

Baker Sage-grouse Local Implementation Team

Baker Comprehensive Sage-grouse Threat Reduction

VISION

The Local Implementation Team (LIT) will work in a collaborative spirit to engage land-owners and managers to enhance sage-grouse habitat within the Baker LIT Planning Area, with the aim to reverse local sage-grouse population declines.

PARTNERSHIP MEMBERS

Core partners:

- Oregon Department of Fish and Wildlife
- Tri-County Cooperative Weed Management Area
- Natural Resources Conservation Service
- US Fish and Wildlife Service
- Bureau of Land Management
- Baker County
- Powder Basin Watershed Council
- Private Landowners

Other active partners that support the Initiative:

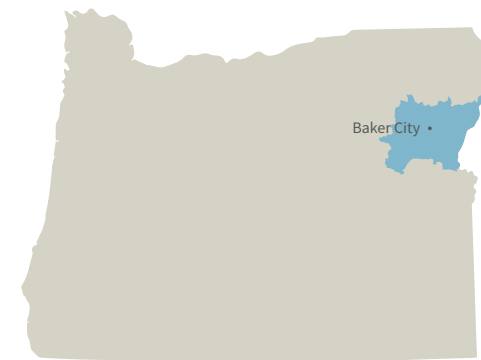
- OSU Extension
- Confederated Tribes of the Umatilla Indian Reservation
- The Nature Conservancy
- Other LIT members

ECOLOGICAL PRIORITY

Sagebrush / Sage-steppe Habitat

FOCAL SPECIES

Greater sage-grouse



GEOGRAPHIC SCOPE

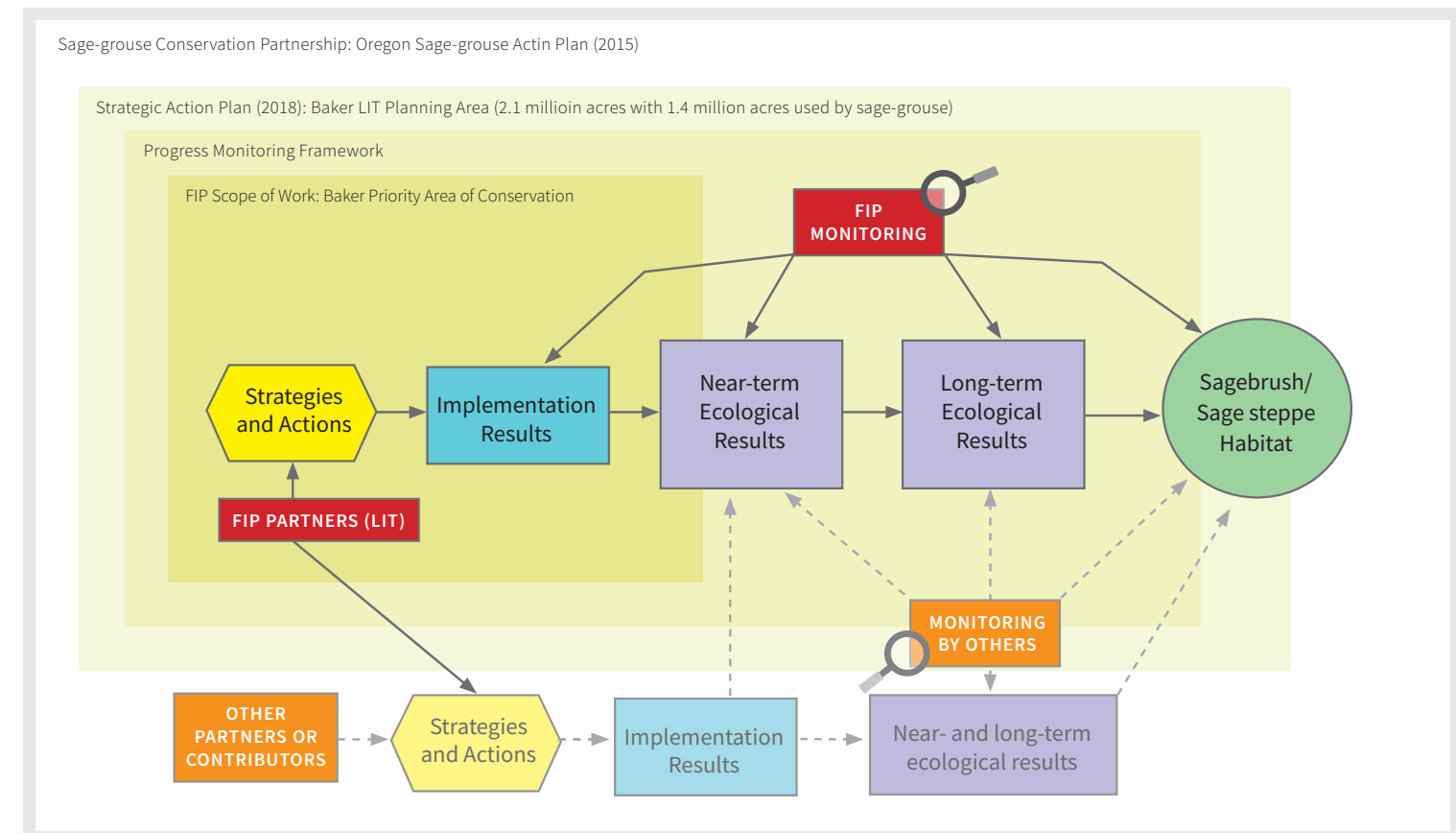
The overall geography of the Initiative is the 2.1 million acres of the Baker Local Implementation Team (LIT) Planning Area (owned by a mix of private, BLM, and USFS). The USFS portion is typically avoided by sage-grouse, bringing the total area of primary interest of the LIT to 1.4 million acres, 73% of which is privately owned.

Within this area the FIP is primarily concerned with the Baker Priority Area of Conservation which is considered to be the most strategically important area for sage-grouse conservation in Baker County. Of secondary importance are sage-grouse habitat corridors and other locations that support thriving leks particularly near Unity, OR. Effort may expand into this area after work is completed in the Baker Priority PAC.

Operational Context

Local Implementation Teams have been established throughout the range of sage-grouse in the state to play a key role in developing local strategic plans and coordinating conservation efforts (per the 2015 Sage-grouse Action Plan). As described above, the Baker LIT's area of interest is the Baker LIT Planning Area and the focus of the FIP scope of work is the sub-area defined as the Baker Priority Area of Conservation.

Figure 1: Operational context of the OWEB-funded Focused Investment Partnership Initiative



Theory of Change.

SITUATION

Sage-grouse populations in 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 Oregon. 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 potentially impacting the Baker sage-grouse include the following:

- Juniper encroachment
- Invasive annual grasses
- Wildfire/altered fire regimes
- Native forbs and grasses
- Sagebrush cover
- Crested wheatgrass seedings
- Development / infrastructure
- Sagebrush elimination / agricultural conversion
- Fragmentation
- Improper grazing management
- Recreation
- Isolated or small population size
- Free-roaming equids
- Drought
- West Nile virus
- Excessive flooding
- Predation
- Hunting
- Insecticides
- Sagebrush defoliator
- Other noxious weeds

APPROACH

The results chain (Figure 2) articulates the partnership's theory of change by displaying the relationships between strategies, implementation outputs, and near- and long-term ecological outcomes partners predict will occur in response to strategy implementation.

Numbered results identified in Figure 2 are those the partnership has selected to be part of a progress monitoring approach. Measuring these results over time will allow the partnership to evaluate progress in both the near (e.g. 6-year FIP timeframe) and long term, and to identify where key uncertainties might exist with regards to confidence of predicted outcomes or relationships between results.

Each numbered implementation result is associated with the corresponding objective in the Strategic Action Plan (Tables 1

and 2). For intermediate ecological outcomes, objectives are included if identified; however, for many ecological results, the degree to which they will be achieved may be mediated by circumstances outside the FIP's control (e.g. drought, fire, etc.) Given this complexity, continued assessment and planning will be required to support development of specific, measurable objectives for the desired ecological outcomes.

The narrative below summarizes the resulting theory of change. Implementation outputs and ecological outcomes prioritized for monitoring during the six-year FIP timeline are indexed to correspond to the results chain (Figure 2) and measuring progress tables (Tables 1 and 2).

STRATEGIES

The Strategies contained in the Strategic Action plan are designed to address the major ecological problems and limiting factors identified in the Baker PAC Comprehensive Threat Reduction Plan and the Oregon Sage-grouse Action plan (listed above). The overarching ecological outcome is an increase in the quantity and quality of sage-grouse habitat and ultimately an increasing and stable Baker sage-grouse population. Each of the outcomes, goals, objectives, and conservation actions in the FIP's Strategic Action Plan and Work Plan have been carefully considered as incremental steps toward achieving this ecological outcome. (See Figure 2. Results chain for the Baker Comprehensive Sage-grouse Threat Reduction Initiative)

STRATEGIES

1 Promote awareness and enrollment in voluntary habitat conservation programs

This strategy consists of the development and implementation of public outreach activities designed to promote greater public awareness of the status of sage-grouse and factors currently impacting the viability of Baker populations. Outreach is also intended to raise awareness of actions that can contribute to recovery and voluntary/incentive habitat improvement programs available to landowners interested in carrying out conservation actions on private land.

Theory of Change.

The interest and willingness of private landowners to participate in voluntary habitat conservation programs will increase¹ as their understanding about the status of sage-grouse populations and actions they can take to reduce current threats is improved. Landowner participation can be further enhanced as they become aware of financial incentive programs, technical support that is available to plan and implement actions, and success stories of other landowners participating in habitat improvement programs.

2 Prevent, treat, and adaptively manage invasion by invasive annual grasses and other noxious weeds

Activities occurring as part of this strategy include a step-wise approach for prioritizing areas where treatments should be applied and the development and implementation of effective techniques for treating invasive annual grasses and other noxious weeds² in those areas. For all treatment types monitoring will be conducted to determine treatment effectiveness and inform adaptive management.

To prevent continued spread of undesirable vegetation, partners will install an OHV wash station at the Virtue Flat OHV staging area³, provide public education highlighting the ways weeds can be spread and their impact on native vegetation, and conduct Early Detection and Rapid Response activities including roadside spraying, weed surveys, and spot treatments.

Theory of Change.

Invasive annual grass and noxious weed treatments² will reduce the extent and abundance of invasive and noxious weeds¹⁴, promoting recovery and reconnection of lost habitat through establishment of sagebrush/sage-steppe plant communities (including native bunchgrass and forb diversity) that are suitable for providing cover and winter food for sage-grouse¹⁵ and supporting breeding, brood rearing, and all other life history stages of sage-grouse¹⁶. Reducing the extent and abundance of invasive annual grasses and other noxious weeds also reduces the risk of loss of sage-grouse habitat to wildfires.

3 Protect, enhance, and expand extent and connectivity of areas with adequate sagebrush cover

This strategy consists of a number of activities to protect, enhance and expand the extent and connectivity of areas with adequate sagebrush cover. Activities may include the development and implementation of a strategic fuel break plan⁴, the development of site-specific plans to restore sagebrush on fire-affected lands⁵ and increase native herbaceous diversity⁸, the reduction of juniper in priority areas⁶, and the development and implementation of grazing plans compatible with sage-grouse⁷.

Theory of Change.

Strategic fuel breaks⁴ reduce the spread of fire and therefore prevent the loss of sage-grouse habitat to wildfire. Strategic fuel breaks also provide safe staging areas making suppression efforts safer and more effective – thus reducing loss when wildfires occur.

The implementation of site-specific project plans that include herbicide treatments, seeding⁸, and grazing management⁷ will contribute to reducing habitat loss and fragmentation and therefore to the development of native herbaceous diversity in areas that may have adequate sagebrush cover but lack perennial grasses and sage-grouse preferred forbs.

The longer-term ecological outcome of these results is a sagebrush plant community that has sufficient quantity and quality to support cover and winter food for sage-grouse¹⁵ and all other life history stages including breeding and brood rearing¹⁶.

A reduction of juniper⁶ used by predatory ravens will reduce rates of predation on sage-grouse nests, increasing nesting success and therefore the overall productivity and stability of sage-grouse populations. Juniper removal also decreases fire risk, releases understory vegetation, decreases habitat fragmentation, contributes to suitable mesic habitat, and increases water availability.

4 Address key information gaps

This strategy involves the systematic acquisition of data to inform ongoing and future strategies related to West Nile virus, mesic habitat, raven-sage-grouse dynamics and anthropogenic subsidies, and reserve forage opportunities or grass banks.

New information will promote:

- identification of West Nile virus hot spots where voluntary reduction strategies can be focused⁹;
- identification of location and quality of mesic habitat where protection, enhancement and maintenance actions can be effectively implemented¹⁰;
- understanding of raven-sage-grouse dynamics and influence of anthropogenic subsidies (e.g. food sources, nesting and perching structures, and water sources) that may be boosting raven populations¹¹; and
- assessment of opportunities and barriers to development of a "grass bank" and/or alternative forage sources for livestock^{12,13}.

Theory of Change.

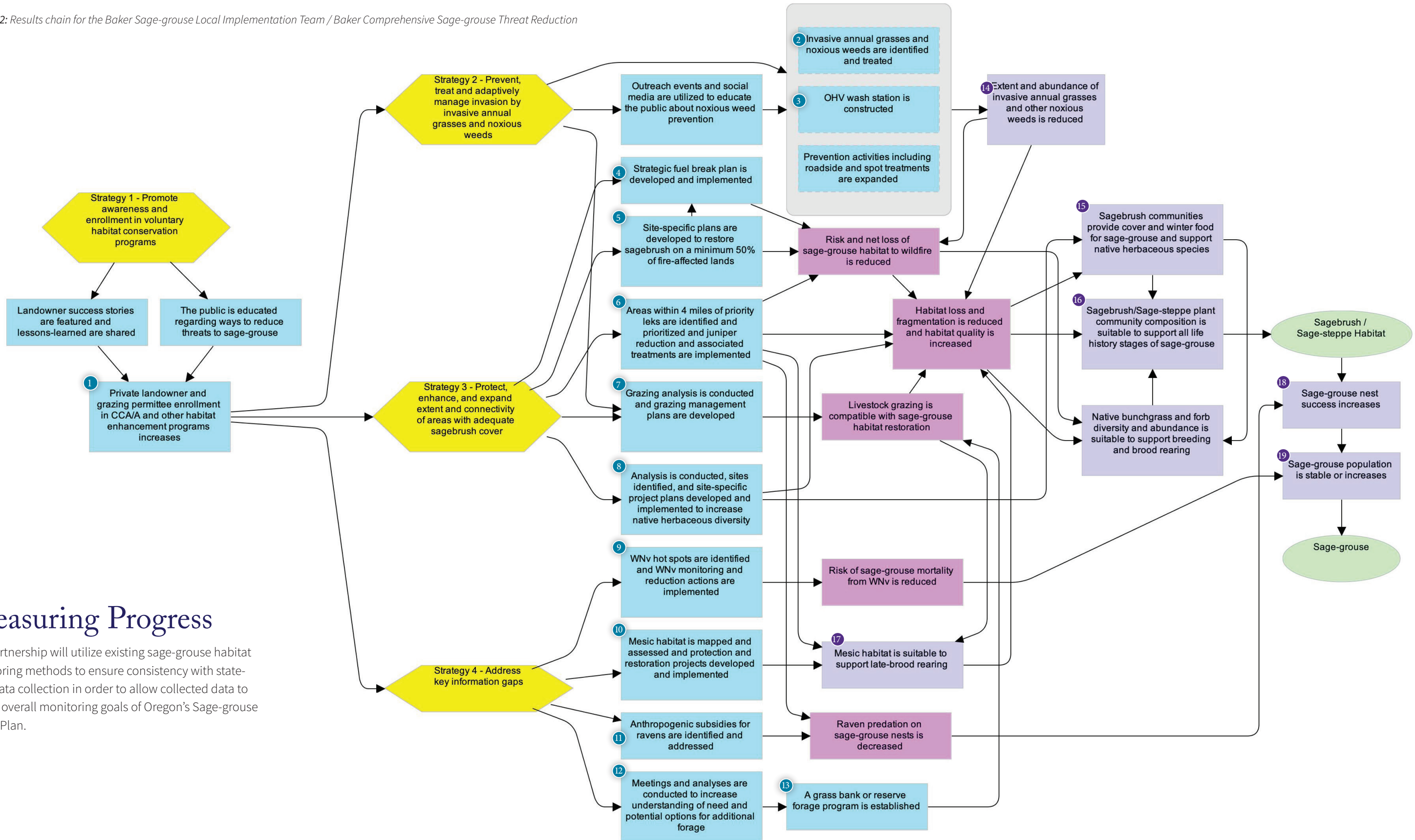
Developing effective strategies to address these issues will help to minimize sage-grouse mortality from West Nile virus and raven nest predation, support restoration and maintenance of mesic habitat important for late-brood rearing and facilitate treatment success with alternative grazing options when rest from livestock is required.

Superscript numbers ¹⁻¹⁹ can be cross referenced on the Results Chain diagram and the Implementation Progress/Ecological Progress tables on the following pages.

Results Chain

Figure 2: Results chain for the Baker Sage-grouse Local Implementation Team / Baker Comprehensive Sage-grouse Threat Reduction

Progression of the Results Chain.



Measuring Progress

The partnership will utilize existing sage-grouse habitat monitoring methods to ensure consistency with state-wide data collection in order to allow collected data to inform overall monitoring goals of Oregon's Sage-grouse Action Plan.

OUTPUTS

Implementation Progress

Table 1. Implementation results objectives and metrics. The result numbers correspond to results shown in the results chain (Figure 2) and theories of change.

IMPLEMENTATION RESULTS

OBJECTIVES

METRICS

<p>1 Private landowner and grazing permittee enrollment in CCA/A and other habitat enhancement programs is increased</p>	<p>Objective 2-1-1: By 2025, 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%.</p>	<p># of landowners enrolled in habitat enhancement programs</p>
	<p>Objective 2-2-1: Annually, complete a minimum of 3 CCAA site specific plans leading to landowner enrollment in the CCAA.</p>	<p># of CCAA SSPs completed</p>
	<p>Objective 2-2-2: By 2025, complete a minimum of 5 CCA site specific plans leading to permittee enrollment in the CCA.</p>	<p># of CCAA SSPs completed</p>
<p>2 Invasive annual grasses and noxious weeds are controlled</p>	<p>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.</p>	<p>Acres of land treated</p>
	<p>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.</p>	<p>Acres of land treated</p>
<p>3 OHV wash station is constructed</p>	<p>Objective 3-2-1: Develop an OHV wash station facility at the Virtue Flat staging area by 2025.</p>	<p>OHV wash station facility completed</p>
<p>4 Strategic fuel break plan is developed and implemented</p>	<p>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.</p>	<p># of meetings held</p>
<p>5 Site-specific plans are developed to restore sagebrush on a minimum 50% of fire-affected lands</p>	<p>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.</p>	<p>% or fire-affected lands with pots-fire restoration plans</p>
	<p>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.</p>	<p># of landowners enrolled in CCA and CCAA</p>
<p>6 Juniper reduction and associated treatments are implemented on prioritized areas</p>	<p>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 2025.</p>	<p>Acres of land within 4 miles of priority leks treated</p>
<p>7 Grazing analysis is conducted and grazing management plans compatible with sage grouse are developed for new CCAA and FIP project properties</p>	<p>Objective 3-5-1: All new CCAA enrolled properties will undergo a grazing analysis to assess compatibility with sage-grouse habitat requirements.</p>	<p># of enrolled properties completed grazing analysis</p>
	<p>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.</p>	<p># of enrolled properties completed grazing analysis</p>

<p>8 Analysis is conducted, sites identified, and site-specific project plans developed and implemented to increase native herbaceous diversity</p>	<p>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.</p>	<p>Acres identified lacking herbaceous diversity</p>
	<p>Objective 3-6-2: By 2025, implement projects on 5% of areas identified in Objective 3-6-1.</p>	<p>Acres identified lacking herbaceous diversity</p>
<p>9 WNV hot spots are identified and WNV monitoring and reduction strategies are implemented</p>	<p>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.</p>	<p># of mosquito sampling sites added</p>
	<p>Objective 4-1-2: By 2021, map any detected WNV "hot spots" within the Baker LIT Planning Area.</p>	<p>Completion of maps identifying WNV hot spots</p>
	<p>Objective 4-1-3: By 2022, implement best practice WNV reduction strategies in all identified "hot spots".</p>	<p># of identified WNV hotspots where best practices are implemented</p>
<p>10 Mesic habitat is mapped, habitat assessments conducted, mesic habitats protected, and restoration projects developed and implemented</p>	<p>Objective 4-2-1: By 2020, develop a map displaying the location and quality of mesic habitat within the Baker LIT Planning Area.</p>	<p>Development of map displaying location and quality of mesic habitat</p>
	<p>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).</p>	<p>Baker TRP updated to include mesic habitat protection and restoration projects</p>
	<p>Objective 4-2-3: By 2025, protect 70% of functioning mesic areas prioritized in Objective 4-2-2.</p>	<p>% of prioritized mesic habitat protected</p>
	<p>Objective 4-2-4: By 2025, implement projects to improve function of 15% of mesic resources within critical or potential sage-grouse summer habitat.</p>	<p>% of priority mesic resources where projects have been implemented</p>
<p>11 Anthropogenic raven food sources, nesting and perching structures, and water sources are identified and removed</p>	<p>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.</p>	<p>% of raven subsidies identified</p>
	<p>Objective 4-3-2: By 2025, reduce 25% of anthropogenic subsidies identified in Objective 4-3-1.</p>	<p>% of raven subsidies identified</p>
	<p>Objective 4-3-3: Support sage-grouse nest success and population trend monitoring to evaluate effectiveness of subsidy removal.</p>	<p>Monitoring actions implemented</p>
<p>12 Meetings are held and analyses conducted to increase understanding of need and potential options for additional forage</p>	<p>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.</p>	<p>Completion of assessment regarding alternative forage options</p>
<p>13 A grass bank is established</p>	<p>Objective 4-4-2: By 2025, provide at least one alternative 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.</p>	<p>Selection of one or more alternative grazing options</p>

OUTCOMES

Ecological Progress

Table 2. Ecological results potential objectives and potential metrics. The result numbers correspond to results shown in the results chain (Figure 1) and theories of change.

Given the complexity of ecosystems, continued assessments and planning will be required to support development of specific, measurable objectives for desired ecological outcomes. Objectives in this table are italicized to reflect that they may be refined in the future.

LIMITING FACTOR REDUCTION OR INTERMEDIATE ECOLOGICAL RESULTS

WORKING OBJECTIVES

POTENTIAL METRICS

14 Extent and abundance of invasive annual grasses and other noxious weeds is reduced

By 2025, 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. (Goal 3-1)

Baseline and post-treatment data collected per Oregon State Action Plan and CCA/AA and/or BLM nested frequency and AIM methods

15 Sagebrush/Sage-steppe plant communities provide cover and winter food for sage-grouse and support native herbaceous species

16 Sagebrush/sage steppe plant communities including native bunchgrass and forb diversity and abundance are suitable to support all life history stages of sage-grouse

By 2025, improve herbaceous diversity in 5% of identified depleted sagebrush habitats by increasing perennial grass and sage-grouse preferred forb abundance (Goal 3-6)

Baseline and post-treatment data collected per Oregon State Action Plan and CCA/AA and/or BLM nested frequency and AIM methods

17 Mesic habitat is suitable to support late-brood rearing

By 2025, identify, maintain, and enhance mesic habitat within the Baker LIT Planning Area which is an important late brood-rearing habitat component for sage-grouse (Goal 4-2)

Baseline and post-treatment data collected per Oregon State Action Plan and CCA/AA and/or BLM nested frequency and AIM methods

18 Sage-grouse nest success increases

By 2025, 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 (Goal 4-3)

Sage-grouse nest success

19 Sage-grouse population is stable or increases

Lek surveys (population trends)

Status & Trends

ECOLOGICAL PRIORITIES

Sagebrush / Sage-Steppe Habitat
Greater Sage-grouse

Monitoring the status and trends of ecological priority habitats and focal species will include coordination with agencies or conservation organizations operating at the appropriate landscape or population scales. FIP partners will work with these entities to establish a process for integrating their monitoring framework with existing status and trends monitoring programs (if they occur) or to establish an approach for identifying key ecological attributes that should be measured to document and communicate change in the status and trajectory of ecological priority habitats and focal species populations.