June 2018

Baker Sage-Grouse Local Implementation Team FIP Strategic Action Plan

Table of Contents

FIP Strategic Action Plan

Implementation of the Baker Comprehensive Sage-grouse Threat Reduction Plan

1. INTRODUCTION/BACKGROUND

Greater Sage-grouse (*Centrocercus urophasianus*; hereafter: sage-grouse) are a species of conservation concern inhabiting eight eastern Oregon counties. The estimated sage-grouse population in Oregon is, as of 2017, 30% below the population management objective of approximately 30,000 individuals (Oregon Department of Fish and Wildlife 2017). Sage-grouse populations are characterized by population cycles driven by multiple factors including habitat quality, precipitation, human land use, and potentially predation pressure (Connelly et al. 2011, Garton et al. 2011). As of spring 2017, statewide, sage-grouse populations had been increasing for three consecutive years, with a slight decrease (~8%) in 2017; however, population trajectories remain variable at small spatial scales (Oregon Department of Fish and Wildlife 2017). Baker County is one area of considerable concern (Figure 5). Historical data indicates sage-grouse populations were significantly higher in the mid-20th century as compared with the early 21st century. More current data indicate that sage-grouse populations in this area have declined by approximately 75% since 2005 and have not exhibited a recovery similar to those observed in populations throughout the remainder of the state, since the previous population low in 2013. This population may be particularly vulnerable because it is geographically isolated from the other sage-grouse populations in Oregon.

The extent of threats to sage-grouse in Oregon have been estimated and described in planning and management documents (Oregon Department of Fish and Wildlife 2011, Sage-Grouse Conservation Partnership 2015). These comprehensive statewide assessments indicate that habitat loss is the primary threat to sage-grouse in the state, resulting from three interrelated mechanisms; juniper encroachment, invasive annual grasses, and wildfire. Threats that may be important, though localized, include habitat loss, fragmentation, or a reduction in quality due to: (1) multiple types of development (urban and ex-urban development, renewable energy, electrical and natural gas transmission lines, mining, roads and other infrastructure, like communication towers); (2) sagebrush elimination and agricultural conversion; (3) improper grazing management (including both legacy effects of past management and current grazing regimes); (4) recreational uses (e.g., off-highway vehicles); (5) fences; (6) isolated or small population sizes; and (7) free-roaming equids (Sage-Grouse Conservation Partnership 2015). Additional circumstances that could negatively impact sage-grouse include: (1) climate change; (2) drought; (3) West Nile virus; (4) excessive flooding; (5) predation; (6) hunting; (7) insecticides; (8) sagebrush defoliator moth; and (9) other noxious weeds (Sage-Grouse Conservation Partnership 2015).

In 2011, ODFW established Local Implementation Teams (LIT) throughout the range of sage-grouse in the state. Team membership includes key personnel from local, state, and federal agencies, as well as private landowners. Early efforts by these teams, including the Baker LIT, identified local threats in a spatially explicit manner with the goal of applying conservation measures with a high degree of coordination. In 2015, the Oregon Stage-grouse Action Plan called for further invigoration of LITs and identified them as the key mechanism for developing local strategic work plans and coordinating

conservation efforts (Sage-Grouse Conservation Partnership 2015)[5]. The Baker LIT[6] reconvened in March 2016 and the Comprehensive Sage-grouse Threat Reduction Plan (TRP) represents the team's local work plan to guide activities aimed to reverse the sage-grouse population trend in Baker County, with an initial focus on the Baker Priority Area for Conservation (PAC; Cupples et al. 2017). Future planning by the LIT will encompass areas beyond the PAC boundaries within the larger Baker LIT Planning Area [focus area for this FIP](Figure 5). This plan is intended to be a "living document" to allow prioritized actions to be adapted with the emergence of new information, shifts in ecological condition, and funding opportunities. The Baker LIT recognizes that funding opportunities in out-years are uncertain and that future projects identified in this plan are contingent on federal and state budget allocations. However, the plan serves to prioritize work in terms of scope and geography, so that initial planning can occur in advance of emerging funding opportunities so they can be utilized expeditiously, efficiently, and in a manner that will likely have the best outcome for sage-grouse populations in the Baker LIT Planning Area.

Many of the aforementioned threats are present in the Baker LIT Planning Area and are likely operating in concert to limit local sage-grouse populations. The population decline in the Baker PAC has exceeded thresholds established in the BLM Oregon Greater Sage-grouse Approved Resource Management Plan Amendment (ARMPA; Bureau of Land Management 2015); requiring an interagency team to conduct a causal factor analysis (CFA) in order to best identify factors most responsible for the decline. The CFA for the Baker PAC was conducted between June 2016 and April 2017, and investigated multiple threats to sage-grouse, as well as generated recommendations for actions to undertake on BLM-managed lands (Bureau of Land Management 2017). The CFA report was included as an appendix to the TRP and Table 1 in the TRP summarizes the CFA initial findings. The analysis was conducted primarily for BLM-managed lands in the Baker PAC, but it is assumed that threats identified in the analysis are also present on private lands in the area.

The scope of the Baker LIT Threat Reduction Plan is restricted to those threats identified as likely or definitively impacting the Baker sage-grouse population that are within the immediate control of stakeholders. Table 1 in the TRP lists all potential threats, classifies them according to the aforementioned criteria, including justification for inclusion in the TRP, provides a priority ranking, and serves as a quick reference guide to the BLM CFA findings.

2. OUTCOMES

Our overarching targeted ecological outcome is an increase in the quantity and quality of sage-grouse habitat and ultimately an increase in the Baker sage-grouse population.

[5] "LITs will serve as the local venue to assist with identifying local-level opportunities for mitigation crediting projects; advancing opportunities for project-level application and implementation of the plan's higher level approach to prioritizing conservation actions on-the-ground, including partnerships for advancing such opportunities; and advising the statewide technical team and coordinating council on implementation-related local priorities, issues, or concerns, which will be part of shaping adaptive management of this plan. It is anticipated that work related to the above efforts will benefit from engagement of an on-the-ground resource such as the LITs, with that work including refinement of maps; engagement with private landowners to implement site-specific plans tied to CCAAs; and providing ongoing coordination to address area-specific threats." (SageCon Partnership 2015, p. 33).

[6] The Baker LIT includes personnel from ODFW, NRCS, BLM, USFWS, Union and Baker Counties, and Tri-County Cooperative Weed Management Area, Powder Basin Watershed Council, as well as elected officials and private landowners.

Outcome 1: By January 1, 2020, increase technical staff capacity of FIP partners to fully implement current and planned sage-grouse conservation programs in the Baker LIT Planning Area.

Outcome 2: By 2024, community members, private landowners, organizations, and agency personnel will have increased awareness of issues affecting local sage-grouse population viability resulting in a 25% increase in engagement in voluntary conservation programs.

Outcome 3: By 2024, implement vegetation management activities to maintain a stable or increase sage-grouse population trend in the Baker LIT Planning Area.

Outcome 4: By 2024, address key information gaps in order to ensure a comprehensive approach to reduce sage-grouse threats in the Baker LIT Planning Area and implement associated conservation measures as identified.

3. SCOPE AND VISION

3.1 Vision Statement

The LIT will work in a collaborative spirit to engage landowners and managers to enhance sage-grouse habitat within the Baker LIT Planning Area, with the aim to reverse local sage-grouse population declines. The LIT will accomplish this by identifying local threats in a spatially-explicit manner and by applying conservation measures with a high degree of coordination.

3.2 Guiding Principles

Collaborate – The Threat Reduction Plan was developed collaboratively by the Baker Local Implementation Team to comprehensively address threats to sage-grouse in the Baker PAC, in response to steeply declining population trends.

Use an integrated approach – The intent of the plan is to develop an integrated approach to increasing the sage-grouse population in the Baker LIT Planning Area by addressing threats identified as likely, or definitively, impacting the Baker sage-grouse population that are within the immediate control of stakeholders, and for which strategic conservation actions are likely to have a positive impact. See the executive summary, pages 1-3, in the TRP.

Collect and maintain project implementation and monitoring data – Documentation of project implementation and results is essential to: 1) record conservation actions and apply future actions that may capitalize on previous efforts; 2) document success and lessons learned; 3) inform the potential need for adaptive management; 4) demonstrate responsible stewardship of funds; 5) represent project implementation geospatially; and 5) convey incremental progress towards the overall goal of improving sage-grouse habitat in the Baker LIT Planning Area. All partners are expected to make this data available (pending private landowner permission when required) to the Lead Partner for centralized storage, compilation, and communication.

Use best-practices to enhance sage-grouse habitat – The sagebrush steppe is a challenging ecosystem to restore once habitat loss or degradation occurs. The need to balance livestock production goals with those of sage-grouse habitat restoration goals can sometimes add complexity to conservation decision-making. All partners are expected to seek this balance in project design and implementation and to use best-available science to guide conservation efforts.

Prioritize actions – To guide future work, the plan prioritizes actions that:

1. Address previously treated sites that require retreatment or follow-up treatment to promote success;
2. Expand contiguous treatment areas and ultimately areas of suitable habitat for sage-grouse by siting proposed conservation activities adjacent to an existing treatment area; and/or
3. Are located where there is the greatest likelihood of sage-grouse utilization. For example, within mid to high probability of season habitat use or within 1-4 miles of an occupied or pending lek.

3.3 Focus Area

The overall geography of the initiative is the Baker LIT Planning Area (Figure 1). This area encompasses 2.1 million acres of private, as well as BLM and USFS managed lands. When USFS lands are excluded (because they are typically avoided by sage-grouse), the area totals roughly 1.4 million acres, 73% of which is privately owned. The Baker LIT Planning Area corresponds with the geography within which ODFW has summarized sage-grouse population trends dating back to 1980 (Oregon Department of Fish and Wildlife 2011). Within this larger geography, the FIP is primarily concerned the Baker Priority Area of Conservation (which corresponds with ODFW's Core Area in Baker County and the Oregon Conservation Strategy Powder River Sage-Grouse Core Area Conservation Opportunity Area; Figure 1). The FIP is also concerned with sage-grouse habitat corridors and other locations within Baker County that support thriving leks. In particular, sites south of Unity, Oregon are currently designated as general sage-grouse habitat but support well-attended leks and important brood-rearing habitat.

The primary geography for our Baker TRP and the FIP initiative is the Baker PAC because based on ODFW's Core Area approach (Oregon Department of Fish and Wildlife 2011), this is the most strategically important area for sage-grouse conservation in Baker County. Because Core Areas were developed to include the most highly-attended leks and surrounding nesting habitat, conservation actions implemented in this geography are likely to benefit sage-grouse during multiple life stages. The secondary area near Unity, Oregon includes leks with high attendance that were discovered after Core Areas were designated. While not included in the Baker PAC, the Unity geography is still important to maintaining sage-grouse populations in Baker County. The Unity area is prioritized after work in the Baker PAC and it is anticipated that as the FIP funding opportunity progresses over the course of 3 biennia, emerging information about sage-grouse populations, as well as the completion of higher priority projects may warrant expanding work into this location. Therefore, the larger Baker LIT Planning Area is considered the focus area for this FIP Initiative.

Approximately 70% of the Baker PAC (and 70% of the focus area, when USFS lands are excluded) is private land, with the remainder consisting of mostly public lands. This is the largest proportion of privately managed sage-grouse habitat for any population in Oregon (U. S. Fish and Wildlife Service 2013).

Within the focus area, the core partners, including private landowners, have already been involved in sage-grouse habitat improvement projects. This includes participation in both the first individual sage-grouse Candidate Conservation Agreement with Assurances (CCAA) in Oregon and then the Baker Valley CCAA, participation in NRCS's Sage Grouse Initiative to implement juniper treatments along with BLM's treatments of juniper, noxious weed treatments through multiple groups (NRCS, BLM, Tri-County CWMA, Baker County), ODFW efforts related to habitat improvements, and Baker SWCD projects. This

initiative, with funding to implement the TRP, will compliment past efforts and help the Baker LIT strategically focus work in the highest priority areas that also have the highest probability for success.

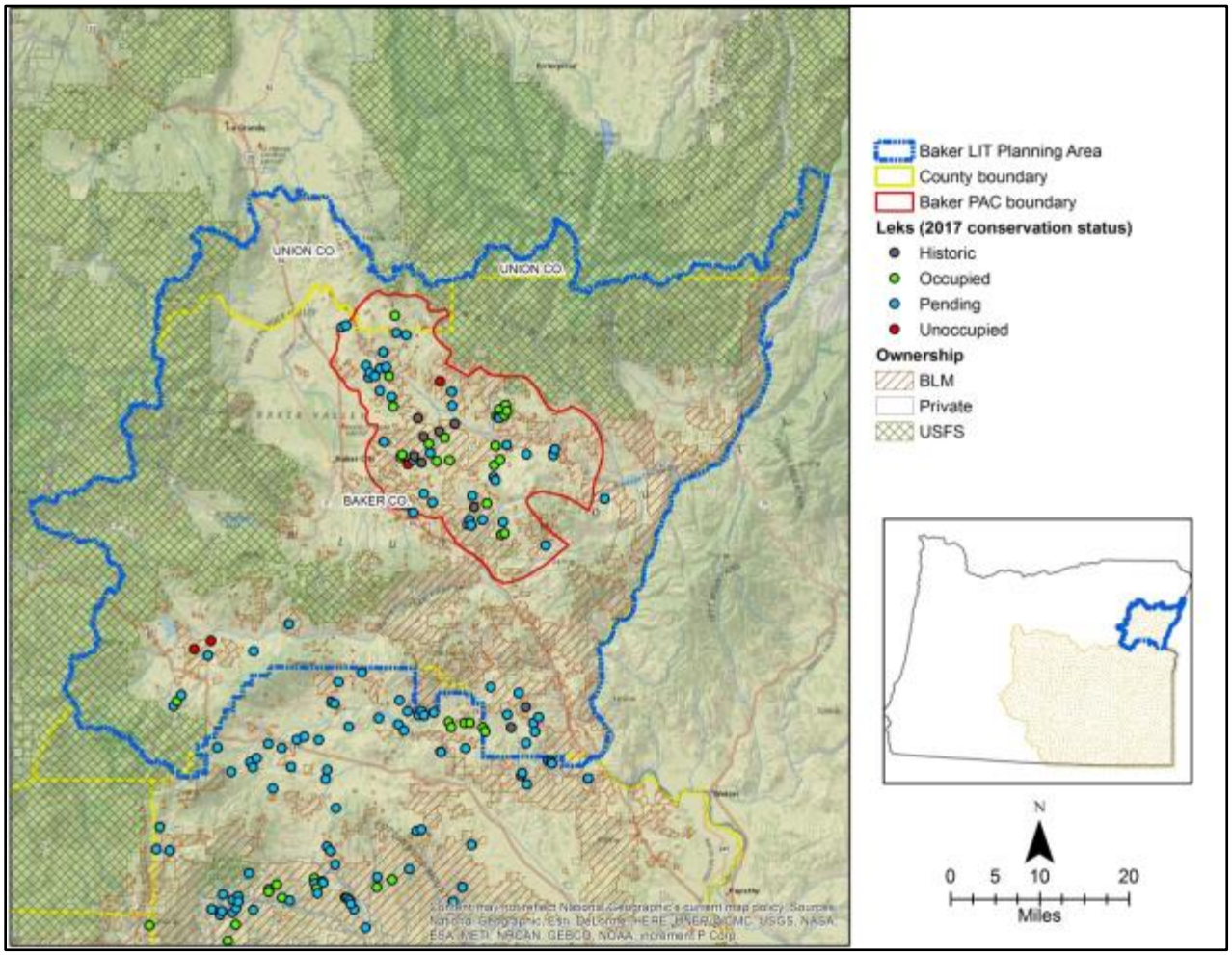

Figure 5. Baker Local Implementation Team Planning Area (Focus Area) and PAC Boundary

4. GOVERNANCE/PARTNERSHIPS

Table 1 lists our core implementation partners and the substantial resources they provide to the Baker Local Implementation Team. More information about the roles and responsibilities of all partners and the LIT's decision making process, see our Governance Document.

Table 1. Baker Local Implementation Team Core Partners, experience and anticipated contributions.

Implementation Partner	Experience	Anticipated Contributions
Oregon Department of Fish and Wildlife	• Sage-grouse biological expertise • Habitat restoration expertise • Lead convener of Baker LIT • Landowner and agency networks	• Monitoring of sage-grouse populations • Ongoing shared SGI position with NRCS • Technical and financial support for OSU research (raven-sage-grouse) • Interns to support WNv and mesic

Implementation Partner	Experience	Anticipated Contributions
		habitat assessments • Implement habitat restoration projects using Mule Deer Initiative and/or Access and Habitat funds • Public education/outreach regarding voluntary conservation • Assist with monitoring and adaptive management of projects
Tri-County Cooperative Weed Management Area	• Technical invasive vegetation management expertise • Landowner and agency networks • Coordinated weed management programs across counties	• Lead agency for FIP • Administrator of grant funds • Data management & reporting related to FIP activities • Public education/outreach regarding noxious weeds and voluntary conservation • Implement weed management projects • Secure matching funds through Oregon Department of Agriculture and other grants • Assist with monitoring and adaptive management of projects
Natural Resource Conservation Service	• Technical expertise relating to invasive vegetation management, grazing management, water enhancements, juniper removal • Landowner and agency networks • Farm Bill administration	• Ongoing shared SGI position with ODFW • Public education/outreach regarding voluntary conservation • Project planning and implementation on private lands (SGI and other Farm Bill programs) • Assist with monitoring and adaptive management of projects
U.S. Fish and Wildlife Service	• Sage-grouse biological expertise • Habitat restoration expertise • Lead convener of Baker LIT • Landowner and agency networks • CCA/A implementation	• Public education/outreach regarding voluntary conservation • Ongoing CCA/A implementation • Implement habitat restoration projects using Partners for Fish and Wildlife program funds • Technical and financial support for OSU research (raven-sage-grouse) • Lek monitoring • Assist with monitoring and adaptive management of projects
Bureau of Land Management	• Technical expertise relating to sage-grouse ecology, invasive vegetation management, grazing management, water enhancements, juniper removal • Permittee and agency networks • CCA implementation • Completion of Baker PAC CFA	• Public education/outreach regarding voluntary conservation • Ongoing funding and implementation of CFA recommendations to address threats • Ongoing implementation of the Greater Sage-grouse ARMPA

Implementation Partner	Experience	Anticipated Contributions
	analyzing all threats to sage-grouse • Baker LIT participation since inception	• Lek monitoring • Technical and financial support for OSU research (raven-sage-grouse) • Coordination of TRP projects occurring on BLM-managed lands, including monitoring and adaptive management
Baker County	• Lead convener of Baker LIT • Landowner and agency networks • Technical invasive vegetation management expertise through county weed program • Expertise representing county issues and concerns • Cooperating agency in statewide sage-grouse efforts (SageCon)	• Public education/outreach regarding noxious weeds and voluntary conservation • Implement weed management projects • Secure matching funds through Oregon Department of Agriculture, county weed program, and other grants
Powder Basin Watershed Council	• Landowner and agency networks • Habitat restoration expertise, particularly stream restoration, wetland enhancement, riparian management, and irrigation efficiency	• NGO status provides funding management and solicitation opportunities • Implement mesic habitat restoration and protection projects • Public education/outreach regarding voluntary conservation • Assist with monitoring and adaptive management of projects
Private Landowners	• Expertise representing private landowner issues and concerns, and balancing sage-grouse conservation with the needs of working lands • On-the-ground knowledge of rangeland conditions, sage-grouse habitat use areas, livestock operation needs • Baker LIT participation since inception	• Public education/outreach regarding voluntary conservation • Implementation of and private matching funds for TRP projects occurring on private lands • Assist with monitoring and adaptive management of projects

5. CONTEXT: Profile of the Focus Area

5.1 Physical Geography

The Baker LIT Planning Area falls within the Blue Mountains Ecoregion, as described in the Oregon Conservation Strategy (Oregon Department of Fish and Wildlife 2016) and more specifically within the Powder River and Burnt River Subbasins (Northwest Power and Conservation Council 2005b;a). The planning area occurs mainly in Baker County but includes small portions of Union, Grant, and Malheur Counties as well.

The Burnt River Subbasin encompasses an area of about 1,100 mi^2 in northeastern Oregon. The Burnt River Subbasin is almost entirely within Baker County, although small portions of Grant and Malheur counties are included. The Powder River Subbasin encompasses an area of about 1,750 mi^2 and is almost entirely contained within Baker County but includes a portion of Union County. A very small part of the subbasin, at the headwaters of Eagle Creek, is in Wallowa County (Northwest Power and Conservation Council 2005b;a).

5.2 Water Resources

There are two river subbasins in the focus area (Powder River and Burnt River). These river subbasins are dominated by sagebrush habitat uplands, with higher elevations and headwaters containing forested landscapes and steeper slopes. Most of the precipitation in the focus area falls during the winter as snow, and these subbasins are fed by snowmelt. Snowpack-fed stream flows are an important source of water for irrigation, fish, wildlife, livestock, domestic water supply and other uses (Oregon Department of Agriculture 2011).

The topography of the Powder River Subbasin is varied with relatively high gradient mountain streams, deep river canyons and broad, shallow valleys. The headwaters of the Powder Subbasin's streams are at elevations from 6,000 feet to nearly 9,000 feet in the Blue and Wallowa Mountains. The mainstem Powder River begins near 8,000 feet, drops to about 3,300 feet in the Baker Valley and to about 1,650 feet at the confluence with the Snake River. Stream gradients in the upper Powder River range from 20% in the high elevations of the Elkhorn Mountains to 2-4% in the lower, larger systems (Powder Basin Watershed Council 2001). Gradients in the rest of the subbasin are similarly variable as high elevation headwater streams give way to low elevation, low gradient valley streams (Northwest Power and Conservation Council 2005b).

The North, West, Middle and South Forks of the Burnt River all begin in the Blue Mountains at elevations near 7,000 feet. The Whitney Valley, on the North Fork Burnt River, lies at an elevation of about 4,300 feet. The Burnt River Valley is at an elevation of about 3,400 feet at Hereford and about 3,200 feet at Bridgeport, 21 river miles downstream. The Burnt River joins the Snake River at an elevation of about 2,000 feet. Gradients on the Burnt River and its tributaries are widely variable as the streams leave the mountains and flow through the lower, shallower valleys. Gradients on the North Fork range from 1-2% in low elevation areas to 6% in the headwaters. The South Fork also has a gradient of around 1% in low elevation areas but as high as 11.5% in the upper reaches (Northwest Power and Conservation Council 2005a).

Water Quality

Oregon's waters support many uses, and water quality standards are established to protect the beneficial uses of the state's waters as defined in OAR 304-041-0002(17). Beneficial uses include public and private domestic water supply, industrial water supply, irrigation, livestock watering, fish and aquatic life, wildlife and hunting, fishing, boating, water recreation, and aesthetics (Oregon Department of Agriculture 2013). Oregon's Department of Environmental Quality (DEQ) is required by the Federal Clean Water Act (CWA) of 1972 to assess water quality throughout the state every two years. Section 303(d) of the CWA requires DEQ to identify waters that do not meet water quality standards, placing those waters on the 303(d) list, and triggering the development a Total Maximum Daily Load (TMDL) for those waters. In many cases, TMDLs apply to entire basins or subbasins, and not just to individual water bodies on the 303(d) list. TMDLs specify the daily amount of pollution that a water body can receive and still meet water quality standards. Through the TMDL process, point sources are assigned "waste load allocations" and nonpoint sources are assigned "load allocations". Point sources are features such as

return flow from industrial withdrawals, large Animal Feeding Operations/Confined Animal Feeding Operations (AFO/CAFO), etc. Nonpoint sources include general classifications such as agriculture, forestry and urban (Oregon Department of Agriculture 2013).

Agriculture is the primary land use within the focus area. Farming, ranching, and livestock operations are the main agricultural enterprises. Timber harvest, mining, energy development, urbanization, and many other activities impact the state's waters. Generally, agricultural impacts have been identified as the main source of water quality impairments in the TMDLs for the basins throughout the project area. Water bodies in the project area that have been identified as water quality impaired are generally listed for the following reasons: dissolved oxygen, pH, sediment, temperature, bacteria, aquatic habitat modification, and flow modification. In some localized waters in smaller portions of specific basins, additional impairments are identified including algae and chlorophyll a, and the metals mercury and arsenic (Oregon Department of Agriculture 2014).

For a complete list of water quality impaired streams in each basin of the focus area, the current 303(d) list can be found at: http://www.deq.state.or.us/WQ/TMDLs/basinlist.htm. The individual basin water quality management area plans, which outline the efforts to address specific TMDLs, can be found at: http://www.oregon.gov/ODA/NRD/Pages/water_agplans.aspx.

5.3 Biotic Systems

The Baker LIT's Comprehensive Threat Reduction Plan provides a thorough description of the current baseline conditions of the Baker PAC. This plan assessed all threats to sage-grouse, past conservation actions, and necessary future actions. The Baker PAC was divided into seven sub-assessment areas (SAAs) based on easily identifiable landmarks (see Figure 4 in the TRP). To further prioritize efforts, statistics describing the number and conservation status of leks within each SAA is reported (see Table 2 in the TRP). The Institute for Natural Resources (INR) modeled the probability of seasonal habitat use by sage-grouse. The proportion of modeled sage-grouse habitat probability of use during breeding season, summer, and winter, each SAA is also provided in Table 3 of the TRP. For additional detail, please refer to the TRP for baseline conditions, past treatments, and opportunities for future treatment within in each SAA. The BLM's CFA for the Baker PAC also quantified baseline conditions across the PAC (Bureau of Land Management 2017). A concise summary of the baseline conditions assessed in both of these documents can be found in Table 1 in the TRP (p. 10 – 20).

Because our proposed FIP geography has been well described in these other documents, only an overview of the baseline conditions is provided here. And while these other documents are centered on the Baker PAC, the conditions found in this smaller geography can be generalized to the broader Baker LIT Planning Area. In general, the Baker PAC is characterized by adequate sagebrush cover in that it remains above the threshold for sagebrush cover (65% of the area capable of supporting sagebrush with at least 5% sagebrush cover). However, there are some localized areas where sagebrush cover has been reduced as a result of wildfire or former crested wheatgrass seedings. Unlike other areas in Oregon, juniper encroachment is less extensive and significant efforts by the NRCS and BLM have occurred to remove encroaching juniper on private and public lands. The total area of encroachment (Phase 1 and 2 combined) in the Baker PAC is estimated to be less than 26,000 acres and further removal efforts are scheduled or are currently underway (Sage-Grouse Conservation Partnership 2015).

The most concerning baseline ecological condition is the extent of invasive annual grasses and other noxious weeds in our proposed geography. Nearly 70,000 acres within the Baker PAC (equivalent to 21% of the PAC) are estimated to be dominated by invasive annual grasses such as cheatgrass,

medusahead bulbous bluegrass, and rattail fescue (Sage-Grouse Conservation Partnership 2015, Bureau of Land Management 2017). Ground-truthed and survey data from Tri-County CWMA, Baker County Weed Department, and BLM corroborate remotely-sensed data. Recent 2017 fine-scale mapping conducted by Open Range Consulting indicate large areas dominated by medusahead and cheatgrass throughout the PAC (see TRP). Other noxious weeds are also contributing to degraded conditions in the PAC. Oregon Department of Agriculture (ODA) and BLM Assessment Inventory and Monitoring (AIM) data indicate widespread presence of whitetop, thistles, mustards, and leafy spurge. The widespread extent of invasive vegetation indicates a high risk of conversion to annual grassland should a major ecological disturbance, such as wildfire, occur. Although, efforts have been undertaken to address this threat, success has varied and ongoing and future strategies are required to ensure treatment success and continuity of efforts.

Related to the extent of invasive vegetation, as well as legacy effects from historic grazing and crested wheatgrass seedings that occurred in the 1960-70s, the native forb and grass community is degraded across much of the PAC. Range trend plots on BLM-managed land indicate vegetation composition is stable; however, AIM plots indicate a high proportion of "weedy" species, lack of tall perennial grasses, and lack of forbs favored by pre-laying hens and chicks. In addition to data cited in the CFA, a survey of BLM-managed sage-grouse breeding habitat in the Keating area demonstrated a "depauperate forb component", limited native bunchgrasses, and a high degree of non-native seeded grasses, as well as invasive annual grasses (cheatgrass, medusahead, Japanese brome, bulbous bluegrass, and ventenata).

Factors beyond vegetation, such as predation, West Nile virus (WNv), recreation, and isolation/ fragmentation could also have a negative impact on sage-grouse populations in the Baker LIT Planning Area. Generalist predators, such as ravens, that prey upon sage-grouse nests may be overly-exerting pressure on sage-grouse populations in our focal geography. Ravens can reach high densities in landscapes with human-subsidized resources by utilizing human-provided food resources (road-kill, dead livestock, and garbage), perch structures (buildings, power lines, oil and gas wells, etc.), and overwintering shelter (Boarman et al. 1995, Boarman and Heinrich 1999), and raven abundance has increased throughout the western United States (Sauer et al. 2017). Sources of perch and nesting structures attract ravens (Coates et al. 2014a, Howe et al. 2014) and may increase their foraging ability.

In addition, ravens have greater use of areas where intact sagebrush habitat adjoins disturbed habitat (Howe et al. 2014). ODFW and OSU have surveyed ravens annually since 2016 and have documented that raven density in the Baker PAC is higher than the scientifically-documented threshold (0.46 ravens/km^2), above which, ravens have been shown to negatively influence sage-grouse nest success, recruitment, and population trend (Bui et al. 2010, Coates and Delehanty 2010, Dinkins et al. 2016, Peebles et al. 2017). Because of the high raven densities documented in the Baker PAC, and because sage-grouse habitat within the Baker PAC is highly fragmented by agricultural uses and other development/infrastructure (as documented in the TRP), OSU has undertaken research to understand: 1) the influence of ravens on local sage-grouse vital rates (nest success, chick survival) and habitat use; and 2) identify human subsidies that benefit ravens and could be altered or removed to reduce local raven abundance. For additional information on the research currently underway, please see the TRP section: BAKER SAGE-GROUSE CONSERVATION STUDY PROPOSAL.

A spatial analysis of Baker PAC indicated a high degree of habitat fragmentation, potentially affecting how sage-grouse use this are (see Figure 8 in the CFA; Bureau of Land Management 2017). Most large patches of intact core habitat area are concentrated in the western and northern part of the PAC with about equal representation of large core areas and "perforated" habitat areas (areas with inclusions of

non-habitat with otherwise suitable habitat) across the PAC. Within 3.1 miles of leks, the mean distance to edge for all PACs analyzed ranged from 0.3 to 2.2 miles (424-3,579 m). Relative to the other 14 Oregon PACs analyzed, Baker PAC ranked second to last, meaning a sage-grouse has a shorter distance to habitat-edge on average within 5 km of leks than all but one of the other analyzed PACs in Oregon, with some differences statistically significant. Fragmentation, as measured in this analysis by the extent of sagebrush cover, annual grass incursion, and human impacts on the landscape, likely functions in concert with other factors in order to influence sage-grouse populations. For instance, the degree of isolation of the Baker PAC from other Oregon PACs may limit access to auxiliary habitat available beyond the PAC periphery. Furthermore, nest predators have been documented to be more abundant in fragmented landscapes (Chalfoun et al. 2002) and may have an increased hunting advantage in areas without expansive intact habitat or along habitat edges (Vander Haegen et al. 2002, Coates et al. 2014b;a, Howe et al. 2014).

Sage-grouse are highly susceptible to infection with WNv, with substantial mortality reported in wild populations and in experimentally infected birds (Clark et al. 2006). In 2006, a die-off of at least 60 sage-grouse occurred near Burns Junction, and two other sage-grouse deaths were confirmed from WNv near Crane and Jordan Valley. West Nile virus (WNv) has been detected in Baker County in mosquitoes or birds in eight of the last 13 years, with one wild bird testing positive for WNv in 2009. Mosquito pools in the Keating Valley have tested positive for WNv. However, WNv sampling sites are primarily located in agriculture-dominated areas, may not adequately quantify the risk of WNv throughout the Baker PAC, and LIT Planning area. Because the degree to which WNv may be present overall is unknown and because even low levels of mortality from this factor could impact small sage-grouse populations like the one in Baker County, additional information is required. Sampling sites that are evenly distributed across the PAC should be added in partnership with ODFW, USFWS, and Baker Vector Control.

Additionally, as is feasible, ravens and sage-grouse captured during the OSU research project (described in the TRP in the section: BAKER SAGE-GROUSE CONSERVATION STUDY PROPOSAL) should be tested for WNv to help understand the prevalence of this threat. As additional information is gathered about this threat, efforts to reduce it should be implemented.

Recreational sites are also located in sage-grouse habitat within the Baker LIT Planning Area and may be negatively impacting sage-grouse populations. The National Historic Oregon Trail Interpretive Center (NHOTIC) opened in 1992, is centrally-located within the Baker PAC, and has a footprint of approximately 21.5 acres; the overall site is 500 acres. The center consists of galleries (approximately 23,000 square feet), four miles of hiking trails (paved and gravel), an outdoor wagon encampment, a stamp mill and mine site, and Oregon Trail ruts. The development footprint of NHOTIC also includes a 10,000 square foot maintenance shop and a 1-mile paved driveway. This recreation site has averaged 49,730 visits[7] and 14,328 visitor days[8] during FYs 2013-2015.

The Powder River Shooting Club (PRSC) range is located just north of Highway 86 and 1.5 miles east of NHOTIC. Authorized through a BLM Recreation and Public Purpose Land Lease (RPP) and dedicated in 1968, it provides target shooting practice and events along with pistol shooting areas. The total permitted acres for the PRSC is 10 acres, however its usage footprint more accurately encompasses about 200 acres. Most scheduled events occur in April through June (corresponding with sage-grouse

[7] A visit is defined as lasting less than 12 hours.
[8] A visitor use day is defined as ≥ 12 hours.

breeding and nesting) with a smaller peak in events in August through October. During 2015, the shooting club held approximately 85 events, with over 50% of them (49) occurring between March & July. Most events started between 0800 and 0900 at that time of year. The PRSC facility is also used for law enforcement training and practice.

The Virtue Flat OHV area was established in 1990 (though use began in the 1970s) and encompasses 4,918 acres. It consists of a fenced staging area (1.5 acres in size) and approximately 71 miles of trails and primitive roads. In addition to the staging area, there are 20 access points from the Ruckles Creek Road and 7 access points from Highway 86. The majority of the OHV site is open for year-long use, however approximately 265 acres surrounding the occupied OHV lek is protected by a temporary seasonal closure during the lekking season (March 1-June 30). This closure incorporates the mandatory 2-mile buffer around leks (however, where natural features serve to reduce disturbance, the exact buffer is less). Informational notices and maps about the seasonal closure were posted on gates prior to the 2018 lekking season. The need for further action in the form of a permanent seasonal closure will be informed by the vehicle use data (using cameras and vehicle counters) that is scheduled to commence in Spring 2019. BLM data available for 2013-2015 indicate that the OHV area receives an annual average of 5,967 visits[1] and 2,138 visitor-use days[2], with the bulk of this use occurring during spring. OHV use may result in unofficial user-created trails that further fragment habitat; the extent of unofficial user-created trails has not been documented in the Virtue Flat area. Noise from OHVs can mask sage-grouse vocalizations key to mating. The indirect impact of noise can be estimated as 5 km from the source. Recreational use can also result in physical damage to habitat and promote the spread of invasive annual grasses. A significant invasive annual grass "hot spot" is located to north of the staging area and is likely the result of seed dispersal via vehicles. Sage-grouse behavior can also be negatively impacted by human presence and noise associated with OHV use. Although this recreational site has been present since before severe population declines, attendance at nearby leks has declined, prompting the Baker LIT to assess and address OHV area impacts to sage-grouse and the potential benefit of altering recreational uses.

The extent and quality of mesic habitat resources within the Baker LIT Planning Area is not well known. Mesic habitat is important to sage-grouse during the brood-rearing stages of their life cycle, during which chicks and hens primarily consume insects and succulent forbs associated with wet meadows, springs, and seeps. Thus, if the quantity and quality of mesic habitat is limited, it could be related to local sage-grouse population trend. The Baker LIT has identified the need to examine available data, such as BLM Proper Functioning Condition (PFC) records on streams and wetlands, remotely-sensed data (e.g. NDVI) that highlight areas of green vegetation during summer months, NRCS Mesic Resources GIS data, spring locations and condition, snow drift models that identify areas where drifts contribute to moist conditions during summer, and sage-grouse telemetry data that may help identify important summer habitat resources currently utilized by birds.

Sage-grouse

The following information comes from the Baker Valley CCAA (U. S. Fish and Wildlife Service 2015c) and associated multicounty CCAA Environmental Assessment (U. S. Fish and Wildlife Service 2015b) and is primarily based on Connelly et al. (2004) and the *Greater Sage-Grouse Conservation Assessment and Strategy for Oregon: A Plan to Maintain and Enhance Populations and Habitat* (Strategy) (Oregon Department of Fish and Wildlife 2011).

In Oregon, sage-grouse were once found in most grassland and sagebrush habitats east of the Cascades. European settlement and conversion of sagebrush steppe into agricultural production led to extirpation

of the species in the Columbia Basin by the early part of the 1900s, but sagebrush rangelands have persisted, particularly in southeast Oregon. Sage-grouse populations have fluctuated markedly since the mid-1900s, with notable declines in populations from the 1950s to early 1970s. Oregon sage-grouse numbers apparently have declined over the long-term (Oregon Department of Fish and Wildlife 2005). However, population indices over the last 30 years suggest a relatively stable statewide population (Oregon Department of Fish and Wildlife 2011). The state of Oregon has a population management goal of 30,000 sage-grouse; there were an estimated 20,510 sage-grouse in Oregon in 2017 (Oregon Department of Fish and Wildlife 2017). Habitat loss and fragmentation are the primary cause for long-term changes in population abundance and distribution. Additional threats include, sagebrush removal, agricultural conversion, drought, rising CO_2 levels, flooding, West Nile virus, unmanaged or improper grazing, wild horses, recreation, predation[9], sagebrush defoliating insects (Aroga moth), and energy development and other infrastructure (U. S. Fish and Wildlife Service 2010).

In Baker County, as it is throughout sagebrush habitat in Oregon, wildfire in low elevation sagebrush and its resultant increase of exotic annual grasses, as well as juniper encroachment in high elevation sagebrush due to lack of fire are the two largest threats to sage-grouse habitat. Current harvest management is not considered a significant threat to sage-grouse populations range-wide (USFWS 2010) and it should be noted that no harvest of sage-grouse occurs in the Baker LIT Planning Area.

Sage-grouse use habitat according to their seasonal needs. Seasonal habitats include breeding habitat (leks) in early spring, nesting habitat in late spring, early brood-rearing habitat from June to mid-July, late brood-rearing habitat from mid-July through September, and winter habitat. A more complete description of local habitat can be found in the Strategy (Oregon Department of Fish and Wildlife 2011).

Other Wildlife

Although sage-grouse is the focus of the FIP initiative, other wildlife species also inhabit the sagebrush ecosystem within the focus area. Table 2 provides a list of vertebrate species and their status in Oregon that are associated with sagebrush ecosystems. Some of these species could also be affected through implementation of the Threat Reduction Plan (not all occur within the Baker LIT Planning Area or focus area). These other species are discussed in this section.

Table 2. Terrestrial vertebrate species associated with sagebrush ecosystems and status[a] in Oregon. (Source: ODFW 2010).

Common Name	Scientific Name	ODFW Status[b]
Birds:		
Ferruginous hawk	*Buteo regalis*	SC
Burrowing owl	*Athene cunicularia*	SV
Short-eared owl	*Asio flammeus*	NL[c]
Vesper sparrow	*Pooecetes gramineus*	SC[d]
Lark sparrow	*Chondestes grammacus*	NL

[9] Predation may be underestimated as a limiting factor to sage-grouse population success in much of its occupied habitat (Coates and Delehanty 2010; Coates et al. 2008; Dinkins et al. 2012; Kolada et al. 2009; Kolada et al 2009b; Moynahan et al. 2007; Willis et al. 1993). In particular the impacts of predation on sage-grouse can increase where habitat quality has been compromised by anthropogenic activities (Coates 2007; Bui 2010; Hagen 2011).

Common Name	Scientific Name	ODFW Status[b]
Brewer's sparrow	*Spizella breweri*	NL
Black-throated sparrow	*Amphispiza bilineata*	SP
Sage sparrow	*Amphispiza belli*	SC[e]
Grasshopper sparrow	*Ammodramus savannarum*	SV
Western meadowlark	*Sturnella neglecta*	SC[e]
Greater sage-grouse	*Centrocercus urophasianus*	SV[f]
Sage thrasher	*Oreoscoptes montanus*	NL
Loggerhead shrike	*Lanius ludovicianus*	NL
Mammals:		
Preble's shrew	*Sorex preblei*	NL
Pygmy rabbit	*Brachylagus idahoensis*	SV
Sagebrush vole	*Lemmiscus curtatus*	NL
Black-tailed Jackrabbit	*Lepus californicus*	SV[e]
White-tailed Jackrabbit	*Lepus townsendii*	SV
Kit fox	*Vulpes macrotis*	LT
Pronghorn	*Antilocapra americana*	NL
Mule Deer	*Odocoileus hemionus*	
Reptiles:		
Northern Sagebrush Lizard	*Sceloporus graciosus graciosus*	SV[e]
Mojave black-collared lizard	*Crotaphytus bicinctores*	NL
Longnose leopard lizard	*Gambelia wislizenii*	NL
Striped whipsnake	*Masticophis taeniatus*	NL
Ground snake	*Sonora semiannulata*	NL

a. Criteria for identifying species of concern included habitat conditions resulting in increased likelihood of population isolation, a global ranking of 1 or 2 by The Nature Conservancy, and species whose habitats were projected to increase or decrease significantly under a land management alternative as part of the Interior Columbia Basin Ecosystem Management Project. Further details in Volume I, Wisdom et al. (2000).

b. Status as of 2008. Sensitive species are those defined as "naturally reproducing native vertebrates which are likely to become threatened or endangered throughout all or a significant portion of their range in Oregon." Sensitive species codes begin with "S" and are further defined as follows: SC = critical; SP = peripherally or naturally rare; SU = undetermined status; and SV = vulnerable (Oregon Natural Heritage Program 2001). LE = listed as endangered and LT = listed threatened.

c. NL Denotes a species not listed as sensitive by Oregon Department of Fish & Wildlife.

d. Status reported for Oregon subspecies only (*P. g. affinis*).

e. Status applies to only 1 ecoregion, in the state, not the species entire range in the state.

f. Status applies only to populations in the Blue Mountains, Columbia Plateau, and East Cascade Foothills ecoregions.

Birds

Twenty-two species of birds use sagebrush as a key element in their life history requirements. The list of species that are considered obligates or near-obligates of sagebrush usually includes sage sparrow, Brewer's sparrow, vesper sparrow, black-throated sparrow, lark sparrow, loggerhead shrike, green-tailed towhee, and sage thrasher, all of which occur in the covered area. Executive Order 13186 (66 FR 3853, January 2001) requires federal agencies to consider migratory birds and birds of

conservation concern when conducting agency actions. The sage thrasher is the only sagebrush obligate species on the birds of conservation concern list for the Great Basin Region, which occurs in the covered area. Oregon junco and chipping sparrow occur throughout the covered area and often use sagebrush habitats that are associated with juniper encroachment.

Mammals

Because there are no standardized surveys for mammal populations, there is little information available on long-term mammal population trends in sagebrush communities. The list of mammals considered obligate or near obligates species includes the sagebrush vole, pygmy rabbit, Townsend's ground squirrel (*Urocitellus townsendii*), kit fox, and pronghorn. Sagebrush voles are usually found in sagebrush but may occur in areas lacking a sagebrush overstory if grass understories are thick enough. Pygmy rabbits are not very common in the covered area and are found primarily in areas dominated by tall, dense stands of sagebrush on deep soils that allow them to construct burrows to live in. Pronghorns are the only large herbivore that have a strong association for sagebrush and are most successful where sagebrush is available for winter forage (Oregon Department of Fish and Wildlife 2011), though mule deer and elk (*Cervus canadensis*) do occur in the covered area and may seasonally utilize sagebrush habitats.

Amphibians

Because of dry climatic conditions and lack of open water, species richness and density of amphibians in shrub steppe communities is low. Nine species of amphibians are generally associated with shrub steppe habitats, but none are closely associated with these habitats. Only two species of salamander occur in sagebrush habitat communities in Oregon: long-toed salamander (*Ambystoma macrodactylum*), and tiger salamander (*Ambystoma tigrinum*). Seven of eleven species of native toads and frogs occur in shrub steppe habitat, of which the Great Basin spadefoot toad (*Spea intermontana)* and western toad (*Anaxyrus boreas)* are the species most likely to be found in the focus area. Northern leopard frogs (*Rana pipiens*) are found in shrub steppe communities, usually in close association with standing water, but are unlikely to occur in our focus area (Oregon Department of Fish and Wildlife 2011).

Reptiles

In contrast to amphibians, species richness and density of reptiles is relatively high in shrub-steppe communities because of the warm and dry climatic conditions. Twenty species of reptiles are generally associated with shrub steppe habitats in Oregon. Lizards are the group of reptiles most closely associated with shrub steppe. The desert horned lizard (*Phrynosoma platyrhinos*) occurs only in shrub steppe, dwarf shrub steppe, and desert playa/salt scrub shrublands. Ten of 15 snake species in Oregon occur in shrub steppe communities or related shrub communities. The ground snake (*Sonora semiannulata*), longnose snake (*Rhinocheilus lecontei*), and striped whipsnake (*Masticophis taeniatus*) are associated with shrub steppe habitats, and six other species (racer (*Coluber constrictor*), gopher snake (*Pituophis catenifer*), western rattlesnake (*Crotalus viridis*), rubber boa (*Charina bottae*), western terrestrial garter snake (*Thamnophis elegans*), and common garter snake (*Thamnophis sirtalis*) occur in a variety of habitats including shrub steppe (Vander Haegen et al. 2001). Many of these species are not known to occur within our focus area.

Listed and Candidate Species

In Baker County (and the southern portion of Union County and the northern portion of Malheur County), three species are listed as threatened or endangered, under the ESA. Bull trout (Salvelinus confluentus) a threatened species, are found only in very cold water. Bull trout require stable stream channels, clean spawning gravel, complex and diverse cover, and unblocked migration routes.

Sagebrush habitats may be found adjacent to some bull trout streams although current sage-grouse habitat falls outside of areas currently occupied by bull trout.

The final rule listing Yellow-billed cuckoo ***(****Coccyzue americanus*) as threatened under the ESA became effective on November 3rd, 2014. Yellow-billed cuckoo are tied to wetland or riparian areas; however, surrounding habitat can include sagebrush. No proposed critical habitat occurs in Oregon and there are no current records of the cuckoo in the planning area.

Howell's Spectacular Thelypody (*Thelypodium howellii spectabilis*), a threatened species, is an herbaceous biennial that occurs in mesic, alkaline habitats in the Baker-Powder River Valley region in northeast Oregon. Sites range from approximately 1,000 meters (3,000 feet) to 1,100 meters (3,500 feet) in elevation. The thelypody is threatened by a variety of factors including habitat destruction and fragmentation from agricultural and urban development, seasonal grazing by domestic livestock, competition from non-native vegetation, and alterations of wetland hydrology (U. S. Fish and Wildlife Service 2002). Based on known occurrences, it does not overlap with sage-grouse habitat.

Whitebark Pine (*Pinus albicaulis*) was designated as a candidate species in 2011. It is a slow-growing, long-lived tree with a life span of up to 500 years and sometimes more than 1,000 years. In Oregon, isolated stands of Whitebark Pine are known from the Blue and Wallowa Mountains in northeastern Oregon and the subalpine and montane zones of the Cascade and Klamath mountains in south-central Oregon, including Crater Lake National Park. This species does not occur in sagebrush habitats.

5.4 Conservation History

Conservation efforts to improve the plight of sage-grouse and sage-grouse habitat have been on-going for many years within the boundaries of the Baker LIT Planning area. These efforts have included range improvement projects through the NRCS Farm Bill Programs, the Baker Valley SWCD, and other entities including ODFW, USFWS, PBWC, Baker County, and private landowners. The Sage Grouse Initiative (SGI) formed in 2010 as a partnership of ranchers, agencies, universities, and nonprofit groups working together with a shared vision of achieving wildlife conservation through sustainable ranching. NRCS has been implementing SGI projects in Baker County since the start (2010), working with willing landowners to provide technical and financial incentives to implement targeted conservation practices on private lands. SGI conservation practices have focused primarily on removing invasive plant species (juniper and non-native annual grasses) that have become threats to sagebrush ecosystems. In addition, ODFW established Local Implementation Teams (LIT) in 2011 throughout the range of sage-grouse in the state.

Early efforts by these teams, including the Baker LIT, identified local threats in a spatially explicit manner with the goal of applying conservation measures with a high degree of coordination. This effort increased coordination and focus on key areas in need of treatment, especially treatment of non-native annual grasses. Actions were also implemented to test the efficacy of bacteria to control cheatgrass and medusahead. The USFWS also initiated efforts to develop CCAAs in the Baker County area. The first individual sage-grouse CCAA in Oregon was completed in 2014, covering 3,662 acres of sage-grouse habitat in Baker County and 3,628 acres in Northern Malheur County. Subsequent to the development of the individual CCAA, multiple county-wide sage-grouse CCAAs were developed and signed in 2015 (including one for Baker County/Union County).

In 2016, the Baker LIT reconvened, with membership including personnel from ODFW, NRCS, BLM, USFWS, Union and Baker Counties, and Tri-County Cooperative Weed Management Area (Tri-County CWMA), as well as elected officials and private landowners. In October 2017, the Baker LIT finalized its

Comprehensive Sage-grouse Threat Reduction Plan, which exhaustively inventoried all the threats to sage-grouse in the Baker Priority Area for Conservation (PAC). This inventory built upon a causal factor analysis (CFA) completed in April 2017 by an interagency team convened by the BLM. The CFA was conducted in response to Baker's sage-grouse population declines that have exceeded thresholds established in the BLM Oregon Greater Sage-grouse Approved Resource Management Plan Amendment (ARMPA; Bureau of Land Management 2015). The TRP represents the Baker LIT's local work plan to guide activities aimed to reverse the sage-grouse population trend in Baker County, with an initial focus on the Baker PAC. The TRP also includes additional information on past treatments for each of the sub-assessment areas (starting on page 32 of the TRP; THREAT ASSESSMENT, PAST ACTIONS, AND FUTURE TREATMENT OPPORTUNITIES). Future planning by the LIT will encompass areas beyond the PAC boundaries, such as a key connectivity corridor located near Unity, Oregon. This plan is intended to be a "living document" to allow prioritized actions to be adapted with the emergence of new information, shifts in ecological condition, and funding opportunities. Baker LIT partners have been collaboratively implementing the plan, with the following noteworthy accomplishments in 2017:

- Investment of more than $261,000 in habitat improvement projects, including completion of:
    - 2,203 acres of juniper removal;
    - 2,621 acres of invasive annual grass treatment;
    - 1,193 acres of noxious weed surveys;
    - 625 acres of noxious weed treatment;
    - 12 miles of fence fitted with anti-strike makers;
    - 1 grazing management plan, 5 Conservation Reserve Enhancement Program (CREP) renewals, and 3 enrollments in the sage-grouse programmatic CCAA;
    - 265 acres seasonally protected from OHV disturbance; and
    - 1 PAC-wide assessments of sage-grouse habitat completed, including 4 metrics of sage-grouse habitat quality (state-and-transition model ecological state, and percent cover of sagebrush, cheatgrass, and medusahead).

- Securing nearly $800,000 to pursue research in collaboration with Oregon State University to assess the interactions between ravens and sage-grouse population dynamics in the Baker PAC. Two PhD candidates were selected and commenced field work in 2017 with the following accomplishments:
    - 49 radio-marked sage-grouse in 5 PACs
    - 505 avian point count surveys conducted at 132 sites across 5 PACs
    - 6 radio-marked ravens in the Baker PAC

5.5 Local Communities/Human Population

Baker County spans 3,089 square miles (1,976,960 acres), with BLM and Forest Service lands managing approximately 51.5% of the land in Baker County. Approximately 33% of the County is managed by the US Forest Service (USFS), 18.5% is managed by the Bureau of Land Management (BLM), and an additional 10,067 acres, or 0.5% of Baker County, is managed by the State of Oregon. The remaining 48% of the land in the county, approximately 950,382 acres, is privately owned (Baker County 2016). Most of the private land in Baker County is zoned "exclusive farm use" (EFU). Most of the remaining private land is zoned "timber-grazing", 80% of which is used primarily for grazing.

Approximately two-thirds of the Powder Basin is rangeland with livestock grazing as the primary land use. One-sixth of the basin is forestland where timber harvest and summer livestock grazing are the main uses. Most of the remaining area is cropland and pastureland irrigated by gravity flood or sprinkler

systems. Irrigated acres produce primarily grain, hay and pasture (Powder Basin Watershed Council 1996).

Mineral mining was important in Baker County historically. The effects of past dredge mining can be seen along stream courses throughout the Powder River subbasin in the form of tailings that line the riparian areas including 1,400 acres of tailings above Phillips Lake (Powder Basin Watershed Council 2001). Currently, mining continues to be a significant land use in the county. Baker County presently has more patented mine claims than all other Oregon counties combined. Baker County is the only county in Oregon with a specific zoning category for "mineral extraction".
Human development and activities have changed the ecology of the Powder River and Burnt River subbasins in many ways including alterations to the vegetation communities, changes in vegetation structure, manipulation of surface and ground water resources, soil movement, relocation of streams and changes to the composition of fish and wildlife communities. The major activities that have resulting in those changes include: logging, fire suppression, grazing, cultivation and other agricultural development, draining of wetlands, ditching and diking of streams, water withdrawal and the introduction, both intentional and unintentional, of exotic plant and animal species (NWCC 2005a and b).

5.6 Local Economy

Baker County is the tenth largest county in Oregon, covering 3,068 square miles with a total population of 16,054 (U. S. Census Bureau 2018). It is a rural county with approximately 5.3 persons per square mile, and the county population fell by 0.5% between 2010 and 2017 (U. S. Census Bureau 2018). Countywide, the majority of the population (95%) is white. The minority characteristics of Baker County's population is 4.2% Hispanic or Latino, 1.4% native American, 0.6% Black or African American, 0.8% Asian, and 0.1% Native Hawaiian and Other Pacific Islander (U. S. Census Bureau 2018). Overall, minorities tend to make up a smaller percentage of Baker County than the statewide average.

The median household income in Baker County from 2012 – 2016 was $41,722, with 17.6% of the county population living below the poverty level (U. S. Census Bureau 2018). The median household income is lower than the statewide average, and there is a higher percentage of households below the poverty line than the statewide average. The unemployment rate in Baker County in 5.4% in May 2018, with a high of 11.1% in April 2009 and a low of 5.3% in February 2007 (Oregon Employment Department 2018).

Currently, the entire area's economy is mostly agriculturally based, with some farming of a variety of crops, but primarily livestock ranching. Livestock production has customarily been, and continues to be, a significant contributor to the economic stability of Baker County. With over $40 million in annual sales, livestock production totals 63% of all agricultural sales in Baker County (Baker County 2016). Tourism provides some economic base for Baker County area, with visitors drawn to the area for hunting, fishing, skiing, and other outdoor activities (Baker County 2016).

6. CONSERVATION NEED

Sage-grouse are a species of conservation concern inhabiting eight eastern Oregon counties. The estimated sage-grouse population in Oregon is, as of 2017, 30% below the population management objective of approximately 30,000 individuals (Oregon Department of Fish and Wildlife 2017). Sage-grouse populations are characterized by population cycles driven by multiple factors including habitat quality, precipitation, human land use, and potentially predation pressure (Connelly et al. 2011a, Garton

et al. 2011a). As of spring 2016, statewide, sage-grouse populations had been increasing for three consecutive years, followed by a near 8% decline in 2017; however, population trajectories remain variable at smaller spatial scales (Oregon Department of Fish and Wildlife 2017). Baker County is one area of considerable concern (Figure 5). Historical data indicates sage-grouse populations were significantly higher in the mid-20th century as compared with the early 21st century. More current data indicate that sage-grouse populations in this area have declined by approximately 75% since 2005, and have not exhibited a recovery similar to those observed in populations throughout the remainder of the state, since the previous population low in 2013 (see Figures 2, 3 in the TRP). This population may be particularly vulnerable because it is geographically isolated from the other sage-grouse populations in Oregon.

The extent of threats to sage-grouse in Oregon have been estimated and described in planning and management documents (Oregon Department of Fish and Wildlife 2011, Sage-Grouse Conservation Partnership 2015). These comprehensive state-wide assessments indicate that habitat loss is the primary threat to sage-grouse in the state, resulting from three interrelated mechanisms: juniper encroachment, invasive annual grasses, and wildfire. Other threats that may be important, though localized, include habitat loss, fragmentation, or a reduction in quality due to: (1) multiple types of development (urban and ex-urban development, renewable energy, electrical and natural gas transmission lines, mining, roads, and other infrastructure, like communication towers); (2) sagebrush elimination and agricultural conversion; (3) improper grazing management (including both legacy effects of past management and current grazing regimes); (4) recreational uses (e.g. off-highway vehicles); (5) fences; (6) isolated or small population sizes; and (7) free-roaming equids (Sage-Grouse Conservation Partnership 2015). Additional circumstances that could negatively impact sage-grouse include: (1) climate change; (2) drought; (3) West Nile virus; (4) excessive flooding; (5) predation; (6) hunting; (7) insecticides; (8) sagebrush defoliator moth; and (9) other noxious weeds (Sage-Grouse Conservation Partnership 2015).

Many of the aforementioned threats are present in the Baker Resource Area and are likely operating in concert to limit local sage-grouse populations. The population decline in the Baker PAC has exceeded thresholds established in the BLM Oregon Greater Sage-grouse Approved Resource management Plan Amendment (ARMPA; Bureau of Land Management 2015); requiring an interagency team to conduct a CFA in order to best identify factors most responsible for the decline. The CFA for the Baker PAC was conducted between June 2016 and April 2017, and investigated multiple threats to sage-grouse, as well as generated recommendations for actions to undertake on BLM-managed lands. The analysis was conducted primarily for BLM-managed lands in the Baker PAC, but it is assumed that threats identified in the analysis are also present on private lands in the area. See also Table 1 in the TRP for a summary of the CFA's initial findings and more broadly, threats potentially impacting sage-grouse in the Baker LIT Planning Area.

The Baker PAC Comprehensive TRP was developed collaboratively by the LIT to thoroughly assess and address threats to sage-grouse in the Baker Priority PAC in response to steeply declining population trends and is representative of the overall LIT planning area. The local conditions that signal significant conservation need are described for each SAA, starting on page 32 of the TRP (THREAT ASSESSMENT, PAST ACTIONS, AND FUTURE TREATMENT OPPORTUNITIES).

To address the population decline and the identified threats to sage-grouse and sage-grouse habitat, several broad conservation needs were identified that span the entire PAC and are applicable to the larger Baker LIT planning area. These needs are:

1. Promote CCAAs among private landowners, particularly given the preponderance (>65%) of private lands within the Baker PAC;
2. Promote Candidate Conservation Agreements (CCAs) on BLM-managed land among permittees, particularly those with Custodial allotments that are integrated into private ranch management;
3. Establish "grass banks" or reserve forage areas in order to provide alternative grazing opportunities to be utilized when grazing rest is required to promote the success of vegetation treatments and/or during drought conditions;
4. Complete a PAC-wide assessment of the ecological state of the habitat in terms of habitat suitability for sage-grouse. Determine areas of high-quality habitat that provide year-round and seasonal use for sage-grouse, as well as areas that are not capable of providing habitat for sage-grouse. (Note: this PAC-wide assessment was completed June 2017.)
5. Pursue opportunities to improve understory conditions by reducing invasive annual grasses and other weed species, increasing perennial annual grass and sage-grouse preferred forb abundance, and diversifying the understory vegetation in historically seeded crested wheatgrass pastures. Though adequate sagebrush cover is generally found throughout the PAC, depleted understory vegetation occurs in rangelands, which may be limiting sage-grouse populations.
6. Gain a better understanding of the mesic habitat quantity and quality as it relates to the late brood-rearing habitat needs of sage-grouse in order to guide mesic restoration or enhancement projects.
7. Pursue research in collaboration with Oregon State University to assess the interactions between ravens and sage-grouse population dynamics in the Baker PAC, with the potential to promote sage-grouse nest success through targeted reduction of anthropogenic raven subsidies and raven removal;
8. Expand West Nile virus surveillance to sites beyond the Keating Valley to better understand the extent to which this threat may be impacting sage-grouse in the PAC.

A more thorough discussion of the conservation needs is provided in the Threat Reduction Plan (Appendix 1: pages 22-27).

7. CONSERVATION/RESTORATION TARGETS

The intent of this plan is to develop an integrated approach to increasing the sage-grouse population in the Baker LIT Planning Area by addressing threats identified as likely, or definitively, impacting the Baker sage-grouse population that are within the immediate control of stakeholders, and for which strategic conservation actions are likely to have a positive impact. To that end, alternative targets that do not meet those criteria (e.g. climate change) were discussed but not included in the TRP. Multiple threats to sage-grouse exist in the PAC and actions to reduce them range from those that either: (1) result in immediate and lasting reduction and/or elimination of the threat and require minimal follow-up (e.g. conifer removal, marking fences, and installing escape ramps in water troughs); (2) result in immediate threat reduction to provide short-term, but not necessarily enduring results (e.g. predator reduction); and (3) provide lasting threat reduction, but require long-term and ongoing investments to ensure success (e.g. invasive annual grass treatment and re-establishment of desirable perennial bunchgrasses). It is the view of the Baker LIT that, given the significant decline in the local sage-grouse population, all three categories of conservation actions must be implemented to halt further declines and promote long-term population growth.

Our proposed work is guided by our previous effort to spatially identify threats. The plan prioritizes actions that:

1. Address previously treated sites that require retreatment or follow-up treatment to promote success;
2. Expand contiguous treatment areas and ultimately areas of suitable habitat for sage-grouse by siting proposed conservation activities adjacent to an existing treatment areas; and/or
3. Are located where there is the greatest likelihood of sage-grouse utilization. For example, within mid to high probability of seasonal habitat use or within 1-4 miles of and occupied or pending lek.

Local stakeholders decided that the most important areas in which to prioritize work are those that currently support high proportions of the PAC's remaining sage-grouse population. Four key areas for initial efforts were identified and included 2-mile buffers around the following:

1. Hutton lek complex;
2. Magpie Creek & Guzzler complexes (and nearby leks including: Big Creek, Salt Creek, Low Sage, Pond, and Antelope); as resources allow expand to Fenceline and Crews Creek leks;
3. Widman lek complex; and
4. Virtue and Water Trough lek complexes (and nearby leks including OHV, Ruckles Creek, and Second Creek).

Increased staff capacity was identified in the TRP as an "overarching conservation need" in order to promote conservation opportunities on private lands and CCAs on BLM-managed land (Appendix 1; p. 22). Our proposed conservation actions for Outcome 1 and 2 are also aligned with the Oregon Conservation Strategy (OCS) Key Conservation Issue related to challenges and opportunities for private landowners to initiate conservation actions (see Oregon Conservation Strategy 2016: Key Conservation Issues-p.80-83, Goal 1: Make it easier for landowners to find assistance on conservation project; Goal 2: Help landowners plan and prioritize conservation actions on their properties, evaluate results, and build long-term relationships to help them achieve their goals.; and Goal 3: Provide information about financial incentives for conservation projects). In Oregon's Sage-grouse Action Plan (2015), enrollment of landowners in voluntary conservation programs is either an explicit or implicit objective for all habitat threats to sage-grouse (e.g. see Sage-grouse Action Plan Appendix 3, Metrics Table). Data management is also a key component of the Sage-grouse Action Plan (see Action MON-4). The BLM Causal Factor Analysis also identifies the need for continued promotion to prompt voluntary sign-ups for CCAs and CCAAs (p. 28), increased fire prevention/education efforts combined with sage-grouse ecology messages (p. 32), and additional outreach related to recreational impacts to sage-grouse (p. 32).

The suite of vegetation management activities proposed in our FIP application have been identified in the Baker LIT's TRP. Specifically, Outcome 3 is aligned with the "overarching conservation need" related to pursuing opportunities to improve understory conditions by reducing invasive annual grasses and other weed species, increasing perennial grass and sage-grouse preferred forb abundance, and diversifying the understory vegetation in historically seeded crested wheatgrass pastures (p. 25). Invasive annual grass and noxious weed "hotspots" were identified for each SAA in Baker PAC and documented in the TRP. Additionally, juniper encroachment sites were also mapped. Ecological state mapping (conducted by Open Range Consulting) was also included in the TRP and aids in project site selection.

Our proposed conservation actions for Outcome 3 are also aligned with goals and actions for three OCS Key Conservation Issues: 1) Invasive Species; 2) Disruption of Disturbance Regimes; and 3) Barriers to Animal Movement (see Oregon Conservation Strategy 2016: Key Conservation Issues-p. 26-67). They also address the limiting factors and recommended approaches the OCS identified for sagebrush habitats, including: 1) Altered Fire Regimes; 2) Invasive Species; and 3) Loss of Habitat Connectivity (see Oregon Conservation Strategy 2016: Strategy Habitats-p. 49-54). Our actions help to fulfil multiple conservation actions and objectives identified in Oregon's Sage-grouse Action Plan (2015) Appendix 3, Metrics Table as related to juniper encroachment (Actions JRP-1-JPR-5), invasive annual grasses (Actions IAG-1-IAG-5), noxious weeds (Actions NXW-1-NXW-6), wildfire (Action WF-1-6c and WF-4), sagebrush elimination (Action SBE-1 and SBE-4), improper grazing management (Actions GRZ-1-GRZ-4), agricultural conversion (Action AGC-1 and AGC-4), isolated/small size; connectivity (Actions CON-1-CON-3). The BLM Causal Factor Analysis also identifies the need to continue juniper removal (p. 28); continue coordinating with the Baker LIT to identify collaborative restoration efforts (p. 28); manage grazing allotments to facilitate seed production, increased establishment of deep-rooted native bunchgrasses and residual herbaceous cover, and decrease annual grass density (p. 28-29); attempt to reintroduce deep-rooted native bunchgrasses where this component is lost (p. 29); plant sagebrush where cover is <10% within 1-2 miles of occupied leks/complexes (p. 29); and evaluate the utility and feasibility of developing a system of fuel breaks in fire-prone areas in the PAC (p. 32).

The information gaps that we aim to resolve through the actions associated with Outcome 4 were originally identified in the Baker LIT TRP. Specifically, these tasks tier to the following "overarching conservation needs": 1) Establish "grass banks" or reserve forage areas (p. 23); 2) Gain a better understanding of the mesic habitat quantity and quality as it relates to the late brood-rearing habitat needs of sage-grouse in order to guide spring, wetland, and wet meadow restoration or enhancement projects (p. 25-26); 3) Pursue research in collaboration with Oregon State University to assess the interactions between ravens and sage-grouse population dynamics in the Baker PAC (p. 26-27); and 4) Expand West Nile virus (WNv) surveillance to sites beyond the Keating Valley (p. 27).

Outcome 4 conservation actions related to mesic sage-grouse habitat are also aligned with goals and actions for OCS Key Conservation Issues: Water Quality and Quantity (Oregon Conservation Strategy 2016: Key Conservation Issues-p. 68). Our WNv conservation actions relate to all of the corresponding conservation actions and objectives identified in Oregon's Sage-grouse Action Plan (2015) Appendix 3, Metrics Table (Actions WNV-1-WNV-4). Our actions to identify, protect, and restore mesic habitat help to fulfill Actions GRZ-3-3 and GRZ-3-4 which pertain to developing new water sources to reduce impact to important mesic habitat and excluding livestock to promote proper functioning condition of springs, seeps, wet meadows, and/or riparian areas. Work related to raven impacts on local sage-grouse populations and associated anthropogenic subsidies pertains to Actions PRD-1 and PRD-2 in the Oregon Sage-grouse Action Plan (2015). And lastly, the Sage-grouse Action Plan (2015) also calls for the establishment of grass banks (see Actions IAG-7, GRZ-6-3, DRT-3-2, FLD-3, and NXW-8). Relevant actions in the BLM Causal Factor Analysis include: 1) continued coordination with the Baker LIT (p. 28); 2) install perch deterrents at the National Historic Oregon Trail Interpretive Center (NHOTIC) (p. 31); 3) determine the extent to which raves are using existing powerlines and other infrastructure for nesting and foraging (p. 31); 4) support OSU raven-sage-grouse dynamics research (p. 31); 5) work with the LIT to install anti-perching devices on poles for distribution lines and to develop mitigation credits (p. 31); 6) test water sources on BLM-managed lands for WNv (p. 31); 7) test collared sage-grouse for WNv infection (p. 31); and 8) consider perch deterrents for posts at OHV staging area (p. 33).

8. (SMART) GOALS AND OBJECTIVES

Outcome 1: By January 1, 2020, increase technical staff capacity of FIP partners to fully implement current and planned sage-grouse conservation programs in the Baker Resource Area.

SMART Goal-1-1: Increase technical staff capacity of FIP partners to fully meet landowner demand and fully allocate funding capacity for sage-grouse related conservation programs in FIP program area. Capacity to manage the Baker LIT and facilitate a coordinated effort in addressing threats is currently a limiting factor. To date, LIT management has significantly drawn upon the resources of ODFW and USFWS, which is unsustainable under current workloads. Implementation of the CCAA has also been strained due to a lack of capacity, with 11 landowners still awaiting enrollment and stalled outreach. Lastly, current project workloads for on-the-ground actions are at a maximum and with the additional projects planned with FIP funding, additional seasonal staff support is required. A preliminary database has been developed to track actions completed during the first year of implementation of the TRP. This database incorporates spatial information (where available), treatment acres and type, implementation agencies, as well as financial investments. However, we expect to construct a customized database to comprehensively track monitoring metrics proposed in the FIP Strategic Action Plan.

Objective 1-1-1: Hire one FTE limited-duration Natural Resource Specialist position to coordinate the Baker LIT and FIP grant.

Action 1-1-1-A: Coordinate with Tri-County CWMA to contract ODFW to fund one FTE limited-duration Natural Resource Specialist position. (Tri-County CWMA; ODFW)

Action 1-1-1-B: Conduct outreach and recruitment to identify and hire a qualified candidate. (Tri-County CWMA; ODFW)

Objective 1-1-2: Hire one FTE to conduct outreach and enrollment into the Programmatic CCAA.

Action 1-1-2-A: Coordinate to fund one FTE dedicated towards CCAA implementation. (USWS)

Action 1-1-2-B: Conduct outreach and recruitment to identify and hire a qualified candidate. (USFWS)

Objective 1-1-3: Hire up to two seasonal technicians annually to implement projects planned for implementation.

Action 1-1-3-A: Annually evaluate need for seasonal technicians based on projects funded. (Tri-County CWMA; ODFW)

Action 1-1-3-B: Conduct outreach and recruitment to identify and hire qualified candidates. (Tri-County CWMA; ODFW)

Objective 1-1-4: Develop a database to store project implementation and monitoring data and track effectiveness.

Action 1-1-4-A: Contract with a database developer to conduct a needs assessment to guide database development. (Tri-County CWMA; ODFW)

Action 1-1-4-B: Utilize needs assessment to contract development of database. (Tri-County CWMA; ODFW)

Action 1-1-4-C: Conduct ongoing maintenance of database to ensure maximum functionality. (Tri-County CWMA; ODFW)

Outcome 2: By 2024, community members, private landowners, organizations, and agency personnel will have increased awareness of issues affecting local sage-grouse population viability resulting in a 25% increase in engagement in voluntary conservation programs.

SMART Goal-2-1: By 2024, increase private landowner awareness and participation in voluntary/incentivized sage-grouse habitat management and assistance programs by 25%. Private lands make up the majority of sage-grouse habitat within the Baker LIT Planning area. Thus, it is critical to engage private landowners. Currently outreach has been limited and ad hoc due to a lack of agency resources. However, with additional staffing, more targeted public engagement is expected to reach a larger proportion of private landowners.

Objective 2-1-1: By 2024, increase private landowner enrollment in state, federal, and local voluntary/incentivized sage-grouse habitat enhancement programs (e.g. Farm Bill, Tri-County CWMA, Powder Basin Watershed Council, ODFW, Baker County Weed Department) by 25%.

Action 2-1-1-A: Annually, hold a minimum of three outreach events which may include workshops, land tours, presentations at community events, etc. (OSU Extension, Tri-County CWMA, NRCS, PBWC)

Action 2-1-1-B: Increase awareness of programs for private landowners through personal contacts, phone calls, media outlets, and development of outreach materials. (All core partners)

Action 2-1-1-C: Annually target specific sub-assessment areas (SSAs) that are underrepresented in conservation/protection programs, as determined by the LIT. (All core partners)

Action 2-1-1-D: Increase public awareness by highlighting completed and on-going projects for sage-grouse habitat conservation/improvement through social media, websites, and other media outlets. (OSU Extension, Tri-County CWMA, NRCS, PBWC)

SMART Goal-2-2: By 2024 increase enrollment in CCAA and CCA within the Baker Resource Area by 50%. Currently there are seven landowners enrolled in the Baker Valley CCAA, one landowner enrolled in an individual CCAA, and one landowner for whom simultaneous CCAA and CCA enrolment is currently underway. There are 11 landowners with outstanding Letters of Intent to enroll. Due to shifting priorities for the Baker Valley SWCD, it is expected that CCAA implementation duties will shift in 2018. Expanded and targeted outreach should increase enrollment in the CCAA and CCA in priority areas.

Objective 2-2-1: Annually, complete a minimum of 3 CCAA site specific plans leading to landowner enrollment in the CCAA.

Action 2-2-1-A: Annually, hold a minimum of three outreach events which may include workshops, land tours, presentations at community events, etc. (OSU Extension, Tri-County CWMA, NRCS, PBWC)

Action 2-2-1-B: Increase awareness of programs for private landowners through personal contacts, phone calls, media outlets, and development of outreach materials. (All core partners)

Action 2-2-1-C: Annually target specific sub-assessment areas (SSAs) that are underrepresented in conservation/protection programs, as determined by the LIT. (All core partners)

Action 2-2-1-D: Complete three CCAA site-specific plans annually. (USFWS)

Objective 2-2-2: By 2024, complete a minimum of 5 CCA site specific plans leading to permittee enrollment in the CCA.

Action 2-2-2-A: Work with BLM to identify allotments in need of conservation actions to prioritize qualified/interested permittees. (BLM, USFWS)

Action 2-2-2-B: Annually, hold a minimum of three outreach events which may include workshops, land tours, presentations at community events, etc. (BLM, USFWS)

Action 2-2-2-C: Increase awareness of programs for permittees through personal contacts, phone calls, media outlets, and development of outreach materials. (BLM, USFWS)

Action 2-2-2-D: Annually target specific sub-assessment areas (SSAs) that are underrepresented in CCA enrollment, as determined by the LIT. (BLM, USFWS)

Outcome 3: By 2024, implement vegetation management activities to maintain a stable or increase sage-grouse population trend in the Baker LIT Planning Area.

SMART Goal-3-1: By 2024, address invasive annual grasses and other noxious weeds on 25,000 acres Baker LIT Planning Area in accordance with the priority geographies outlined within the LIT Governance Document. Nearly 70,000 acres within the Baker PAC (equivalent to 21% of the PAC) are estimated to be dominated by invasive annual grasses such as cheatgrass, medusahead bulbous bluegrass, and rattail fescue (Sage-Grouse Conservation Partnership 2015, Bureau of Land Management 2017). Ground-truthed and survey data from Tri-County CWMA, Baker County Weed Department, and BLM corroborate remotely-sensed data. Recent 2017 fine-scale mapping conducted by Open Range Consulting indicate large areas dominated by medusahead and cheatgrass throughout the PAC (see TRP). Other noxious weeds are also contributing to degraded conditions in the PAC. Oregon Department of Agriculture (ODA) and BLM Assessment Inventory and Monitoring (AIM) data indicate widespread presence of whitetop, thistles, mustards, and leafy spurge. The widespread extent of invasive vegetation indicates a high risk of conversion to annual grassland should a major ecological disturbance, such as wildfire, occur. Although, efforts have been undertaken to address this threat, success has varied and ongoing and future strategies are required to ensure treatment success and continuity of efforts.

Objective 3-1-1: Implement invasive annual grass treatments and use monitoring techniques to determine required adaptive management actions on 25,000 acres in the Baker LIT Planning Area.

Action 3-1-1-A: Use existing data (remotely-sensed, weed inventories, etc.) and voluntary landowner participation to determine and prioritize treatment areas (as outlined in the Threat Reduction Plan [TRP]). (All core partners)

Action 3-1-1-B: Develop site-specific project plans that utilize techniques shown to maximize effectiveness and include long-term management actions to facilitate project success beyond the lifetime of the FIP funding. (Project proponents)

Action 3-1-1-C: Using best available science and integrated pest management techniques, conduct a suite of invasive annual grass control actions which may include multiple herbicide treatments (aerial and ground), seedings (aerial and ground using site-specific seed mixes), and grazing management (rest/deferment, timing, targeted grazing). (Project proponents)

Action 3-1-1-D: Monitor treatments for effectiveness using methods adopted by the Oregon State Action Plan and CCA/AA (e.g. state-and-transition models, Pace 180) and/or BLM nested frequency and AIM methods. (Project proponents)

Action 3-1-1-E: Apply adaptive management as determined by monitoring results (e.g. re-treatment, seeding, grazing management). (Project proponents)

Objective 3-1-2: Implement other noxious weed treatments and use monitoring techniques to determine required adaptive management actions on 25,000 acres in the Baker LIT Planning Area.

Action 3-1-2-A: Use existing data (remotely-sensed, weed inventories, etc.) and voluntary landowner participation to determine and prioritize treatment areas (as outlined in the Threat Reduction Plan [TRP]). (All core partners)

Action 3-1-2-B: Develop site-specific project plans that utilize techniques shown to maximize effectiveness and include long-term management actions to facilitate project success beyond the lifetime of the FIP funding. (Project proponents)

Action 3-1-2-C: Using best available science and integrated pest management techniques, conduct a suite of other noxious weed control actions which may include multiple herbicide treatments (aerial and ground), seedings (aerial and ground using site-specific seed mixes), and grazing management (rest/deferment, timing, targeted grazing). (Project proponents)

Action 3-1-2-D: Monitor treatments for effectiveness using methods adopted by the Oregon State Action Plan and CCA/AA (e.g. state-and-transition models, Pace 180) and/or BLM nested frequency and AIM methods. (Project proponents)

Action 3-1-2-E: Apply adaptive management as determined by monitoring results (e.g. re-treatment, seeding, grazing management). (Project proponents)

SMART Goal-3-2: Prevent the spread of noxious weeds on 4,866 acres of the Virtue Flat Area and 52,182 acres of currently at-risk, high-quality sage-grouse habitat (State A)[10].

Objective 3-2-1: Develop an OHV wash station facility at the Virtue Flat staging area by 2024.

Action 3-2-1-A: Complete required NEPA. (BLM)

Action 3-2-1-B: Coordinate with local stakeholders to design the facility (e.g. RFPA, OHV trail user groups). (BLM)

Action 3-2-1-C: Solicit and evaluate contractors to construct the facility. (BLM)

Objective 3-2-2: Provide educational resources to the public to prevent the spread of noxious weeds through a minimum of three outreach events annually.

Action 3-2-2-A: Annually, hold a minimum of three outreach events which may include workshops, land tours, presentations at community events, etc. (OSU Extension, Tri-County CWMA, NRCS, PBWC)

Action 3-2-2-B: Increase public awareness by highlighting the importance of noxious weed prevention for sage-grouse habitat conservation/improvement through social media, websites, and other media outlets. (All core partners)

Objective 3-2-3: Expand current prevention activities (e.g. road-side and spot treatments) to prevent the spread of noxious weeds on 4,866 acres of the Virtue Flat Area and 52,182 acres of currently at-risk, high-quality sage-grouse habitat (State A)[10].

Action 3-2-3-A: Assess current prevention activities and identify additional prevention needs. (All core partners)

Action 3-2-3-B: Conduct project planning for additional Early Detection and Rapid Response (EDRR) activities beyond currently funded activities. (BLM, Tri-County CWMA, Baker County)

Action 3-2-3-C: Work with local agencies to implement prevention activities according to best management practices. (BLM, Tri-County CWMA, Baker County)

SMART Goal-3-3: Maintain areas with current sagebrush canopy cover ≥ 10% within the Baker LIT Planning area and identify areas and treatments to expand land area with adequate sagebrush cover. All vegetation data assessed indicates that Baker PAC remains above the soft trigger threshold for sagebrush cover (at least 5% sagebrush cover on at least 65% of the area capable of supporting sagebrush and less than 5% tree cover). Much of the PAC supports Wyoming big sagebrush (*Artemisia tridentata ssp. wyomingensis*), and smaller areas of low sage communities (*A. arbuscula and A. rigida*) in shallower soils and xeric sites. These sagebrush communities are critical to sage-grouse, providing cover, winter food, and habitat for native herbaceous species consumed by hens prior to egg-laying and by chicks during the brood rearing period (Dumroese et al. 2015). Thus, strategies to prevent loss of

[10] State A habitat within 0.25 of an annual grass hotspots; calculated for 5 mile buffer of the Baker PAC.

sagebrush to wildfire, and other fragmentation mechanisms are important to address in this plan, as well as post-fire restoration efforts.

Objective 3-3-1: Increase awareness of the effect of wildfire on sage-grouse habitat, as well as wildfire prevention and initial response techniques by holding a special issue Baker LIT meeting by December 2019.

Action 3-3-1-A: By December 2019, hold a special issue Baker LIT meeting to develop potential fuel break placement options and strategies to reduce wildfire response time that balances wildfire prevention/response while maintaining maximum sagebrush cover. (ODFW)

Action 3-3-1-B: Following identification of a fuel break network for the Baker LIT Planning Area, coordinate with Baker County, BLM, RFPAs, ODF and private landowners to implement identified strategic fuel breaks. (ODFW)

Objective 3-3-2: If wildfire reduces existing sagebrush cover, develop post-fire restoration plans that include sagebrush restoration (e.g. planting of sagebrush plugs) on a minimum of 50% of fire-affected lands.

Action 3-3-2-A: Develop site-specific plans that use best management practices to re-establish sagebrush in fire-affected areas. (Project proponents)

Objective 3-3-3: Implement Goal 2-2 to increase enrollment in CCAA and CCA within the Baker LIT Planning Area which requires enrollees to agree prevent further habitat loss or fragmentation of enrolled acres.

Action 3-3-3-A: See actions under Objectives 2-2-1 and 2-2-2. (BLM, USFWS)

SMART Goal-3-4: By 2024, minimize the threat to sage-grouse from juniper encroachment by reducing all encroaching juniper within 4 miles of priority leks within the Baker LIT Planning Area to <2% canopy cover. Unlike other areas in Oregon, juniper encroachment is less extensive and significant efforts by the NRCS and BLM have occurred to remove encroaching juniper on private and public lands. The total area of encroachment (Phase 1 and 2 combined) in the Baker PAC is estimated to be less than 26,000 acres and further removal efforts are scheduled or are currently underway (Sage-Grouse Conservation Partnership 2015). This threat has and will continue to be addressed primarily by the BLM and NRCS.

Objective 3-4-1: Reduce all encroaching juniper within 4 miles of priority leks within the Baker LIT Planning Area to <2% canopy cover by 2024.

Action 3-4-1-A: Use existing data (remotely-sensed, inventories, etc.) and voluntary landowner participation to determine and prioritize treatment areas (as outlined in the Threat Reduction Plan [TRP]). (NRCS, BLM)

Action 3-4-1-B: Develop site-specific project plans that utilize techniques shown to maximize effectiveness (e.g. lop and scatter, jackpot burning, mastication, etc.) and include long-term management actions to facilitate project success beyond the lifetime of the FIP funding (e.g. maintenance cutting). (NRCS, BLM)

Action 3-4-1-C: If weed treatments are required, use best available science and integrated pest management techniques. (NRCS, BLM)

Action 3-4-1-D: Monitor treatments for effectiveness using methods adopted by the Oregon State Action Plan and CCA/AA (e.g. state-and-transition models, Pace 180) and/or BLM nested frequency and AIM methods. (NRCS, BLM)

Action 3-4-1-E: Apply adaptive management as determined by monitoring results (e.g. re-treatment, seeding, grazing management). (NRCS, BLM)

SMART Goal-3-5: By 2024, develop and implement prescribed grazing management plans on 20% of the acres included in the 2-mile buffer surrounding priority leks (20,000 acres). Grazing management is a critically related to maintaining desirable vegetation on the landscape, as well as promoting treatment success. Thus, grazing management will be reviewed on all CCA/A-enrolled acres, and all FIP-funded projects sites to ensure grazing is/will be compatible with promoting sage-grouse habitat. Grazing management plans will be developed as needed.

Objective 3-5-1: All new CCAA enrolled properties will undergo a grazing analysis to assess compatibility with sage-grouse habitat requirements.

Action 3-5-1-A: See Actions under Objective 1-1-2. (USFWS)

Action 3-5-1-B: Review grazing management on all properties to be enrolled in the CCAA. (USFWS)

Action 3-5-1-C: As needed, develop grazing management plans (e.g. deferral, mesic habitat protection, timing, seasonal use rotation) prior to project implementation. (NRCS, USFWS)

Objective 3-5-2: All properties on which FIP funded projects will be implemented will undergo a grazing analysis to assess compatibility with sage-grouse habitat requirements.

Action 3-5-2-A: Review grazing management on all properties for which FIP funding is requested. (All voting FIP members)

Action 3-5-2-B: As needed, develop grazing management plans (e.g. deferral, mesic habitat protection, timing, seasonal use rotation) prior to project implementation. (Project proponents)

SMART Goal-3-6: By 2024, improve herbaceous diversity in 5% of identified depleted sagebrush habitats by increasing perennial grass and sage-grouse preferred forb abundance. Though adequate sagebrush cover is generally found throughout the PAC, depleted understory vegetation is fairly ubiquitous, which may be limiting sage-grouse populations. The 2012 Keating Geographic Unit (GU) Sage Grouse Breeding Habitat Survey documented a “depauperate forb component”, limited native bunchgrasses, and a high degree of non-native seeded grasses, as well as invasive annual grasses (cheatgrass, medusahead, Japanese brome, bulbous bluegrass, and ventenata). This finding was supported by initial analyses of BLM Assessment, Inventory and Monitoring (AIM) data collected at 32 locations on BLM-managed land within the Baker PAC. AIM data indicated a high proportion of ruderal and “weedy” species, lack of tall perennial grasses, and lack of forbs favored by pre-

laying hens and chicks. AIM data also revealed that the short-statured Sandberg's bluegrass is the most common native bunchgrass at sites; this species is indicative of degraded habitat conditions. (Note that additional AIM data collection is scheduled and further analyses should be ongoing with increasing sample size to strengthen findings.)

Objective 3-6-1: By 2020, identify areas within the Baker LIT Planning Area that have adequate sagebrush cover, are not dominated by invasive weeds, but are without herbaceous diversity consisting of sage-grouse preferred bunchgrasses and forbs.

Action 3-6-1-A: By 2020, utilize remotely-sensed data and ground-truthing information to develop a map identifying areas that have sagebrush cover >10%, are not dominated by invasive weeds, and lack understory diversity. (USFWS)

Action 3-6-1-B: Consult literature and expert opinion to compile methods for restoring herbaceous diversity. (All core partners)

Action 3-6-1-C: Select candidate sites for project implementation based on feasibility, likelihood for success, and potential benefit to sage-grouse. (All core partners)

Objective 3-6-2: By 2024, implement projects on 5% of areas identified in Objective 3-6-1.

Action 3-6-2-A: Develop site-specific project plans that utilize techniques shown to maximize effectiveness and include long-term management actions to facilitate project success beyond the lifetime of the FIP funding. (Project proponents)

Action 3-6-2-B: Use best available science to increase herbaceous diversity, which may include multiple herbicide treatments (aerial and ground), seedings (aerial and ground using site-specific seed mixes), and grazing management (rest/deferment, timing, targeted grazing). (BLM, OSU Extension)

Action 3-6-2-C: Monitor treatments for effectiveness using methods adopted by the Oregon State Action Plan and CCA/AA (e.g. state-and-transition models, Pace 180) and/or BLM nested frequency and AIM methods. (BLM, OSU Extension)

Action 3-6-2-D: Apply adaptive management as determined by monitoring results (e.g. re-treatment, seeding, grazing management). (BLM, OSU Extension)

Outcome 4: By 2024, address key information gaps in order to ensure a comprehensive approach to reduce sage-grouse threats in the Baker LIT Planning Area and implement associated conservation measures as identified.

SMART Goal-4-1: By 2024, identify WNv "hot spots" with the Baker LIT Planning Area. Implement WNv monitoring beyond the Keating Valley to better understand the extent to which this threat may be impacting sage-grouse in the PAC, and if required, implement WNv reduction strategies where detected. Because the degree to which WNv may be present in the Baker PAC and because even low levels of mortality from this factor could impact sage-grouse populations, additional information is required. Sampling sites that are evenly distributed across the PAC should be added in partnership with ODFW and Baker Vector Control. Currently, as is feasible, sage-grouse and ravens captured during the OSU research project (described in the Baker TRP) will be tested for WNv to help understand the prevalence of this threat. As additional information is gathered about this threat, efforts to

reduce it should be implemented. Best practices related to reducing WNv include the draining of water troughs when no longer in use

Objective 4-1-1: By 2020, add additional mosquito sampling sites so that WNv surveillance occurs in an evenly distributed manner across the PAC and the Baker LIT Planning Area.

Action 4-1-1-A: Coordinate with Baker Vector Control to expand current WNv monitoring and control. (ODFW)

Action 4-1-1-B: Assess data collected from Nobuto testing collected from sage-grouse and ravens as part of the OSU research project (see Baker TRP). (USFWS, OSU)

Objective 4-1-2: By 2021, map any detected WNv "hot spots" within the Baker LIT Planning Area.

Action 4-1-2-A: Import WNv detection data into Geographical Information System to develop a "heat map" of WNv prevalence in the Baker LIT Planning and overlay with sage-grouse location and land ownership data. (USFWS)

Objective 4-1-3: By 2022, implement best practice WNv reduction strategies in all identified "hot spots".

Action 4-1-3-A: Contact landowners within WNv "hot spots" to develop voluntary WNv reduction strategies (e.g. draining water tanks when not in use, reduce flood irrigation, eliminate other sources of standing water) specific to their property. (NRCS, ODFW)

Action 4-1-3-B: Apply management as determined by on-going monitoring results. (ODFW)

SMART Goal-4-2: By 2024, identify, maintain, and enhance mesic habitat within the Baker LIT Planning Area which is an important late brood-rearing habitat component for sage-grouse. The extent and quality of mesic habitat resources within the Baker PAC is not well known. Steps should be taken to examine available data, such as BLM Proper Functioning Condition (PFC) records on streams and wetlands, remotely-sensed data (e.g. NDVI) that highlight areas of green vegetation during summer months, NRCS Mesic Resources GIS data, spring locations and condition, snow drift models that identify areas where drifts contribute to moist conditions during summer, and sage-grouse telemetry data that may help identify important summer habitat resources currently utilized by birds.

Objective 4-2-1: By 2020, develop a map displaying the location and quality of mesic habitat with in the Baker LIT Planning Area.

Action 4-2-1-A: Utilize remote sensing, expert knowledge, sage-grouse telemetry, or other products to identify mesic resources in FIP Program area. (ODFW)

Action 4-2-1-B: Ground-truth all remotely-sensed mesic areas and assess their quality and potential restoration needs. Using appropriate techniques conduct habitat assessments at all mesic resource sites identified as being of high probability of use by sage-grouse, and 50% of mesic resource sites identified as being of moderate probability of use by sage-grouse. (ODFW)

Objective 4-2-2: By 2021, update the Baker TRP to include mesic habitat protection and restoration projects (e.g. fencing, off-spring water developments, floodplain reconnection, elevation of water table, enhanced beaver habitat, beaver dam analogs).

Action 4-2-2-A: Using ground-truthed data collected in Objective 4-2-1, prioritize mesic areas for protection and restoration according to probability of use by sage-grouse. (All core partners)

Objective 4-2-3: By 2024, protect 70% of functioning mesic areas prioritized in Objective 4-2-2.

Action 4-2-3-A: Identify and contact landowners/land managers with prioritized functioning mesic areas to recruit participation in voluntary mesic conservation. (All core partners)

Action 4-2-3-B: Develop site-specific conservation plans for mesic habitat. (Project proponents)

Action 4-2-3-C: Implement conservation plans (e.g. fencing, off-spring water developments, etc.) (Project proponents)

Objective 4-2-4: By 2024, implement projects to improve function of 15% of mesic resources within critical or potential sage-grouse summer habitat.

Action 4-2-4-A: Identify and contact landowners/land managers with prioritized mesic areas to recruit participation in voluntary mesic enhancement. (All core partners)

Action 4-2-4-B: Develop site-specific enhancement plans for mesic habitat. (Project proponents)

Action 4-2-4-C: Implement mesic habitat plans (e.g. fencing, off-spring water developments, floodplain reconnection, elevation of water table, enhanced beaver habitat, beaver dam analogs). (Project proponents)

Action 4-2-4-D: Monitor restoration efforts for effectiveness using methods adopted by the Oregon State Action Plan, CCAA, BLM (e.g. PFC or Multiple Indicator Monitoring [MIM]). (Project proponents)

Action 4-2-4-E: Apply adaptive management as determined by monitoring results (e.g. weed control, change in grazing, fencing, revegetation). (Project proponents)

SMART Goal-4-3: By 2024, increase sage-grouse nest success and population trend within the Baker LIT Planning Area by reducing nest depredation from ravens through a 25% reduction in raven subsidies. Ongoing research in collaboration with Oregon State University is assessing the interactions between ravens and sage-grouse population dynamics in the Baker PAC. The research promotes sage-grouse nest success through targeted reduction of anthropogenic raven subsidies. Due to the persistent sage-grouse population declines observed in the Baker PAC and the high density of ravens observed during the sage-grouse breeding seasons 2016-17, there exists a need to address the threat of raven depredation on sage-grouse in the short-term. Thus, special attention in the Baker

TRP is directed to reducing the impacts of nest-predation (specifically, by ravens) on the Baker sage-grouse population. A comprehensive approach to understand: (1) the current density and distribution of ravens in the Baker PAC; (2) the influence of anthropogenic subsidies on raven abundance and habitat utilization; and (3) the impacts of raven removal on nest success and ultimately population trend is incorporated as one component of the TRP. The TRP describes the effectiveness criteria to be used when assessing the success or failure of the project, and when the project should cease.

Objective 4-3-1: By 2020, identify 100% of raven subsidies (e.g. food sources, nesting and perching structures, water sources) within the Baker LIT Planning Area.

Action 4-3-1-A: Use raven telemetry locations and anthropogenic infrastructure data to determine primary sources of raven subsidies. (OSU)

Action 4-3-1-B: Prioritize subsidy removal based on proximity to high use sage-grouse nesting habitat. (OSU)

Objective 4-3-2: By 2024, reduce 50% of anthropogenic subsidies identified in Objective 4-3-1.

Action 4-3-2-A: Coordinate with land owners/land managers, Oregon Department of Transportation (ODOT), Oregon Trail Electric Cooperative (OTEC), Idaho Power Company (IPC), Baker County, and other stakeholders to identify and implement subsidy removal strategies (e.g. install perch and nest deterrents, drain water troughs when not in use, install raven-proof garbage facilities, garbage clean up on public lands, etc.). (All core partners)

Action 4-3-2-B: By 2020, hold special issue Baker LIT meetings to assess the feasibility of installing a carcass disposal station for use by ODOT, Baker County, and private landowners. Designate a site, design the facility and install by 2024. (ODFW)

Action 4-3-2-C: Conduct outreach activities with community members to raise awareness about the indirect impacts of raven subsidies on sage-grouse and provide subsidy removal options. (All core partners)

Objective 4-3-3: Support sage-grouse nest success and population trend monitoring to evaluate effectiveness of subsidy removal.

Action 4-3-3-A: Provide technical and financial assistance as needed to complete sage-grouse demographic monitoring (e.g. monitoring of sage-grouse nests, leks, and radio-marked birds, and leks, sage-grouse VHF transmitters). (All core partners)

SMART Goal-4-4: By 2024, establish at least one "grass bank" or reserve forage area. Many of the actions associated with this plan will require alternative grazing opportunities for use when grazing rest is required to promote the success of vegetation treatments. Furthermore, reserve forage areas or "grass banks" can reduce the potential impact of livestock on sage-grouse habitat during unforeseen circumstances, such as drought, wildfire, and subsequent rehabilitation.

Objective 4-4-1: By 2021, increase the Baker LIT's understanding of the issue and potential options to address the need for alternative forage.

Action 4-4-1-A: By 2019, conduct special issue LIT meetings with all stakeholders to assess opportunities and barriers to development of a "grass bank" and/or alternative forage. (All core partners)

Action 4-4-1-B: By 2020, consult an economic analyst to determine the feasibility of the proposed options and the financial benefit to livestock producers. (ODFW)

Action 4-4-1-C: Develop a prioritized list of feasible options to provide alternative forage. (All core partners)

Objective 4-4-2: By 2024, provide at least one alterative grazing option that is supported by local stakeholders and will allow landscape level treatment of threats to sage-grouse in the Baker LIT Planning Area.

Action 4-4-2-A: Implement the most suitable mechanism to establish and maintain a grass bank (e.g. land acquisition, leasing, easements) as identified in Objective 4-4-1. (All core partners)

Action 4-4-2-B: Conduct outreach with private landowners to promote the availability and benefit of the reserve forage opportunity during vegetation treatments or unforeseen circumstances. (All core partners)

9. FUNDING NEEDS: Estimated Costs/Leverage Opportunities

The FIP Work Plan identifies the lead group, objectives and actions, potential funding partners, estimated FIP Cost and the estimated total project cost for each SMART Goal. Rather than copy sections from the work plan into this Strategic Action Plan, it was felt that putting all of the associated information (including baseline and effectiveness monitoring) into one table would provide a more efficient and effective way to display the required information.

10. EVALUATING SUCCESS

We propose to utilize existing sage-grouse habitat monitoring methods to ensure consistent statewide data are collected that can be "rolled-up" to inform the overall monitoring goals of Oregon's Sage-grouse Action Plan (Sage-Grouse Conservation Partnership 2015). Specifically, on private lands, we will collect baseline and monitoring data using "Threat-based Ecological Models" (TBEMs, formerly described as State-and-Transition models) that were originally developed for use with the CCA/A. There are three approaches to TBEMs which are applicable to our work. The first approach uses site assessments that document on-the-ground ecological condition using simplified ecological states and estimate future trend. The second approach (developed by Open Range Consulting) matches photos taken at field plots to satellite imagery to classify the landscape (at 30 m pixel resolution) into four comparable ecostates. Because this was completed in 2017 for the Baker PAC, the results can serve as baseline data against which progress can be measured. The third approach to ecostate mapping is under development by the Institute for Natural Resources and uses plot and remotely-sensed data to classify 30-meter pixels into similar ecological states.

Where more detailed data are required (e.g. within treatment sites), Pace-180 (or other appropriate line-transect methods) and photo points will be used. Use of these methods and TBEMs will also ensure compatibility with Oregon's Sage-grouse Mitigation Program.

On BLM-managed lands, methods described for private lands above will be employed where appropriate. However, in order to ensure compatibility with statewide BLM monitoring and long-term data collection, some additional methods will be employed. These may include nested frequency and AIM (Assessment Inventory and Monitoring) methods at upland sites and Proper Functioning Condition (PFC) or Multiple Indicator Monitoring (MIM) at riparian sites. These data may inform assessments conducted according to the Sage-grouse Habitat Assessment Framework (HAF; Stiver et al. 2015).

Other quantitative and qualitative data will be collected to assess progress towards our implementation goals. For example, numerical and spatial records will be maintained to document the size, scope, and location of treatments or other activities like raven subsidy removals. Also, landowner participation rates and the reach of outreach tactics will be recorded. In some instances, remotely-sensed data will be used to quantify progress towards achieving goals, such as those related to reducing juniper density and maintaining sagebrush cover. All data will be imputed and stored in a custom database for ease of analyses and summary reporting.

Progress towards achieving our ultimate ecological goal to increase the local sage-grouse population will be measured using ODFW's lek monitoring protocols and data analyses (Oregon Department of Fish and Wildlife 2011).

The FIP Work Plan contains descriptions for baseline monitoring and effectiveness monitoring for each SMART Goal (as identified in Section 8). The FIP Work Plan also indicates which partner or partners will take the lead for a particular action, and what types of restoration actions being evaluated and how long they will be monitored.

11. ADAPTIVE MANAGEMENT

The evolution of the structure and function of the Baker LIT has previously been provided in the introduction section of this Strategic Action Plan (Pages 1-2). Lessons learned through implementation of the actions described in this Plan and the TRP will be incorporated into future activities and since the TRP is a "living document", there is flexibility in adjusting the goals, objectives, and actions to better need the intended outcomes. At the project level, the monitoring described in the FIP Work Plan will be used to determine if additional follow-up will be necessary for specific actions. Annual reviews are established to make sure that projects are not only being implemented correctly but that desired results are also being attained.

12. SUSTAINABILITY

The Baker LIT is committed to sustaining long-term ecological uplift within in our Planning Area, with the goal of increasing local sage-grouse population trends. This commitment is evidenced in two ways. First, in our Comprehensive Threat Reduction Plan, we recognize that actions to reduce threats to sage-grouse range from those that either (1) result in immediate and lasting reduction and/or elimination of the threat and require minimal follow-up (e.g. conifer removal, marking fences and installing escape ramps in water troughs); (2) result in immediate threat reduction to provide short-term, but not necessarily enduring results (e.g. predator reduction); and (3) provide lasting threat reduction, but require long-term and ongoing investments to ensure success (e.g. invasive annual grass treatment and re-establishment of desirable perennial bunchgrasses). It is our view that, given the significant decline in the sage-grouse population in the Baker PAC, all three categories of conservation actions must be implemented to halt further declines and promote long-term population growth. Secondly, in our Governance Document, we describe our ranking and prioritization criteria for project funding.

Prioritization of financial awards will be based, in part, upon the willingness of the landowner/manager to follow long-term guidance to promote project success (e.g. grazing rest).

The USFWS remains committed to sage-grouse conservation through CCA/A development and intends to continue to offer financial and staff support. The CCA/A are designed to sustain long-term outcomes by requiring 30-year voluntary commitments from enrollees. As stated when the FWS decided that sage-grouse protection under the Endangered Species Act (ESA) was not warranted, FWS will conduct a sage-grouse status review in 5 years and, "In the meantime, to ensure the long-term successes of this unprecedented conservation effort, we will continue to work with our partners to augment and improve current management within the sagebrush ecosystem" (U. S. Fish and Wildlife Service 2015a)."

The BLM has solidified their conservation commitment through planning documents such as the Greater Sage-grouse ARMPA and Baker PAC CFA (Bureau of Land Management 2015;2017). The BLM has shown dedication to assist local field staff to implement the ARMPA by issuing several Instructional Memoranda and providing ongoing guidance.

NRCS has been implementing sage-grouse conservation efforts in Baker County since 2010 through the Sage Grouse Initiative (SGI) and other Farm Bill programs. NRCS continues to invest in sagebrush ecosystems through "SGI 2.0" which identifies a strategic approach to sage-grouse habitat conservation through federal fiscal year 2018. Additional FY 19 funds have also been dedicated for SGI work in Baker County, with an ongoing investment expected. NRCS preferentially ranks projects proposed on CCAA-enrolled lands, so the same CCAA 30-year commitment to sustain ecological outcomes applies to NRCS-funded projects. Some NRCS programs specify a long-term agreement duration (e.g. Conservation Reserve Program), and thus support long-term ecological outcomes. Also, individual NRCS "conservation practices" applied on private lands require a specified length of landowner commitment to maintenance. NRCS has also awarded Regional Conservation Partnership Program funding (approximately $9 million) to support enrollment in the CCAA and implementation of conservation measures on enrolled properties.

The State of Oregon has also demonstrated commitment to sustaining conservation efforts in sage-grouse habitat through the Oregon's Sage-grouse Action Plan (2015). This plan provides a coordinated framework for action and accountability among private, nongovernmental, local, State, and federal partners in advancing immediate and long-term efforts (Sage-Grouse Conservation Partnership 2015). It recognizes the need for long-term investments and regulatory commitment to ensure ecological outcomes are durable. With the backing of an executive order from Oregon Governor Kate Brown and forthcoming Memorandum of Understanding for SageCon partners, all stakeholders have committed to continued support and implementation of the Action Plan. Oregon's Sage-Grouse Mitigation program is a particular aspect of the Action Plan that may enable lasting contributions towards sage-grouse habitat in the Baker LIT Planning Area.

Sustainability of our ecological outcomes may also be achieved by successfully competing for funds from other grantors, such as Intermountain West Joint Venture and national funding opportunities open to CWMAs and NGOs.

13. COMMUNICATION PLAN

13.1 Introduction

The Baker LIT's Outreach and Communication Plan (Communication Plan), presented here, is a living document that will assist in communicating with stakeholders regarding the Comprehensive Sage-grouse Threat Reduction Plan (TRP), and partner activities. This Communication Plan was developed to:

- Outline a course of action to establish support for implementing management objectives and goals identified in the TRP;
- Help the LIT partners achieve our goals and objectives;
- Allow the LIT partners to successfully accomplish projects and leverage funding; and
- Demonstrate the success of our work to ensure people understand what we do.

13.2 Scope

The scope of this Communication Plan is focused on the communication strategies and activities of the Baker LIT partners, particularly as they relate to OWEB's Focused Investment Program (FIP) and expenditure of FIP outreach funds.

13.3 Implementation Timeline

The Communication Plan will be implemented over the next six years beginning in 2019 (2019-2024). The initial emphasis will be on building capacity to achieve the communication strategies outlined in the Communication Plan.

13.4 Audiences

The Baker LIT partners consist of many organizations and interests, and due to the nature of the conservation and restoration projects that are planned or being implemented during the FIP grant cycle, we will need to reach out to a number of audiences including:

- Baker LIT partners.
- Each Baker LIT partner organization's personnel and the organization's constituents.
- Local community members and landowners in Baker County – assistance and participation from private landowners is essential to our success. We also want to keep local community members apprised of our ongoing work.
- Regional conservation community, decision makers, and policy makers – potential volunteers and donors, aid in project implementation.
- Funders – current and potential funders need regular updates of progress, as well as, assurances of the impacts resulting from implementing projects.
- Interested public – potential volunteers and donors, aid in project implementation.

13.5 Goal

The goal of the Baker LIT partners is to increase the Baker sage-grouse population by expanding the quantity and quality of sage-grouse habitat by reducing the existing threats to sage-grouse. In order to reach this goal, successful communication with our audiences is necessary. The Baker LIT partners have the following goals that are key to achieving successful communication with our audiences:

- By 2020, establish mechanisms to sustain effective and long-term delivery of Baker LIT partner communications strategies.
- By 2021, implement communications and outreach strategies to articulate how the projects are positively affecting the sage-grouse populations in Baker County.

13.6 Key Messages

- Sage-grouse populations in the Baker County have declined by approximately 75% since 2005, and have not exhibited a recovery similar to what has been observed in populations throughout the remainder of the state since the previous population low in 2013.

- Many threats to sage-grouse (i.e., West Nile virus; depleted sagebrush understories; predation; noxious weeds, etc.) are present in Baker County and are likely contributing factors limiting local the sage-grouse population.
- The Baker LIT partners want to work in a collaborative spirit to engage the public, landowners, and managers to address the threats impacting the Baker sage-grouse population by enhancing sage-grouse habitat within Baker County to help reverse local sage-grouse population declines.
- Improved sage-grouse populations and habitat quantity/quality will have a positive effect on the local community.

13.7 Communication Objectives and Implementation Strategy

Listed in Table 3 are some of the communication objectives and the actions that will be taken to increase awareness, knowledge and support for the goals of the Baker LIT partners.

Table 3. Communication objectives, actions, and lead partners.

Communication Objectives	Communication Actions	Lead Partners
Develop tools to increase partner awareness and coordination to achieve our goals.	• Develop mechanisms among partners for sharing information on planning, coordinating, and managing projects.	• ODFW (LIT Coordinator)
Use various communication tools and outreach events to increase awareness and deliver products and messages to local community and landowners and permittees in Baker County.	• Develop materials to inform and educate landowners and permittees of programs available to improve sage-grouse habitat, as well as, ranching practices and production. • Develop and print informational project profile fact sheets. • Conduct field-based outreach events in the Baker LIT planning area to educate and demonstrate projects implemented and outcomes achieved. • Coordinate contacts with BLM permittees to communicate available programs.	• ODFW (LIT Coordinator) • Tri-County CWMA • Baker County • NRCS • BLM • PBWC • USFWS • OSU Extension
Develop consistent coordinated messages from Baker LIT partners to constituents that increase impact and demonstrate the value of sage-grouse habitat improvement projects using websites, electronic newsletters, social media, and outreach events.	• Deliver messages through social media platforms that partners can also use with their constituencies. • Develop educational video products that speak to target audiences. • Develop and present presentations in counties outside of Baker County to build support in other population centers. • Provide progress reports on the status of actions identified in the TRP.	• ODFW (LIT Coordinator) • Tri-County CWMA • Baker County • NRCS • BLM • PBWC • USFWS • OSU Extension
Increase funders understanding of projects being implemented and the collaborative process of the Baker LIT partners.	• Provide targeted and timely communications to funders and decision makers. • Provide progress reports to SageCon, OWEB, Baker LIT, and other stakeholders on the status of actions identified in the TRP.	• ODFW (LIT Coordinator)
Establish dedicated staff and/or time to support and sustain effective delivery of Baker LIT partner communication strategies.	• Use capacity to develop outreach materials in cooperation with Baker LIT partners. • Use capacity to support social media messaging strategies.	• ODFW (LIT Coordinator)
Develop strategy to ensure continued generation of content for outreach messages.	• Develop success stories to inform public, focal investment area communities and partner constituents of project results. • Nominate partners for conservation awards as projects are successful. • Document social benefits in local community from sage-grouse habitat improvements and increased sage-grouse population.	• ODFW (LIT Coordinator) • Tri-County CWMA • Baker County • NRCS • BLM • PBWC • USFWS • OSU Extension

Communication Objectives	Communication Actions	Lead Partners
Increase private landowner enrollment in voluntary/incentivized sage-grouse habitat enhancement programs.	• Contact private landowners within occupied sage-grouse habitat via telephone, mailings, media outlets, or other mechanisms to increase their awareness and identify opportunities for conservation of sage-grouse.	• ODFW (LIT Coordinator) • Tri-County CWMA • Baker County • NRCS • PBWC • USFWS • OSU Extension
Increase public awareness of noxious weed prevention techniques and need.	• Contact private landowners within occupied sage-grouse habitat via telephone, mailings, media outlets, or other mechanisms to increase their awareness and identify opportunities for conservation of sage-grouse. • Highlight the importance of noxious weed prevention through personal contact, social media, websites, posters, and other media outlets.	• ODFW (LIT Coordinator) • Tri-County CWMA • Baker County • NRCS • PBWC • USFWS • OSU Extension • BLM
Increase private landowner awareness of opportunities available to develop and implement grazing management plans.	• Contact private landowners within occupied sage-grouse habitat via telephone, mailings, media outlets, or other mechanisms to increase their awareness and identify opportunities for conservation of sage-grouse.	• ODFW (LIT Coordinator) • Tri-County CWMA • Baker County • NRCS • USFWS
Increase public awareness of opportunities to improve herbaceous diversity in sage-grouse habitat.	• Contact private landowners and general public within occupied sage-grouse habitat via telephone, mailings, media outlets, or other mechanisms to increase their awareness and identify opportunities for conservation of sage-grouse.	• ODFW (LIT Coordinator) • Tri-County CWMA • Baker County • NRCS • PBWC • USFWS • OSU Extension • BLM
Increase private landowner awareness of opportunities for developing and using reserve forage area or grass bank.	• Conduct outreach with private landowners (via telephone, mailings, media outlets, etc.) to promote the availability and benefit of the reserve forage opportunity during vegetation treatments or unforeseen circumstances.	• ODFW (LIT Coordinator) • Tri-County CWMA • Baker County • NRCS • USFWS
Increase public awareness of raven use of	• Conduct outreach activities with community members via mailings,	• ODFW (LIT Coordinator)

Communication Objectives	Communication Actions	Lead Partners
anthropogenic subsidies (e.g. food sources, nesting and perching structures, water sources) and raven effects on sage-grouse nest success and population trend.	media outlets, or other mechanisms to raise awareness about the indirect impacts of raven subsidies on sage-grouse and provide subsidy removal options. • Coordinate with landowners/land managers, Oregon Department of Transportation, Oregon Trail Electric Cooperative, Idaho Power Company, Baker County, and others to identify and implement subsidy removal strategies (e.g. install perch and nest deterrents, drain water troughs when not in use, install raven-proof garbage facilities, garbage clean up on public lands, etc.).	• Tri-County CWMA • Baker County • NRCS • PBWC • USFWS • OSU Extension • BLM

13.8 Evaluation and Measurable Targets

The Baker LIT partners are interested in utilizing a number of tools and tactics in reaching communication goals. Table 4 provides general targets and measurable estimates for some of the key outreach tools.

Table 4. Targets and evaluation targets for key outreach tools.

Communication Tool	Target	Evaluation
Facebook or similar media	Update at least 2 times per month	Number of likes, post re-shares, comments, etc.
Presentations with other interested parties outside of the LIT Planning Area	Annually	Number of presentations made; number of attendees at presentation
Media articles (newspaper, radio, etc.)	2 to 4 times per year	Number of articles; estimated reach of individual media outlets
Video production	Annually	Number of video productions; estimated reach of media outlets where video is published/posted
Local outreach events and tours	3 workshops annually	Number of workshops; number of attendees
Printed materials	1 brochure and 2 fact sheets per year	Number of printed materials developed; number of materials distributed
Scientific papers and presentations (e.g. related to raven-sage-grouse research)	At least one per biennium	Number of papers/presentations delivered; number of attendees
Tours for funders	Biannually	Number of tours provided; number of attendees

13.9 Communications Budget

The budget for activities and products identified in this Communication Plan is detailed in the FIP Work Plan. Table 5 provides a list of Partner communication resources that the Baker LIT may be able to leverage for outreach activities.

Table 5. Partner communication resources that the Baker LIT may leverage.

Partners	Written Communications			Social Media					Planned Activities/Outreach				
	Newsletter	Brochures	Guides	Website	Facebook	Twitter	Videos/ Photos	Accepts Donations	Fundraising Events	Field Trips	Webinars	Memberships	Volunteer Programs
Baker County http://www.bakercounty.org/				X									
Baker LIT	X*				X*		X*			X*			
Bureau of Land Management https://www.blm.gov/		X	X	X	X	X	X			X	X		X
Confederated Tribes of the Umatilla Indian Reservation http://ctuir.org/				X	X								
Idaho Power Company https://www.idahopower.com/				X	X	X							
Natural Resource Conservation Service http://www.nrcs.usda.gov		X	X	X	X	X	X			X	X		
Oregon Cattlemen's Association https://orcattle.com/				X									
Oregon Department of Fish and Wildlife http://www.dfw.state.or.us/		X	X	X	X	X	X			X			X
Oregon Department of Forestry https://www.oregon.gov/ODF/pages/index.aspx			X	X	X	X				X			
Oregon Department of Transportation https://www.oregon.gov/ODOT/Pages/index.asp				X	X	X							
Oregon State University Cooperative Extension https://extension.oregonstate.edu/				X	X	X							
Oregon Trail Electric	X			X	X								

Partners	Written Communications			Social Media					Planned Activities/Outreach				
	Newsletter	Brochures	Guides	Website	Facebook	Twitter	Videos/ Photos	Accepts Donations	Fundraising Events	Field Trips	Webinars	Memberships	Volunteer Programs
Cooperative https://www.otecc.com/													
Oregon Watershed Enhancement Board http://www.oregon.gov/oweb/Pages/index.aspx				X	X	X	X			X			
Powder Basin Watershed Council http://www.powderbasinwatershedcouncil.org/	X	X		X	X		X	X	X	X		X	X
The Nature Conservancy http://www.nature.org/			X	X	X	X	X	X					
Rangeland Fire Protection Associations (Burnt River, Lookout-Glascow, and Greater Pine Valley)													
Tri-County Cooperative Weed Management Area http://tricountycwma.org/	X	X	X	X	X		X			X			
US Fish and Wildlife Service http://www.fws.gov/				X	X	X	X			X			X
Other private landowners					X								

*to be developed

14. LITERATURE/CITATIONS

Baker County. 2016. Natural resources plan. Baker County Board of Commissioners, Baker City, Oregon, USA.

Boarman, W., and B. Heinrich. 1999. Comon raven (*Corvus corax*). *in* A. Poole, andF. Gill, editors. The Birds of North America. Philadelphia, Pennsylvania, USA.

Boarman, W. I., R. J. Camp, M. Hagan, and W. Deal. 1995. Raven abundance at anthropogenic resources in the western Mojave Desert, California. Report to Edwards Air Force Base, California.

Bui, T.-V. D., J. M. Marzluff, and B. Bedrosian. 2010. Common raven activity in relation to land use in western Wyoming: implications for greater sage-grouse reproductive success. The Condor 112:65-78.

Bureau of Land Management. 2015. Oregon greater sage-grouse approved resource management plan amendment. Portland, Oregon USA.

_____. 2017. Baker PAC Causal Factor Analysis. Portland, Oregon, USA.

Chalfoun, A. D., F. R. Thompson, and M. J. Ratnaswamy. 2002. Nest predators and fragmentation: a review and meta-analysis. Conservation Biology 16:306-318.

Clark, L., J. Hall, R. McLean, M. Dunbar, K. Klenk, R. Bowen, and C. A. Smeraski. 2006. Susceptibility of greater sage-grouse to experimental infection with West Nile virus. Journal of Wildlife Diseases 42:14-22.

Coates, P. S., and D. J. Delehanty. 2010. Nest Predation of Greater Sage-Grouse in Relation to Microhabitat Factors and Predators. The Journal of Wildlife Management 74:240-248.

Coates, P. S., K. B. Howe, M. L. Casazza, and D. J. Delehanty. 2014a. Common raven occurrence in relation to energy transmission line corridors transiting human-altered sagebrush steppe. Journal of Arid Environments 111:68-78.

_____. 2014b. Landscape alterations influence differential habitat use of nesting buteos and ravens within sagebrush ecosystem: Implications for transmission line development. The Condor 116:341-356.

Connelly, J. W., C. A. Hagen, and M. A. Schroeder. 2011. Characteristics and dynamics of greater sage-grouse populations. Pages 53-67 *in* S. Knick, andJ. W. Connelly, editors. Greater sage-grouse: ecology and conservation of a landscape species and its habitat. Studies in avian biology. The University of California Press, Berkeley, California, USA.

Connelly, J. W., S. T. Knick, M. A. Schroeder, and S. J. Stiver. Conservation assessment of greater sage-grouse and sagebrush habitats. Western Association of Fish and Wildlife Agencies Cheyenne, WY, 2004.

Cupples, J. B., L. Foster, and B. Ratliff. 2017. Baker Priority Area of Conservation Comprehensive Sage-grouse Threat Reduction Plan. Last updated 30 October 2017. Baker Sage-grouse Local Implementation Team, La Grande, Oregon, USA.

Dinkins, J., M. R. Conover, C. P. Kirol, J. L. Beck, and S. N. Frey. 2016. Effects of common raven and coyote removal and temporal variation in climate on greater sage-grouse nesting success. Biological Conservation 202:50-58.

Dumroese, R., T. L. Kasten, B. A. Richardson, F. F. Kilkenny, and J. B. Runyon. 2015. Conserving and restoring habitat for Greater Sage-Grouse and other sagebrush-obligate wildlife: the crucial link of forbs and sagebrush diversity. Native Plants Journal 16:276-299.

Garton, E. O., J. W. Connelly, J. S. Horne, C. A. Hagen, A. Moser, and M. A. Schroeder. 2011. Greater sage-grouse population dynamics and probability of persistence. *in* S. Knick, andJ. W. Connelly, editors. Greater Sage-grouse: ecology and conservation of landscape sepcies and its habitat. Studies in Avian Biology. The University of California Press, Berkeley, California, USA.

Howe, K. B., P. S. Coates, and D. J. Delehanty. 2014. Selection of anthropogenic features and vegetation characteristics by nesting Common Ravens in the sagebrush ecosystem. The Condor 116:35-49.

Northwest Power and Conservation Council. 2005a. Burnt River Subbasin plan. *in* Columbia River Basin Fish and Wildlife Program. Northwest Power and Conservation Council,, Portland, Oregon, USA.

_____. 2005b. Powder River Subbasin plan. *in* Colubian River Basin Fish and Wildlife Program. Northwest Power and Conservation Council, Portland, Oregon, USA.

Oregon Department of Agriculture. 2011. Malheur River Basin Agricultural Water Quality Management Area Plan, first revision. . Salem, Oregon, USA.

_____. 2013. Upper Deschutes Agricultural Water Quality Management Area Plan, 3rd revision. Salem, Oregon, USA.

_____. 2014. Crooked River Agricultural Water Quality Management Area Plan, 4th biennial revision. Salem, Oregon, USA.

Oregon Department of Fish and Wildlife. 2005. Greater sage-grouse conservation assessment and strategy for Oregon: a plan to maintain and enhance populations of habitat. Salem, Oregon, USA.

_____. 2011. Greater sage-grouse conservation assessment and strategy for Oregon: a plan to maintain and enhance populations and habitat. Oregon Department of Fish and Wildlife, Salem, Oregon, USA.

_____. 2016. Oregon conservation strategy. Salem, Oregon, USA.

_____. 2017. Oregon greater sage-grouse population monitoring: 2017 annual report. Hines, Oregon, USA.

Oregon Employment Department. 2018. Unemployment rates in eastern Oregon; accessed on 25 June 2018 https://www.qualityinfo.org/. Salem, Oregon, USA.

Peebles, L. W., M. R. Conover, and J. B. Dinkins. 2017. Adult sage-grouse numbers rise following raven removal or an increase in precipitation. Wildlife Society Bulletin.

Powder Basin Watershed Council. 1996. Preliminary watershed assessment for the Powder Basin drainage. Baker City, Oregon, USA.

_____. 2001. Upper Powder River Watershed Assessment, draft. Baker City, Oregon, USA.

Sage-Grouse Conservation Partnership. 2015. The Oregon sage-grouse action plan. Salem, Oregon, USA.

Sauer, J. R., D. K. Niven, J. E. Hines, J. D. J. Ziolkowski, K. L. Pardieck, J. E. Fallon, and W. A. Link. 2017. The North American Breeding Bird Survey, Analysis Results 1966 - 2015. Version 2.07.2017. Available at: https://www.mbr-pwrc.usgs.gov/bbs/bbs.html. Accessed on 30 November 2017. *in* U. G. Survey, editor., USGS Patuxent Wildlife Research Center, Laurel, Maryland, USA.

Stiver, S., E. T. Rinkes, D. E. Naugle, P. D. Makela, D. A. Nance, and J. W. Karl. 2015. Sage-grouse habitat assessment framework: a multiscale assessment tool. Technical Reference 6710-1. Bureau of Land Management and Western Association of Fish and Wildlife Agencies, Denver, Colorado, USA.

U. S. Census Bureau. 2018. Quick facts: Baker County, Oregon. Accessed on 25 June 2018: https://www.census.gov/quickfacts/fact/table/bakercountyoregon,US#viewtop

U. S. Fish and Wildlife Service. 2002. Recovery Plan for Howell's Spectacular Thelypody (*Thelypodium howellii ssp. spectabilis*). Portland, Oregon, USA.

_____. 2010. 50 CFR Part 17 Endangered and threatened wildlife and plants; 12-month findings for petitions to list the greater sage-grouse (Centrocercus urophasianus) as threatened or endangered. Proposed Rule. 105 pp.

_____. 2013. Greater sage-grouse (Centrocercus urophasianus) conservation objectives: final report. U.S. Fish and Wildlife Service, Denver, CO, USa.

_____. 2015a. 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.

_____. 2015b. Environmental Assessment for A Greater Sage-Grouse Programmatic Candidate Conservation Agreement with Assurances for Private Rangelands in Baker, Crook/Deschutes, Grant, Lake, Malheur, and southern Union Counties, Oregon. Portland, Oregon, USA.

_____. 2015c. Greater Sage-grouse Programmatic Candidate Conservation Agreement with Assurances for Private Rangelands in Baker and Union Counties, Oregon. Portand, Oregon, USA.

Vander Haegen, W. M., S. M. McCorquodale, C. R. Peterson, G. A. Green, and E. Yensen. 2001. Wildlife communities of eastside shrubland and grassland habitats. Pages 292-316 *in* D. H. Johnson, andT. A. O'Neil, editors. Wildlife-habitat relationships in Oregon and Washington. Oregon State University Press, Corvallis, Oregon, USA.

Vander Haegen, W. M., M. A. Schroeder, and R. M. DeGraaf. 2002. Predation on real and artificial nests in shrubsteppe landscapes fragmented by agriculture. The Condor 104:496-506.

15. PARTNERSHIP CERTIFICATION

CERTIFICATION: I certify that this strategic action plan is a true and accurate representation of the proposed work and that I am authorized to sign as the Partner Representative or Co-Representative(s).

Samantha Bernards — 6-26-18

Samantha Bernards
Program Director
Tri-County Cooperative Weed Management Area

Date

CERTIFICATION: I certify that this strategic action plan is a true and accurate representation of the proposed work and that I am authorized to sign as the Partner Representative or Co-Representative(s).

6/25/18

Nick Myatt
Grande Ronde Watershed Manager
Oregon Department of Fish and Wildlife

Date

CERTIFICATION: I certify that this strategic action plan is a true and accurate representation of the proposed work and that I am authorized to sign as the Partner Representative or Co-Representative(s).

Misty Bennett — 6/25/18

Misty Bennett
District Conservationist, Baker City Service Center
Natural Resource Conservation Service

Date

CERTIFICATION: I certify that this strategic action plan is a true and accurate representation of the proposed work and that I am authorized to sign as the Partner Representative or Co-Representative(s).

6/28/18

Lori Wood
Field Manager, Baker Resource Area
Bureau of Land Management

Date

CERTIFICATION: I certify that this strategic action plan is a true and accurate representation of the proposed work and that I am authorized to sign as the Partner Representative or Co-Representative(s).

Marisa Meyer — 6/26/18

Marisa Meyer
Field Supervisor, La Grande Field Office
U.S. Fish and Wildlife Service

Date

CERTIFICATION: I certify that this strategic action plan is a true and accurate representation of the proposed work and that I am authorized to sign as the Partner Representative or Co-Representative(s).

Mark E. Bennett — 6/25/18

Mark Bennett
County Commissioner
Baker County

Date

CERTIFICATION: I certify that this strategic action plan is a true and accurate representation of the proposed work and that I am authorized to sign as the Partner Representative or Co-Representative(s).

6/27/18

Christo Morris
Executive Director
Powder Basin Watershed Council

Date

CERTIFICATION: I certify that this strategic action plan is a true and accurate representation of the proposed work and that I am authorized to sign as the Partner Representative or Co-Representative(s).

6/26/18

Rex Nelson
Nelson ES Ranch

Date

CERTIFICATION: I certify that this strategic action plan is a true and accurate representation of the proposed work and that I am authorized to sign as the Partner Representative or Co-Representative(s).

Wannie Mackenzie

Wannie Mackenzie
Mackenzie Ranch

6/27/2018
Date

CERTIFICATION: I certify that this strategic action plan is a true and accurate representation of the proposed work and that I am authorized to sign as the Partner Representative or Co-Representative(s).

Curtis W Martin

Curtis Martin
Juniper Mountain Land and Livestock LLC

6/27/2018
Date