, scope and complexity of the threats to sagebrush rangelands even under the best of circumstances. However, a clearer framework to connect the statewide Action Plan with local strategic action plans and a common strategy for designating the most important areas for investment would help "move the needle" on sage-grouse and sagebrush conservation at landscape scales.
- Consistent data collection has improved in some ways, as evidenced by the compilation of conservation actions across public and private lands in the Conservation Efforts Database. However, a more consistent approach to measuring the outcomes of conservation actions will be required to adjust actions as needed.

- Funding has increased for sage-grouse conservation over the last decade but additional investments will be needed to secure long-term capacity and adequately fund long-term management toward resilient rangelands.

Recommendations for Coordinated Implementation

The Oregon Sage-Grouse Action Plan brought together stakeholders in Oregon toward a common purpose of addressing threats to sage-grouse and the sagebrush ecosystem in Oregon. The establishment of the SageCon Partnership, continued commitment by a wide range of partners, and accomplishments of the Partnership speaks to our ability to work together and solve problems. But the threats to sagebrush rangelands and sage-grouse continue to grow and continuing business-as-usual will not be sufficient to achieve our goals or even to reverse the continuing negative trends. To fully leverage these established relationships and the hard work that has been done so far, we put forth the following recommendations: 1) Sharpen our focus on outcomes, 2) Address long-term capacity needs, and 3) Create a mechanism for coordinated and targeted investment in the conservation and restoration of sagebrush habitat. Each is detailed below. Please note that *these recommendations are made in addition to existing work and capacity* - we must **continue investing in our successes**. These recommendations are not ranked in order of importance but are numbered for clarity.

Recommendation 1: Sharpen our focus on outcomes

Although the state has made significant investments and progress in coordinated monitoring, monitoring is narrowly focused on implementation of actions and there is no mechanism for how monitoring and assessments will inform decisions. To begin reversing the negative trends in sagebrush rangelands, *we must shift toward measuring outcomes of our actions and use that information to drive management decisions*. We recommend convening an *interagency work group dedicated to adaptive management of the Action Plan*. This will require a substantial effort but is needed to leverage our limited resources at the federal, state and local levels to maximize the positive impacts of our conservation efforts toward the long-term sustainability and health of Oregon's rangelands. The necessary components include:

- Generating agreement on a limited number of **clear and measurable management objectives**. These objectives must have wide partnership buy-in and include short, medium and long-term measures of progress at multiple scales. These objectives should provide an overarching framework for measuring progress and plan effectiveness at the statewide level and inform LIT plans and setting of specific local objectives.
- Establishing a **process to connect monitoring with decision-making**, as a mechanism to adjust actions as needed. This will be a challenging but critical step and will need agreement from a wide range of partners with different authorities across a variety of programs.
- Setting **shared geographic priorities** across agencies and land ownerships. The groundwork has already been laid for this process (e.g., the Invasives Initiative geographic strategy)[9] and we can now leverage new data and information that was unavailable in previous 2011 and 2015 planning efforts, focusing efforts where we expect the greatest return on investment.
- Determine joint **information and research needs** to support effective conservation of sagebrush rangelands and sage-grouse habitat.

Recommendation 2: Address long-term local capacity needs

Most of the actions in the Plan are intended to be implemented at the local level in recognition that locally-led collaboration is the key driver of cross-jurisdictional work aimed to reverse declining trends in sage-grouse populations and habitat condition. Many entities implementing actions on-the-ground are soft-funded through short-term grants and agreements, and the current patchwork funding strategy is inadequate, diverts time and resources towards procuring capacity funding, and ultimately stymies long-term planning, coordination and implementation of on-the-ground conservation. *The scope and scale of action needed to address the threats to sagebrush rangelands in Oregon cannot be achieved without significant and permanent investments in local capacity.* Key capacity for Plan implementation includes:

- **LIT Coordination**: The Plan relies on LITs to coordinate actions across partners within each county in southeastern Oregon, but only three of five LITs are currently operational (note: funds were recently secured for a coordinator for the remaining two LITs over a period of three years). All current sources of funding for LIT coordinator positions is limited-duration soft funding. The important relationship-building, coordination, and education and outreach provided by LIT coordinators in developing and implementing local strategic action plans is at risk without secured long-term capacity funding. On-the-ground operationalization of the Plan depends on sustained investments in LITs.
- **CCAA Planning, Implementation and Monitoring**: Significant investment is needed in the CCAA program to support voluntary conservation agreements to benefit sage-grouse on private lands. The CCAA approach was designed to match the scope and scale of ecological challenges in sagebrush rangelands by being both long-term (30-year timespan) and comprehensive (addresses all threats to sage-grouse across entire properties), and CCAA implementation requires dedicated capacity funds commensurate with this approach. Current funding and capacity is vastly inadequate to develop these whole ranch plans, implement work on the ground, conduct monitoring and follow-up treatments for the duration of the agreement, and keep pace with demand (there are over 100 pending letters of intent from landowners intending to enroll in the CCAA program).
- **Invasive Weed Workforce**: Arguably the most persistent and widespread threat to sagebrush rangelands is invasive annual grasses and other weeds. The local workforce with the expertise to tackle this issue are employed by cooperative weed management agencies (CWMAs), watershed councils, county weed departments, and regional Oregon Department of Agriculture (ODA) offices. Despite the vast need, these agencies are typically understaffed and have little to no sustained base funding, and this statewide issue must be addressed to ensure the Action Plan and LIT work plans can keep pace with the increasing spread of invasive vegetation.

Recommendation 3: Create a mechanism for coordinated and targeted investment in the conservation and restoration of sagebrush habitat

After six years of cooperative implementation, it is clear that the SageCon Partnership would greatly benefit from having resources and capacity to add direct and tangible contributions to implementation beyond coordination, organization and networking. Shared goals and common vision bring the stakeholders together, but unconnected, siloed budgets and the fact that agencies work on different timelines and landownerships mean that it is challenging to incentivize and facilitate collaboration between agencies and partners. The capability to plan and implement more cross-jurisdictional, cross-boundary, landscape scale strategies and projects for restoring stage steppe ecosystems in shared areas

of priority is a missing element key to reach the levels of success envisioned in the Action Plan and Executive Order.

This cross-boundary work could be enabled by a mechanism that could focus on *securing new resources for implementation of cross-boundary projects that are strategically aligned to advance the highest priority goals and objectives of the SageCon Partnership and the Action Plan*. This mechanism could be called a **Sagebrush and Sage-grouse Recovery Fund** and could serve as a nexus for shared priority setting and funding for projects that are outside of the mandate or mission of existing agency budgets.

This Recovery Fund would NOT siphon finances from agency budgets nor would it create obligations for agencies to contribute operating funds. Instead, it would provide an instrument to hold additional investments and contributions from public and private sources. As an example, if funds were available from the Oregon Legislature for wildfire recovery and prevention, they could be directed to and administered through this Recovery Fund. A key defining attribute would be the ability of the Fund to attract and/or provide matching funds for projects, allowing existing agency and organizational budgets to leverage funding and increase the pace and scale of priority restoration efforts.

The Recovery Fund could help address the challenges of implementing the Executive Order that currently exists due to a lack of clear lead agency role for sagebrush restoration and associated actions called for in the Action Plan. It could nest within the structure of the SageCon Partnership, with new protocols developed to ensure the SageCon Coordinating Council is able to provide oversight and guidance on its use as needed. Work is still needed to determine what options exist to set up and manage such a fund. One option could be to fold the Recovery Fund into the OWEB family of programs and manage it in a similar fashion to the Federal Forest Restoration Program (FFR) which supports Forest Collaboratives.

References

1. U.S. Fish and Wildlife Service. 2010. Endangered and threatened wildlife and plants; 12-month finding on a petition to list greater sage-grouse (Centrocercus urophasianus) as an endangered or threatened species; 75 FR 13910. National Archives and Records Administration, Washington, D. C., USA.
2. U.S. Fish and Wildlife Service. 2015. Endangered and threatened wildlife and plants; 12-month finding on a petition to list greater sage-grouse (Centrocercus urophasianus) as an endangered or threatened species; 50 CFR Part 17. National Archives and Records Administration, Washington, D. C., USA.
3. Department of the Interior Bureau of Land Management Oregon/Washington State Office. 2015. Oregon Greater Sage-Grouse Approved Resource Management Plan Amendment. https://eplanning.blm.gov/eplanning-ui/project/103348/570
4. Sage-Grouse Conservation Partnership. 2015. The Oregon Sage-Grouse Action Plan. Governor's Natural Resources Office. Salem, Oregon. http://oregonexplorer.info/content/oregon-sage-grouseaction-plan?topic=203&ptopic=179
5. Hagen, C. 2011. Greater Sage-Grouse Conservation Assessment and Strategy for Oregon: A Plan to Maintain and Enhance Populations and Habitat. Oregon Department of Fish & Wildlife. Salem, Oregon.
6. U. S. Fish and Wildlife Service. 2013. Greater sage-grouse (Centrocercus urophasianus) conservation objectives: final report. U.S. Fish and Wildlife Service,, Denver, CO, USA. https://www.dfw.state.or.us/wildlife/sagegrouse/docs/20110422_GRSG_April_Final%2052511.pdf
7. Office of the Governor, State of Oregon. 2015. Executive Order 15-18: Adopting the Oregon Sage-Grouse Action Plan and Directing State Agencies to Implement the Plan i6n Full. Salem, Oregon. https://www.oregon.gov/gov/Documents/executive_orders/eo_15-18.pdf
8. Threat-Based Land Management in Oregon Rangelands: Ecostate Time Series Maps. 2021. https://oe.oregonexplorer.info/externalcontent/sagecon/Oregon_Ecostate_Time_Series_Map_Description.pdf
9. The SageCon Invasives Initiative: Overview of the geographic strategy to address invasive annual grasses in Oregon for policymakers and the public. 2020. Available online at: https://oe.oregonexplorer.info/externalcontent/sagecon/SageCon%20Invasives%20Initiative%20Overview.pdf.
10. Multi-Resolution Land Characteristics Consortium. NLCD 2016 Land Cover (CONUS). Data accessed from https://www.mrlc.gov/data.
11. Kevin E. Doherty, Chad S. Boyd, Jay D. Kerby, Angela L. Sitz, Lee J. Foster, Matt C. Cahill, Dustin D. Johnson, Bill D. Sparklin. 2021. Threat-Based State and Transition Models Predict Sage-Grouse Occurrence while Promoting Landscape Conservation. Wildlife Society Bulletin. https://doi.org/10.1002/wsb.1200.

Appendix 1. Methodology for evaluating the state habitat goal

The sagebrush habitat goal is to maintain at least 70% of the sage-grouse range as sagebrush habitat, where the sagebrush consists of predominantly advanced structural stages, classes 3, 4, and 5. Note that the 70% value refers to the landscape cover of sagebrush - which is measured by the percentage of the area within the range of sage-grouse that contains sagebrush cover. This is different from sagebrush canopy cover, which defines the classes 1-5 as defined in the ODFW Conservation Assessment[5].

The original habitat goal, defined in the 2011 Conservation Assessment and the Action Plan, defines sagebrush classes 3, 4 and 5 as areas with >5% sagebrush canopy cover, and classes 4 and 5 as areas with >15% sagebrush canopy cover. At the time of writing the plans, remotely sensed rangeland vegetation maps were limited and poorly calibrated, but recent advances in technology have improved the quality of the maps and enabled the use of remote sensing to depict change over multiple decades. After consultation with experts at ODFW and OSU and considering newer sources of information, we defined "sagebrush habitat" as areas with >10% shrub canopy cover based on the Ecostate Time Series 2015-2019 map[8], corresponding to ecostates A (good condition shrubland), A-C (intermediate condition shrubland) and C (poor condition shrubland). The "sage-grouse range" was defined as areas considered to be Shrub/Scrub and Herbaceous land cover types in the NLCD 2016 Land Cover (CONUS) dataset[10]. To calculate the percentage of the sage-grouse range containing sagebrush habitat, the number of mapped pixels of sagebrush habitat was divided by the number of pixels in the sage-grouse range across the state.

Note that the areas considered sagebrush habitat are based on maps of total shrub cover and may include other shrub species besides sagebrush. Areas with juniper encroachment (>=5% juniper canopy cover) that maintain shrub cover are excluded, as they are considered juniper states in the maps, even though they may also contain sagebrush cover. It is also worth noting that a recent study in Oregon[11] has shown that areas with lower sagebrush cover with a healthy perennial grass understory (ecostates B and B-D) may provide higher quality habitat for sage-grouse than previously thought.