Oak and Prairie Working Group Strategic Action Plan

Prepared by

The Intertwine Alliance
Oak and Prairie Working Group

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Acronyms and Abbreviations

BLM	Bureau of Land Management
BMPs	best management practices
BPA	Bonneville Power Administration
CPOP	Cascadia Prairie Oak Partnership
GIS	geographic information system
KEA	key ecological attributes
LiDAR	light detection and ranging
NACAC	Native American Community Advisory Council
NAYA	Native American Youth and Family Center
NCPRD	North Clackamas Parks and Recreation District
NRCS	Natural Resources Conservation Service
ODF	Oregon Department of Forestry
ODFW	Oregon Department of Fish and Wildlife
OPRD	Oregon Parks and Recreation Department
OPWG	Oak Prairie Working Group
OWEB	Oregon Watershed Enhancement Board
PP&R	Portland Parks & Recreation
PSU	Portland State University
RCS	Regional Conservation Strategy
SAP	strategic action plan
SNAC	Sellwood Natural Amenities Committee
SWCDs	Soil and Water Conservation Districts
TEK	traditional ecological knowledge
THPRD	Tualatin Hills Parks and Recreation District
TNC	The Nature Conservancy
UGI	Urban Greenspaces Institute
USFWS	U.S. Fish and Wildlife Service
WDFW	Washington Department of Fish and Wildlife
WWMP	Willamette Wildlife Mitigation Program

Executive Summary: Charting a More Secure Future for Oak and Prairie Habitat

Over the next 10 years, what will happen to our oak and prairie habitats?

In the greater Portland-Vancouver region, oak and prairie ecosystems provide core habitat for hundreds of plant and wildlife species. They serve as the cultural bedrock for Native American communities and are a strikingly beautiful component of our region's natural heritage. Yet they also are among the most threatened habitat types in the United States. Without a concerted, well-organized effort to stem the tide of their decline, during the next decades these ecosystems risk becoming little more than isolated museum pieces.

Locally, oak and prairie habitats exist in numerous but increasingly disconnected fragments, many of them privately owned. They no longer benefit from historical disturbance regimes (e.g., fire). They are threatened by ongoing urbanization, agricultural activities, and invasive species, as well as new threats associated with climate change. And they lag behind our more iconic landscapes, such as salmon-bearing rivers and old-growth forests, in attracting the scientific study, public interest, and policy-maker support that are crucial in charting a more secure ecological future.

Oak and prairie ecosystems play a vital role in the ecology of the Pacific Northwest by providing habitat and food for hundreds of plant and animal species—from diminutive butterflies, ferns, and lilies to magnificent Ponderosa pines, madrone trees, and elk. Many oak- and prairie-dependent species are threatened or endangered, and some of these, like *Delphinium leucophaeum* (white rock larkspur) and *Icariacia icariodes fenderi* (Fender's blue butterfly), are found nowhere else in the world.

The latter, at least, is beginning to change. Increasingly, public agencies[1] are acknowledging the importance of intact, connected oak and prairie habitats to a healthy regional ecosystem, and local nonprofit organizations[2] are including oak and prairie habitats as a focus of their strategic conservation activities.

Since 2012, The Intertwine Alliance's Oak Prairie Working Group (OPWG) has been collaborating to address the need for better science, stewardship, restoration, and education to improve the ecological future of oak and prairie habitats in the greater Portland-Vancouver region. This strategic action plan is one outcome of the OPWG's work.[3] It will guide the OPWG during the next 10 years as the group (1) completes crucial mapping of native oak trees in the greater Portland-Vancouver region, (2) compiles existing knowledge of local oak and prairie habitats, and (3) advances conservation science, stewardship, and education related to the area's imperiled native oak and prairie ecosystems.

The strategic action plan organizes priority actions, subactions, tasks, responsible parties, estimated costs, timeframes, and expected outcomes around five interrelated strategy elements that, together, address key components of oak and prairie conservation:

A. **Spatial data:** Develop spatial data to empower better, data-driven conservation decision-making.

[1] See the Oregon Department of Fish and Wildlife's statewide Oregon Conservation Strategy (2015), the U.S. Fish and Wildlife Service's Willamette Valley Conservation Study (2017), Oregon Watershed Enhancement Board (OWEB) grants from 2017, and the City of Portland's Terrestrial Ecology Enhancement Strategy (2011).
[2] See The Intertwine Alliance's *Regional Conservation Strategy and Biodiversity Guide*, Columbia Land Trust's 25-Year Conservation Agenda, and the Willamette Partnership's Oak Accord.
[3] For others, see p. 2 of the strategic action plan.

B. **Land conservation:** Conserve land to protect habitat for declining species and prevent the decline of common species.

C. **Active stewardship:** Practice active stewardship to improve the quality of existing habitat and fill connectivity gaps by creating new habitat.

D. **Knowledge:** Develop knowledge and management guidance documents to improve and support on-the-ground stewardship and landscape-scale conservation.

E. **Community education, engagement, and advocacy:** Educate and engage stakeholders to raise awareness and appreciation of these habitats and increase conservation efforts by both organizations and individuals.

The collaboration that has gone into developing this plan will serve as a solid foundation as OPWG partners begin scaling up local oak and prairie conservation from the individual site level to the larger, more ecologically significant regional level. Along the way, we can ensure that our activities build on others' efforts in the Pacific Northwest but are tailored to local conditions and challenges. We also can bring a broad range of people into the circle of activities that will support conservation of these important ecosystems.

The Intertwine Alliance's Oak Prairie Working Group (OPWG)
formed in 2012 and now consists of more than 30 agency, nonprofit, and community partners who are collaborating to improve the conservation of local oak and prairie habitats. Partners represent fish and wildlife agencies, Native American tribes, Soil and Water Conservation Districts, park districts, cities, land trusts, watershed councils, environmental nonprofits, and community-based organizations, such as neighborhood associations.

Consistent with the OPWG's collaborative nature, every action in the strategic action plan will require the combined efforts of multiple partners. Not all partners will participate in every action; instead, partners will contribute consistent with their organizational capacity and mission. Also essential will be consistent, strategic communications that make oak and prairie habitats and the conservation measures they need more visible in the public eye, as well as with specific audiences. Additionally, because habitats, management approaches, and priorities are fragmented throughout the region, OPWG partners will need to work with both public and private landowners, across the urban-to-rural land use spectrum, and adapt existing tools and approaches so that they can be applied across scales, land use settings, and audiences. The actions identified in the strategic plan are designed to support all three of these areas: collaboration, communication, and connection with people throughout our region.

Success will not come easily. Restoring oak and prairie ecosystems in the greater Portland-Vancouver region will require a concerted, coordinated, and well-funded effort, at multiple geographic scales, that addresses a range of ecological, social, and economic barriers. But the potential rewards are great. Our activities will go beyond improving the health and survival of just our local oak and prairie ecosystems. Given our location between the northern Willamette Valley and southern Puget Trough, our efforts will contribute to the long-term, large-scale conservation of oak and prairie habitats across their range in the Pacific Northwest, from northwest California to British Columbia.

Having healthy oak and prairie habitats across the Pacific Northwest definitely is a goal worth working toward.

INTRODUCTION

About This Plan

This strategic action plan is intended to guide the work of the Intertwine Alliance Oak Prairie Working Group (OPWG) for the next 10 years as the OPWG (1) completes crucial mapping of native oak trees in the greater Portland-Vancouver region, (2) compiles existing knowledge of oak and prairie habitats, and (3) advances conservation science, stewardship, and education related to the area's imperiled native oak and prairie ecosystems.

Pacific Northwest oak and prairie habitats host more than 200 wildlife species and 300 plant taxa that depend on oak and prairie ecosystems; many of these plants and animals are threatened, and some are endemic to the Willamette Valley or greater Portland-Vancouver region, meaning that they are found nowhere else. Currently, oak and prairie ecosystems within and outside of the greater Portland-Vancouver region exist mostly in fragments. Their integrity and connectivity continue to be threatened by ongoing urbanization, agricultural activities, invasive species, the loss of historical disturbance regimes (e.g., fire), and climate change.

With this strategic plan, the OPWG is attempting to chart a more secure future for oak and prairie habitats that fall within the Intertwine Alliance Regional Conservation Strategy (RCS) planning area (see Figure 1), which is located in the northern Willamette Valley. Those remnant habitats play an ecological role not just within the planning area but also outside the region, by bridging to similar habitat patches to the north, south, and east.

More about Oak and Prairie Habitats

There are many excellent discussions of the more flora and fauna of oak and prairie habitats, as well as threats and strategic opportunities to address those threats. For on oak and prairie biota, their ecological significance, and management challenges, see pp. 47-58 in the Biodiversity Guide for the Greater Portland-Vancouver Region, the Oregon Conservation Strategy, Washington's Comprehensive Wildlife Conservation Strategy, and the Cascadia Prairie Oak Partnership.

About the OPWG

In 2012, during development of the Intertwine Alliance's *Regional Conservation Strategy for the Greater Portland-Vancouver Region,* the Intertwine Alliance Oak Prairie Work Group formed to address the lack of regional data necessary to improve conservation outcomes for imperiled Oregon white oak ecosystems. After initially focusing on oak mapping, in 2015 the group broadened its work to address stewardship, science, restoration, and education, with a focus on both native oak and prairie habitats. Currently the OPWG includes more than 30 agency, nonprofit, and community partners. They represent fish and wildlife agencies, Native American tribes, Soil and Water Conservation Districts (SWCDs), park districts, cities, land trusts, watershed councils, environmental nonprofits, and community-based organizations, such as neighborhood associations. For small groups, participating in the OPWG has enabled them to leverage their limited resources and actions against a larger partnership that offers diverse expertise and capabilities.

The OPWG holds quarterly meetings and more frequent project-specific committee meetings as needed. For information on current activities and initiatives, see the OPWG website (http://www.theintertwine.org/projects/oak-prairie-work-group).

Accomplishments So Far

- By June 30, 2018, the OPWG will have completed the first credible map of oak tree occurrences throughout the Oregon portion of the RCS planning area and begun discussion of how to use those data to develop priorities.
- The OPWG has conducted outreach to and piloted naturescaping workshops for urban landowners in oak-rich neighborhoods of north Clackamas County.
- The OPWG has published *Conserving Oregon White Oak in Urban and Suburban Landscapes*, a guidebook for landowners interested in establishing or improving oak habitat on their land. (http://www.theintertwine.org/sites/default/files/Oakscaping%20Guide.pdf)
- The OPWG has built and extended its partnership into Columbia and Clark counties.
- The OPWG has partnered with the Native American Youth and Family Center (NAYA) and Portland State University (PSU) Indigenous Nations Studies Program to mentor three Native American college students who are reinstating traditional oak and prairie stewardship practices at natural areas.
- Agencies such as Metro, Portland Parks & Recreation, the North Clackamas Parks and Recreation District (NCPRD), and Oregon Parks and Recreation Department (OPRD) have secured protection of oak habitats on public lands and are initiating oak release, weed control, and other restoration measures there.
- The Clackamas, West Multnomah, and Tualatin Soil and Water Conservation Districts are pursuing outreach to and collaboration with private landowners to restore oak habitat.
- OPWG partners are considering how native oak and prairie conservation activities fit within their work plans. More broadly, engaged community members are seeing remnant oaks as ecological legacies to be safeguarded.

These noteworthy accomplishments represent a solid beginning, but only that. Successfully restoring oak and prairie ecosystems will require a concerted, coordinated, and well-funded effort at multiple geographic scales that will address ecological, social, and economic barriers. How that work is organized and prioritized is the focus of this strategic action plan (SAP).

Strategic Action Plan Structure and Content

The SAP is organized into five interrelated strategy elements that address important barriers to oak and prairie conservation and related opportunities to address them:

A. **Spatial data:** Develop spatial data to empower better, data-driven conservation decision-making. In the near term, complete a high-quality Oregon white oak distribution map for the entire Regional Conservation Strategy (RCS) planning area within one year of the completion of this strategic action plan, develop a priority oak parcel conservation map, and support our partners' use of the map to advance conservation actions. Over the long term, develop a map of remnant/potential native prairie habitat, update and refine oak map products, and serve ongoing geospatial data needs for oak and prairie conservation in the greater Portland-Vancouver region.

B. **Land conservation:** Increase the pace and efficiency of oak habitat protection to create a functional network of conserved oak habitat in public and private ownership throughout the RCS planning area.

C. **Active stewardship:** Improve the quality and connectivity of oak and prairie habitat through active, strategic, and scientifically sound stewardship.

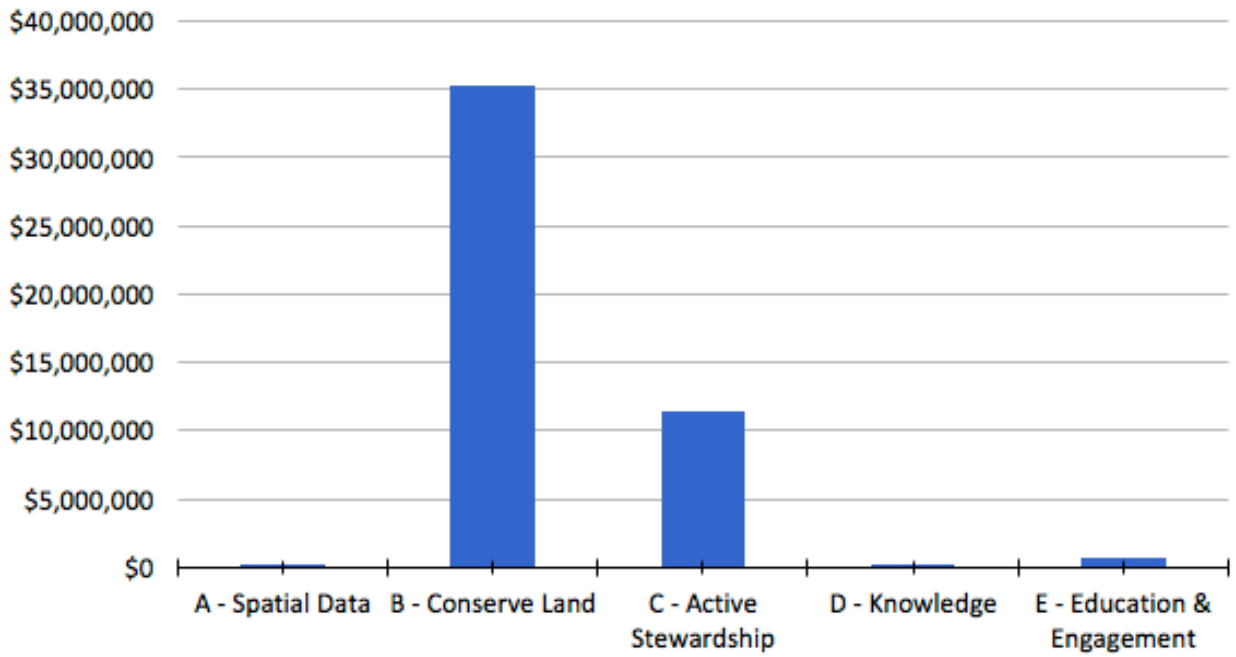
D. **Knowledge:** Synthesize and develop knowledge, information, and data sources to support the improvement of stewardship practices and conservation prioritization across the region. These efforts will seek to encompass knowledge and information that reflect multiple cultural approaches.

E. **Community education, engagement, and advocacy:** Increase public awareness of and engagement with Northwest native oak and prairie habitats and their conservation across the region—to grow the stewardship community, safeguard remnant oak/prairie habitats, and foster restoration, enhancement, and conservation on public and private lands.

Each of the strategy element sections of this plan describes a goal and background information; identifies key partners; lists priority actions, subactions, and associated tasks; and, in many cases, presents key outcomes, timeframes, and costs. Table 1 provides more detailed information at the subaction level, listing the measures of success, priority, and timeframe for completion of each subaction.

Table 1 shows the relative resources that are expected to be needed to complete each of the strategic elements, with initial estimates ranging from $135,000 (for the Knowledge element) to $35 million (for the Land Conservation element).

Table 1
Relative Financing Needs for the Five Strategy Elements



Values for the Land Conservation and Active Stewardship elements are higher than the others because of the cost of land acquisition. These are initial estimates only; all cost estimates need to be refined. More information about the estimates is included in the narratives for each element.

The priority actions within each strategy element rarely fall into a single category. Instead, they connect in a multi-dimensional web. However, in order to streamline the SAP, reduce duplication, and simplify future reporting and revision, the OPWG developed simple rules to place each action, subaction, or task that was identified in multiple elements into only one. We hope that readers will recognize that successful implementation of nearly all the identified actions will require engagement across multiple strategy elements and that which strategy element "hosts" a given action is not particularly important. If a major action is found to be missing, we are counting on passionate individuals to bring the action forward for discussion in the working group and potential inclusion in future efforts.

This strategic action plan was developed as a collaborative effort by various OPWG partners. It is important to remember that not all partners will be involved in the implementation of each action. Instead, partners will contribute efforts consistent with their organizational capacity and mission. Organizations identified as leads will be responsible for facilitating processes, aiding supporting organizations as needed as they implement priority actions, and seeing that actions move toward completion.

In developing the plan, it became apparent that, to move forward on priority actions, all partners will need to actively cultivate and rely on the following:

- **Effective communication.** The SAP calls for a unified and strategic communication plan to continue to elevate the visibility of oak and prairie habitats and needed conservation measures, with messaging adapted for the general public as well as specific audiences, such as designers/developers and large rural versus small urban landowners.
- **Collaborative partnerships.** Because no agency, nonprofit, or landowner has the resources to successfully implement conservation measures in isolation, every action within the SAP will require true collaboration—among existing and potentially new partners. This SAP and other recent accomplishments may serve as a model for future collaboration.
- **Broad view.** Because habitats, management approaches, and priorities are fragmented across all portions of the urban-to-rural landscape, OPWG partners will need to work with public and private landowners across the land use spectrum. It will be challenging to adapt existing tools and approaches so that they can be applied across scales, land use settings, and audiences.

Fitting into a Regional Context

This strategic action plan does not exist in a vacuum. It is closely aligned with *Prairie, Oaks, and People*, a regional conservation business plan for prairie and oak habitats developed by six conservation groups. Released in 2017, *Prairie, Oaks, and People* provides a framework for a regional strategy that spans the range of oak and prairie habitats from northwest California to British Columbia. The document describes high-level strategies to recover listed at-risk species, addresses broader habitat conservation objectives, and outlines a 10- to 15-year investment strategy for coordinating conservation actions across geographic and institutional boundaries. Local partnerships like the OPWG are expected to be the primary vehicle for implementing the larger regional strategy.

As previously discussed, the OPWG's strategic action plan will address priorities in the Intertwine Alliance's *Regional Conservation Strategy* and those in other broad-scale conservation plans, including the Oregon Department of Fish and Wildlife's statewide *Oregon Conservation Strategy* (2015) and the U.S. Fish and Wildlife Service's *Willamette Valley Conservation Study* (2017). Moreover, in late 2017, the Oregon Watershed Enhancement Board (OWEB) awarded grants totaling more than $300,000 to support development of three additional strategic action plans to guide oak and prairie conservation efforts in the upper Willamette Valley, around the eastern end of the Columbia River Gorge, and in the Klamath-Siskiyou region of southern Oregon. Those plans, developed for the Willamette Valley Oak-Prairie Cooperative, East Cascades Oak Partnership, and Klamath Siskiyou Oak Network, respectively, will complement the work of OPWG partners.

Together, regional efforts will help create a unified approach to conservation needs across a significant portion of the range of oak and prairie habitats in the Pacific Northwest.

Strategy Element A: SPATIAL DATA

GOALS

⇒ ***Near-term:*** *Complete a high-quality Oregon white oak distribution map for the entire Regional Conservation Strategy (RCS) planning area within one year of the completion of this strategic action plan, develop a priority oak parcel conservation map, and support our partners' use of the map to advance conservation actions.*

⇒ ***Longer term:*** *Develop a map of remnant/potential native prairie habitat, update and refine oak map products, and serve ongoing geospatial data needs for oak and prairie conservation in the greater Portland-Vancouver region.*

Resources needed: *We estimate that approximately $185,000 is needed over the 10-year duration of the plan to accomplish the tasks outlined below. This estimate includes in-kind staff time as well as new revenue for as-yet-unfunded actions.*

IMPORTANCE

To efficiently advance regional oak conservation, the OPWG and its partners need data on the spatial distribution of remnant oak stands. Without an understanding of the habitat's distribution across the region, it is impossible to plan and implement effective oak conservation, including ecological connectivity. Having a complete, consistent map of native oak and prairie habitats is important in orchestrating targeted acquisitions, outreach, stewardship, and restoration activities.

CURRENT STATUS

As of June 30, 2018, a reasonably comprehensive oak distribution map has been completed for the whole of the Oregon portion of the Regional Conservation Strategy planning area. For the Washington RCS area, partial oak distribution data are available that supplement oak distribution data available from the Washington Department of Fish and Wildlife. After a 2014-2015 field-based community science effort called "OakQuest" that engaged more than 200 volunteers, the ongoing effort is now focused on mapping oaks from aerial photos with limited field verification. Our partners are key to helping complete this effort.

The current draft oak distribution map (available via DataBasin at Oakquest 2014-15 Oregon White Oak locations, https://databasin.org/groups/28468f0818724d1090bda7cb507ba633) depicts point locations of individual trees and was developed from a combination of field- and aerial photo-based mapping from 2014 to the present.

Initially we devoted significant time and resources to developing oak maps based on geographic information system (GIS) modeling guided by field data, with Metro producing the models. Two iterations of the oak model failed to adequately predict oak locations, despite considerable ground-truthing to tune and adjust the models. Poor modeling results were attributed to the complexity of the

urban-suburban forest cover, the diversity in tree species, and inconsistent aerial photo and light detection and ranging (LiDAR) data available for the region. We needed a different approach.

During the data review phase of the 2014-2015 community science effort, Metro staff developed an eye for detecting oak in high-resolution aerial photos. From 2015 to 2018, Metro and Urban Greenspaces Institute staff developed a methodology for systematically mapping oaks from aerial photos and implemented it across the whole of the RCS planning area within Oregon. This aerial photo-based method has yielded better results than the original model-based approach.

A potential future priority action for the OPWG spatial data team is to serve ongoing needs for geospatial data development and refinement. This could include maps of prairie, protected versus at-risk oak and prairie habitats, habitat types (oak savanna, oak woodland, wet/dry prairie, etc.), and vegetation structure and composition.

KEY PARTNERS AND EXPERTISE/CONTRIBUTION

- **Metro and Urban Greenspaces Institute**
  GIS, remote sensing modeling, and desktop mapping
- **OPWG partners and community members**
  OakQuest field efforts
- **Portland Parks & Recreation and Scappoose Bay Watershed Council**
  Desktop mapping
- **PSU Indigenous Nations Studies Program**
  Community science mapping, including supervision of three interns

PRIORITY ACTIONS

For details on subaction-level measures of success, priorities, and target completion dates, see Appendix A.

A1. Complete first-generation oak distribution map.

Explanation: A regional oak distribution map is scheduled to be completed for the Oregon portion of the RCS planning area by July 2018. However, the Washington portion of the RCS planning area remains incomplete. Having a credible map of the distribution of oak throughout our region will allow for data-driven rather than expert opinion-driven prioritization of conservation efforts.

Resources needed: $100,000 cash and 30 weeks of in-kind staff time have been devoted thus far. We estimate that $35,000 is needed to complete the Washington portion of the RCS planning area; this will result in a comprehensive oak map for the region.

Subactions:

A1.1 Refine and complete oak map for Oregon portion of the RCS planning area.

A1.2 Refine and complete oak map for Washington portion of the RCS planning area.

A1.3 Provide training to partners and explore various ways in which the data can be used and refined to support more effective oak conservation across the region.

A2. Update oak distribution map as needed and resources allow.

Explanation: We need to determine when and how to update the regional oak map, and with what resources. Supporting oak (or prairie) map products that are updated as new information becomes available will require dedicated funding and staff support by Metro or another capable entity.

Resources needed: Dedication of current staff, estimated to be at least $25,000. No resources have yet been secured, and this is deemed a low priority in the near-term (through 2020).

Subactions:

A2.1 Convene a group to determine whether, when, and how to refine the oak map.

A2.2 Refine spatial data products based on feedback from OPWG partners and others.

A3. Collect other oak and prairie spatial data for the RCS planning area.

Explanation: Several partners have indicated an interest in developing a complementary native prairie habitat distribution map for the RCS planning area, as well as maps of oak habitat types, priority private land parcels for fee simple purchase/easements, and other priority oak- and prairie-associated species. The first subaction under this action is to assess the need and potential uses for such maps; completion of the remaining subaction depends on the outcome of Subaction A3.1. If the OPWG determines to move forward, all of the subactions will be completed. At this time, a priority oak parcels map (deemed a high priority) is scheduled to be developed in 2018-2019.

Resources needed: $10,000 cash for each of two initial needs assessment, plus $50,000 each for two regional mapping efforts (including in-kind staff time and any needed contractors). No resources have yet been secured.

Subactions:

A3.1 Assess the need for a map of remnant prairie habitats, oak habitat types, and/or other priority species.

- Investigate how to transform the oak tree map into secondary data products that prioritize specific habitats, or other elements.
- Develop new spatial data of prairie habitat and/or other priority oak or prairie species.

A3.2 If a need is identified, determine potential resources and develop or adapt protocols for mapping target habitats and species.

- For spatial data needs identified under Subaction A3.1, gather partners, develop a scope work, develop methods, secure funding, and hire and oversee one or more contractors.

A3.3 If A3.2 is executed, map target habitat and species.

- Produce maps, integrate them with the existing portfolio of spatial data, and train partners in data use and applications. Use new spatial data to enhance RCS land cover and habitat corridors maps.

A3.4 Use oak distribution and parcel maps to derive a map of priority parcels for native oak conservation.

- Combine oak distribution and parcels to derive a regional priority oak conservation parcels layer, accessible to all OPWG partners.

CHALLENGES, GAPS, AND OPPORTUNITIES

Working collaboratively. Reaching the ambitious goal of a reasonably complete oak map for the whole of the RCS planning area by June 2018 requires collaboration, to leverage partner resources against Metro's geospatial expertise. It is not enough to cobble together various OPWG partner oak maps because existing maps are of limited extent, vary in resolution and completeness, and were developed with inconsistent methodologies. Mapping oaks in the field or from aerial photos requires training, basic GIS competence, and attention to detail.

Appropriate use of data and training. The existing oak map integrates field- and GIS-based aerial photo observations of Oregon white oak. Both field- and photo-mapped oaks have varying degrees of spatial imprecision and known limitations in the completeness of mapping, particularly for areas where conifer forests are overtopping and obscuring oaks visible in the aerial photos. As a result there is a risk of misuse of the draft oak map by parties who do not understand its incomplete status. The oak map is not appropriate for site-level assessments (under 1:12,000); it is better suited for landscape-level characterizations and conservation action prioritizations at scales of 1:24,000 or larger. OPWG partners will need to be trained if they are to make appropriate use of the oak map, and additional thought is needed on how partners could update and enhance the regional oak maps for site-level applications.

Map integration beyond the RCS planning area. Several other data sets depict native oak and prairie distribution at the margins of and beyond the RCS planning area. For example, the Northwest Habitat Institute has developed a polygon-based map of oak stands for portions of the Willamette Valley, including portions of Washington and Clackamas counties. In addition, the Washington Department of Fish and Wildlife and Washington Department of Natural Resources have developed polygon-based maps of oak and prairie habitats for southwest Washington (including Clark, Skamania, and Cowlitz counties), and the U.S. Forest Service is developing oak distribution maps for the Columbia River Gorge.

Further consideration is needed regarding how the OPWG's point-based oak maps and as yet-undeveloped prairie data integrate with these other data sets.

Strategy Element B: LAND CONSERVATION

GOAL

⇒ *Increase the pace and efficiency of oak habitat protection to create a functional network of conserved oak habitat in public and private ownership throughout the RCS planning area.*

We propose developing an integrated approach to land conservation that addresses social, political, and scientific barriers to success. The approach will involve the following:

- Development of data-driven regional oak habitat priorities to focus conservation efforts on important locations.
- Improved communication and collaboration among organizations.
- Identification and removal of policy barriers.
- Improved legal tools to protect habitat.
- Expanded capacity to implement those tools via development of outreach materials, training, and increased public funding.

Resources needed: *Meaningfully estimating the resources required for this aspect of oak conservation is not yet possible. However, preliminary estimates based on some basic assumptions put the cost of acquiring conservation rights (i.e., buying land or conservation easements) at $35 million.*

The cost of other efforts described under this strategy element are relatively modest ($319,000); they mostly involve staff time or small contracts.

Secured resources: *Currently, there are few available sources and no dedicated resources for securing conservation rights for oak habitat. As of early 2018, Metro's 2006 Natural Areas Bond Program was nearing its end. Limited opportunities exist to pursue competitive grants through programs such as the Oregon Department of Fish and Wildlife-Bonneville Power Administration's (BPA) Willamette Wildlife Mitigation Program (WWMP).*

IMPORTANCE

Establishing a connected system of protected areas (meaning lands managed primarily for conservation) provides the essential framework of functional native ecosystems. Such a network, when combined with individual, voluntary efforts in the broader landscape, supports water quality, healthy habitat, and native wildlife. It also provides a hedge against climate change, and it creates opportunities for people to experience and benefit from nature. For oak habitat, multiple factors increase the urgency to act now, including expansion and infill of urban and rural residential areas, expansion of vineyards on lands previously considered unsuitable for agriculture, and the widespread degradation of existing oak habitat on both public and private lands.

CURRENT STATUS

As noted in the *Regional Conservation Strategy*, our region's voters have financially supported habitat protection that includes public acquisition of several oak anchor sites and many small protected areas. Significant sites include Champoeg State Park (OPRD), Cooper Mountain Nature Park (Metro, Tualatin Hills Parks and Rec. District [THPRD]), the Willamette Narrows Complex (Metro, The Nature Conservancy, Oregon Parks and Recreation, City of Portland), Sauvie Island Wildlife Area (Oregon Department of Fish and Wildlife [ODFW], and Ridgefield National Wildlife Refuge (U.S. Fish and Wildlife Service [USFWS]). Although these protected acres are a start, they represent only a modest fraction of the area needed to serve as an effective framework for broader regional conservation efforts. Needed acquisition funding from local (THPRD, City of Portland), regional (Metro), state (ODFW-BPA WWMP), and federal sources is scarce (federal), highly competitive (state), and largely spent out (THPRD, Metro). Continued engagement and education of leaders, stakeholders, and the community at large are necessary to ensure that future funding measures are proposed and passed by voters.

The lack of a credible map of oak distribution makes meaningful assessment of the regional protection status of oak habitat challenging and makes setting spatially explicit, data-driven conservation priorities impossible. With the completion of a credible map of the Oregon portion of the RCS planning area expected by July 2018 and a regional partnership with a proven track record of collaborative science, we have a great opportunity to fill that knowledge gap.

The vast majority of remaining oak habitat remains in private ownership and is vulnerable to threats that include active conversion and degradation through lack of active management. As awareness has risen during the last decade, there has been increased local and national support dedicated to assisting private landowners; this support includes federal grants and local passage of permanent funding measures for all four Soil and Water Conservation Districts in the Portland area. However, there remains a substantial need to develop and effectively publicize a wide range of land protection tools that can protect remnant oak habitat, both for the long term and especially, when necessary, on short notice.

Finally, our region has substantial but overlapping organizational capacity for landowner outreach and conservation. This creates a risk of duplication, inefficiency, and confused or frustrated landowners. A trial meeting of conservation organizations held in 2016 demonstrated robust commitment to information sharing and collaboration.

KEY PARTNERS AND EXPERTISE/CONTRIBUTION

- **Columbia Land Trust (a land trust that covers our entire geography)**
  Ownership and management of land and conservation easements; outreach, science and stewardship capacity
- **Metro**
  Capacity to propose funding measures, negotiate land deals, own and manage land and easements, and lead science-based processes

- **Native American tribes**
  Stakeholder with interest in increasing land ownership of oak habitats; potential owner of land or easement holder
- **Natural Resources Conservation Service (NRCS)**
  Federal support for conservation districts; technical expertise and conservation planning for farmers, ranchers, and forest landowners wanting to make conservation improvements to their land
- **Pacific Birds**
  Regional organization focused on bird conservation; science and policy expertise
- **Soil and Water Conservation Districts**
  Relationship building with private landowners; implementation of voluntary conservation measures
- **State, city, and county governments and park districts**
  Landowners, land-use policy, funding measures
- **Trust for Public Land**
  National nonprofit with expertise in public funding and land transactions
- **U.S. Fish and Wildlife Service**
  Potential owner and manager of anchor habitats through the refuge system
- **Willamette Partnership**
  Regional nonprofit with expertise in policy and consensus building

PRIORITY ACTIONS

For details on subaction-level measures of success, priorities, and target completion dates, see Appendix A.

B1. Identify priority parcels for oak conservation using tax lot data.

Integrate tax lot, zoning, and ownership data with oak distribution and priority data to identify key landowners for outreach and conservation.

Explanation: Conservation actually happens on lands owned by organizations and individuals, not on abstract polygons. As such our analysis must include a tax-lot based approach to determine the properties and people with whom we should engage. Such efforts can take place independently at a variety of spatial scales but are more efficient if coordinated.

Key outcomes: Tax lot-specific analysis of key oak property owners

Lead organization: Metro

Key partners (especially for outreach): Portland Audubon, Columbia Land Trust, SWCDs, city jurisdictions, academic and research institutions such as Portland State University and Oregon Natural Heritage Information Center

Resources needed: $20,000, but much of the work can be accomplished with available staff resources

Estimated completion (analysis): June 30, 2019

B2. Acquire conservation rights (fee title or limited property rights) to priority parcels.
Work with diverse stakeholders to fund and acquire conservation rights on priority sites, whether fee title or more limited property rights from willing sellers throughout the region.

Explanation: Permanently protected natural areas—especially large, well-managed "anchor sites" owned or managed by public or private conservation organizations— can function as the core of an adaptable natural ecosystem to which other strategies can anchor, such as multiple-use public areas, temporarily protected lands, and voluntary stewardship actions by private landowners. The ability of private or public entities to successfully acquire land depends on organizational leaders, elected officials, and the public supporting local and regional funding measures—and on having strong proposals for competitive funding pools, such as from granting agencies or foundations.

Key outcomes:

- Development of presentations on oak habitat protection for multiple audiences
- Delivery of presentations to key stakeholders and community groups
- Increased grant funding for oak habitat protection from competitive sources
- Inclusion of oak habitat protection in regional funding measures
- Key priority habitat areas protected

Lead organizations: Columbia Land Trust, Metro, Trust for Public Land, Urban Greenspaces Institute

Key partners: Cities and counties, SWCDs, regional park districts

Resources needed: Dedication of current staff; $35 million for acquisition

Estimated completion: Ongoing

Subactions:

B2.1 Work with stakeholders to increase awareness and identify focal areas for public investment.

- Develop presentations about the importance of (1) oak, and (2) oak priority habitat models.
- Present findings of regional prioritization work to multiple audiences, including local park districts, conservation districts, and neighborhood associations.

B2.2 Support passage of public funding measures for land acquisition, including conservation easements.

- Educate senior agency leadership, political leaders, and community stakeholders on the need for additional land protection as part of a long-term conservation strategy. (This involves collaboration with the Community Education, Engagement, and Advocacy strategy element.)
- Provide scientific support to develop public funding measures and provide outreach to advocates seeking to pass such measures.

B2.3 Support partner grant applications to public and private funding sources for land acquisition and easements.

- Use OPWG meetings and e-mail list to coordinate the pursuit of funds and support.
- Meet with local, regional, and national funders to communicate our readiness and the importance of near-urban habitat.

B2.4 Acquire land or interest in land from willing sellers.

- Use prioritization tools and coordination meetings to collaborate on acquisitions.
- Target high-priority properties and land uses, such as vineyards, for acquisition in fee, easements, or shorter term and more flexible tools.
- Set short-term and long-term acquisition goals.
- Complete transactions.

B3. Improve communication among practitioners.

Form and maintain a communication network of land protection practitioner organizations to address capacity gaps, enhance collaboration, and increase operational efficiency.

Explanation: To ensure that oak and prairie conservation efforts are not duplicated, information sharing and communication among practitioners should occur at the leadership and project management level across conservation organizations. A lead organizing partner should be identified early in the process.

A landowner being contacted by multiple entities reflects poorly on the overall effort and on the partners involved. Landowners may become confused or frustrated if they are being contacted by multiple partners; this can put relationships and trust built up over many years at risk.

Robust, intentional communication enables coherent, consistent messaging about oak and prairie conservation efforts to be presented to funders, potential new collaborators, and the public at large. This action will involve identifying a lead organizer, reaching out to interested partners, developing agendas and holding meetings that meet stakeholder needs, identifying capacity and regional interest gaps in geography and strategy, and collaborating on landowner outreach to avoid multiple contacts.

Key outcomes:

- Inclusive, periodic forums for conservation partners to discuss land protection
- Smaller, geographically focused groups like the Tualatin Basin Conservation Partners
- Sharing of strategic and conservation plans by individual organizations, particularly as priorities associated with oak and prairie conservation change
- Ongoing, informal conversations among project-level land protection staff
- Enhanced leadership and staff-level collaboration and avoided overlap among partners

Lead organization: Undefined, potentially Intertwine Alliance staff, Coalition of Oregon Land Trusts, Columbia Land Trust, or Metro**.**

Key partners: All organizations conducting landowner outreach, but especially Columbia Land Trust and other regional land trusts, SWCDs, and Metro.

Resources needed: $49,000, mostly through dedication of current staff.

B4. Improve toolkit for non-fee acquisition habitat protection.

Improve the use and effectiveness of non-fee property rights acquisition as an oak conservation tool by inventorying, assessing, and improving the available tools; identify and fill capacity and knowledge gaps in our region.

Explanation: Despite increased local and regional funding dedicated to assisting private landowners with oak conservation in recent years (e.g., Yamhill-Polk Regional Conservation Partnership Program, Clackamas-West Multnomah White Oak Conservation Implementation Strategy, passage of Tualatin SWCD permanent tax base), there remains a need to expand the

knowledge and range of land protection tools that can protect existing oak habitat for the short and long term. Not every landowner interested in protecting habitat is willing to consider selling their property outright or establishing permanent restrictions. For some individuals, temporary conservation easements, leases, licenses, or other forms of agreement will be more desirable. Measures such as identifying and fully understanding the available options, developing new tools, creating effective training and user guides, effectively sharing information with landowners, and increasing regional capacity for implementation have significant potential to advance regional conservation efforts.

Key outcomes:

- Inventory, documentation, and assessment of the current menu of non-fee approaches, including the potential role of mitigation.
- Production and sharing of user guide and outreach materials related to protection of oak habitat.
- Assessment of regional organization capacity.
- Increased capacity for non-fee habitat protection.

Lead organization: No established leadership.

Key partners: Columbia Land Trust, SWCDs, Oregon Department of Forestry.

Resources needed: $50,000 or more through dedication of current staff; possibly a small contract for material development and production.

Estimated completion: 2021

Subactions:

B4.1 Inventory and assess the role of non-fee approaches other than permanent conservation easements, such as leases, incentives, or other temporary tools.

- Catalogue existing short- and long-term tools and develop alternatives.
- Document existing (or if necessary develop) a user guide-type document to assist practitioners and landowners.
- Increase capacity for the most promising tools.
- Look at the pros and cons of mitigation as a potential tool for oak conservation.

B4.2 Improve knowledge and use of conservation easements.

- Identify and map existing entities that can and are willing to hold and manage easements.

- Develop tools to facilitate the development, holding, and management of conservation easements (including legal assistance); include best management practices (BMPs) or guidance regarding easement language.
- Develop communication tools to help landowners understand non-fee approaches to land protection.
- Secure funding source(s) for long-term monitoring, management, and stewardship of easement properties.

B5. Encourage maintenance of conservation values on priority habitats where landowners are not interested in formal land protection measures.
Work through SWCDs and other partners to build relationships with owners of priority habitats; provide assistance and support for informal, voluntary efforts that will help protect existing habitat values.

CHALLENGES, GAPS, AND OPPORTUNITIES

Scientific knowledge to empower efficient, effective conservation. Well-established, data-based conservation priorities lead to more efficient creation of conservation networks, and increase stakeholder and public confidence and willingness to invest. The lack of data on oak distribution has limited land protection to true "no regrets" sites (i.e., sites where there is a high degree of certainty that conservation investments are worthwhile) or decisions driven by expert opinion. Completion of an oak distribution map, cross-referenced with land ownership, will create a more strategic approach to land protection.

Funding for protection of additional land. Whether via fee acquisition, easement, or temporary license, land protection requires substantial funding. During the last 20 years, regional voters have shown a consistent willingness to support land acquisition if they are convinced of the need and the plan is sound. Thanks to recent efforts and those being planned by the OPWG, public appreciation of oak habitat is rising, as is our ability to develop landscape-scale strategies with improved data. Effective communication about the importance of and need for oak conservation, plus a compelling plan for success, offers the OPWG an excellent chance of successfully advocating for the inclusion of oak habitat as a priority for future local-, regional-, and state-level public funding measures.

Capacity and cross-program organization to engage landowners. Our region is blessed with many conservation-minded organizations. State, regional, county, city, and nonprofit entities are ready and willing to engage in oak habitat conservation. Such a wealth of energy comes with the challenge of coordinating so as to reduce duplication of effort, competition for resources, and activities that create confusion among stakeholders. We have a responsibility and an opportunity to identify and resolve capacity gaps and overlap through regular meetings and workshops, and to work together to efficiently increase our region's capacity to implement high-quality projects.

Understanding of legal tools to support conservation. Outright land acquisition is only one option for protection. Although a wide range of tools is available, as a community we need to better understand these tools and capacity gaps, fill those gaps, and effectively share information among ourselves and with landowners. All the efforts to create and enhance oak habitats cannot make up for the sudden loss of existing, high-quality habitat. In addition, the protection of habitats on private land parcels owned by conservation-minded landowners may be limited. The sale of such habitats to unaware or less conservation-minded landowners can result in a need for rapid conservation intervention. Analysis and outreach must focus on identifying large, strategic, and at-risk parcels that hold priority oak habitats. Thanks to a strong network of SWCDs, an active land trust, and substantial regional GIS expertise, we are well-positioned to address this challenge through a collaborative approach.

Strategy Element C: ACTIVE STEWARDSHIP

GOAL

⇒ *Improve the quality and connectivity of oak and prairie habitats through active, strategic, scientifically sound stewardship.*

Fires set by Native Americans historically maintained the oak and prairie ecosystem by suppressing competing tree species such as Douglas fir, Oregon ash, and big leaf maple, as well as shrubs and grasses. In the modern landscape, prescribed fire is difficult and often expensive to use, leading to the need to implement other measures such as selective harvesting (i.e., oak release), mowing, grazing, and herbicides to maintain open habitats and healthy oak trees.

Rebuilding and sustaining healthy oak and prairie ecosystems requires a suite of actions, such as enhancing existing habitat with an early emphasis on protecting mature trees and creating oak and prairie habitat patches to fill connectivity gaps. Oak and prairie habitats occur naturally in a variety of forms, with varying vegetative structures and composition. Our goal is to maintain diverse habitat types across the landscape. To do this, we need to develop meaningful measures of habitat quality, ensure that plant materials are available to support restoration efforts, and provide the technical support needed for practitioners to implement successful projects.

Resources needed: *$11.4 million. However, until acreage goals are established, it is not possible to meaningfully define costs for successful active management. Yet it is reasonable to expect overall regional investment in oak and prairie stewardship to be a significant ongoing expense shared by federal, state, regional, and local governments and agencies, as well as committed nonprofits, homeowner associations, and individual community members. In some cases, restoration actions – e.g., the removal of conifers that threaten the health of oak stands—may generate revenues that can help offset stewardship costs.*

Secured resources: *Many organizations in the RCS planning area (USFWS, ODFW, Metro, City of Portland, Columbia Land Trust, Soil and Water Conservation Districts, Partners in Flight, etc.) have identified oak and prairie conservation as a priority and already are investing or are willing to invest staff time and cash resources in oak and prairie conservation.*

IMPORTANCE

Oak and prairie are the preferred habitat for hundreds of wildlife, plant, and pollinator species, including many that are endangered, threatened, or declining. Oak and prairie ecosystems also are an important element of Oregon's natural and cultural heritage, and many people feel a natural affinity for these beautiful landscapes. "Oak-rich" sites such as Cooper Mountain and Ridgefield National Wildlife Refuge attract thousands of visitors per year. Oak and prairie habitats rank among the most threatened in the United States, with as little as 2 percent of some types remaining. Action taken today to improve management of these habitats not only leverages the significant regional investment already made in their acquisition, but helps prevent further species declines that may lead to disruptive and expensive listings under the Endangered Species Act.

CURRENT STATUS

Land use regulations and landowner awareness have not kept pace with the decline of oak habitat or ecologists' growing understanding of the needs of ecosystems that require active management. Oaks lack legal protection, and a labyrinth of city, county, and agency rules can make it difficult or impossible to implement necessary conservation actions such as removing trees that compete with oaks.

Habitat loss and degradation caused by invading conifers and weeds pose an urgent and continuing threat to most remaining oak and prairie habitats in the RCS planning area and the many species that depend on them. During the last 20 years, natural resource scientists and practitioners have established a strong foundation of knowledge about the ecology and management of oak and prairie habitats and have developed tools to apply that knowledge to individual projects. However, much work remains to improve and refine that knowledge, move it throughout the policy and practitioner community, and, more importantly, apply it in practice across the landscape in settings that support a variety of human uses.

Research and field trials across the Willamette Valley and Puget Trough have established that oaks thrive when released from competition with invading conifers. These projects have allowed practitioners, consulting foresters, and timber operators to refine strategies for the practical implementation of projects and to establish meaningful cost estimates.

A variety of organizations and partnerships, including the OPWG, have produced user guides that help landowners and practitioners work through the many decisions that are part of a successful habitat enhancement project. User guides include examples aimed at natural area managers, large-lot private landowners, and backyard habitats. Awareness of and access to these guides vary greatly.

Several organizations have developed measures of habitat quality, such as measures of biotic integrity developed by the Washington Natural Heritage Program and key ecological attributes (KEA) developed by The Nature Conservancy. Efforts are underway to supplement and test this work locally with additional field research, especially on pollinators. These efforts create a foundation for our region to agree to and improve on a common set of measures to align our work and track progress.

Willing landowners, well-trained practitioners, and clear measures of success create a framework for effective conservation. However, without available and affordable native plant materials, such efforts will fall short. A comprehensive list of plants closely associated with oak and prairie habitats has been compiled, and Metro is leading an effort to catalogue where these species occur in our region, collect and bank seeds, and ensure that key species are available for restoration projects. This work supplements a much larger regional effort led by the Institute for Applied Ecology to produce key oak and prairie plant species at commercial scale.

Finally, the available information and support for enhancement work are not widely known throughout the practitioner, policy maker, or landowner communities. Although oak and prairie habitats have suffered dramatic declines, our mapping efforts demonstrate that oak trees remain widely distributed and opportunities exist on all land use types to contribute to regional conservation. A comprehensive map of oak trees and an updated land cover map of the RCS planning area will be completed by July 2018. With these data, the OPWG will be well positioned to identify priority areas, disseminate knowledge, and leverage our shared expertise and vision to create meaningful and lasting conservation of oak and prairie habitats.

KEY PARTNERS AND EXPERTISE/CONTRIBUTION

- **Portland Audubon**
  Co-leads the Backyard Habitat Certification Program with Columbia Land Trust.
- **City of Portland**
  Restoration of City of Portland properties; funding and staff support for conservation science.
- **Clackamas Soil and Water Conservation District**
  Funding and project management on private lands in Clackamas County; funding and staff support for conservation science.
- **Columbia Land Trust**
  Funding and restoration project management on private protected lands; co-lead of the Backyard Habitat Certification Program, with Portland Audubon; staff support for science projects.
- **Metro Parks and Nature Program**
  Restoration of Metro properties and intellectual support for partner projects; funding and staff support for conservation science.
- **Natural Resources Conservation Service**
  Provides cost-share funding through Farm Bill programs to implement conservation actions on private lands.
- **Tualatin Soil and Water Conservation District**
  Leads and funds projects on private lands in Washington County; funding and staff support for conservation science.

- **Watershed councils and other local nonprofits**
  Gateway to the community; have the potential to implement projects or provide long-term stewardship support.
- **West Multnomah Soil & Water Conservation District**
  Leads and co-funds projects on private lands in West Multnomah County; funding and staff support for conservation science.
- **Xerces Society for Invertebrate Conservation**
  Leads investigations into invertebrates as an indicator of habitat quality

PRIORITY ACTIONS

For details on subaction-level measures of success, priorities, and target completion dates, see Appendix A.

C1. Create and enhance habitat on priority locations with an early emphasis on protecting legacy trees.

Explanation: Creating and enhancing oak and prairie habitat on protected lands creates anchor habitats for the plants and wildlife that depend on oak and the entire range of oak and prairie habitats. Ensuring that land managers from various jurisdictions and organizations are up to date on oak management practices and available assistance will improve regional oak habitat and solidify the regional approach that is at the core of the OPWG.

By prioritizing and identifying areas for oak and prairie habitat, land managers will have a big-picture look at where their jurisdiction fits into the region and where investments will result in the greatest regional benefit. This prioritization effort may aid in gaining funding for creation and enhancement projects, whether through grant funds or internal budgets. By protecting legacy trees, oak release can be a low-cost form of oak preservation that buys time to do more comprehensive enhancement work. Ensuring that practitioners are up to date on stewardship information, such as oak release, will improve habitat throughout the region. Compiling and sharing information will be key in the ongoing practice of active stewardship of oak habitats. This includes ensuring that land managers are aware of the diversity of oak habitat types, and that this information is incorporated into restoration planning and related practices are integrated correctly.

Key outcomes:

- Short-term and long-term acreage goals.
- A tool or map that identifies priority areas on protected lands.
- Compilation and distribution of updated oak release information to stakeholders.
- Compilation and distribution of information on the range of potential habitat types to stakeholders.

Lead organization: Metro

Key partners: Soil and Water Conservation Districts, Columbia Land Trust, city governments, park districts, watershed councils.

Resources needed: $9 million

Estimated completion: TBD after short- and long-term goals have been defined.

Subactions:

C1.1 Create and manage oak and prairie habitats in priority locations on public and private protected lands.

- Identify and prioritize areas of oak and prairie habitats or potential oak and prairie habitats on protected lands throughout RCS planning area.
- Use agency and grant sources limited to protected lands to implement projects.
- Define short-term and long-term acreage goals.
- Consider an incentive program for lands owned by homeowner associations.
- Identify one or more important landscapes for significant public/private partnership investment based on regional prioritization efforts.

C1.2 Release existing oak from competition.

- Use management guidance to remove competing trees and improve the survival of existing oak trees in high-priority habitat areas.
- Identify one or more important landscapes for significant public/private partnership investment based on regional prioritization efforts.
- Work with knowledge groups to develop and disseminate technical guidance.
- Showcase successes through a variety of media.

C1.3 Maintain the full range of habitat types across the landscape by integrating details of oak and prairie habitat diversity concepts into restoration planning, practices, and best management practices (BMPs) to increase under-represented habitat types across the region.

- Integrate landscape connectivity concepts.
- Promote recognition and protection of the range of potential habitat types, including riparian oak.

C2. Create and enhance habitat on unprotected lands.

Create and enhance oak and prairie habitat in priority locations on unprotected public and private lands, with early emphasis on protecting legacy trees.

Explanation: Meaningful conservation of oak and prairie habitat means preserving, creating, and enhancing habitat throughout the landscape. Unprotected private and public land makes up a large majority of the total land area in the greater Portland-Vancouver region. Unprotected land can be neighborhoods, public rights-of-way, or commercial or industrial areas where habitat management is not the primary purpose of the land ownership and management.

Public interest in habitat preservation can be seen in the growth of programs such as the Backyard Habitat Certification Program (Portland Audubon, Columbia Land Trust). To expand programs and convince other key decision makers to consider oak and prairie habitat in the management of properties, it will be necessary to provide technical information and possibly economic incentives to make oak habitat a priority.

Key outcomes:

- More acres under landowner conservation plans.
- Development and coordination of effective site tours with outreach group.
- One or more maps that identify priority areas on unprotected lands.
- A list of key partners, with decision makers identified for outreach.
- Compilation and distribution of information to stakeholders (to share technical expertise).

Lead organization: Soil and Water Conservation Districts

Key partners: Columbia Land Trust, Portland Audubon, city jurisdictions, city foresters, private industry, school districts, Metro

Resources needed: $1 million

Estimated completion: TBD after short- and long-term goals have been defined

Subactions:

C2.1 Encourage the use and protection of oaks as components in settings where habitat is not the primary management driver or where no level of protection exists. Examples include large-lot rural areas, small-lot urban and rural residential areas (e.g., backyard habitat), agricultural field trees and buffers, industrial lands, developed parks, schools, and office landscaping.

- Work with local SWCDs, Portland Audubon, Columbia Land Trust, and other local partners to identify key players and prioritize opportunity areas.
- Try to influence policy/landscaping decisions.
- Share technical expertise to advance projects.
- Consider creating grant sources to encourage willing landowners.

C2.2 Work with local jurisdictions to protect legacy street trees and increase the planting of native oaks as street trees.

- Work with city jurisdictions and relevant nonprofits (Friends of Trees) to explore increasing the use of Oregon white oak (*Quercus garryana*).
- Identify decision makers.
- Explore whether incentives or subsidies would be effective.

C2.3 Increase the use of conservation planning on private lands to match oak habitat conservation opportunities with landowner goals and objectives for owning lands.

- Show how creating and enhancing oak habitats are consistent with landowner goals and objectives; if possible, show how habitat conservation helps landowners better meet their goals and objectives at lower cost.
- Identify oak conservation actions that are consistent with landowner goals and objectives.
- Identify resources for technical and financial assistance that can aid private landowners in implementing oak conservation actions.

C3. Develop, share, and expand stewardship toolkit.

Improve the use of stewardship options among practitioners by sharing existing knowledge and collaboratively developing less understood management tools.

Explanation: Oak and prairie restoration is still a relatively young field. Knowledge is incomplete, and experience among land managers with oak habitat enhancement and creation varies widely. Access to technical resources, both human and written, will need to be improved to ensure that lessons learned by the few in the past can benefit the many in the future. In addition to maintaining resource lists, it will be important to encourage active dialogue among land managers to facilitate peer-to-peer learning. Management guidance for stewarding oak habitat

has been developed for the Willamette Valley (this includes a guide for backyard habitats recently developed by the OPWG), but not to the degree of other major habitat types. Innovation will continue to play a large role in developing best management practices for oak habitats, but there is also a larger community of land managers throughout the Willamette Valley-Puget Trough ecoregion that local managers can continue to share knowledge with and learn from.

Key outcomes:

- Wider adoption of new management tools.
- Broader understanding of best management practices.

Lead organization: TBD

Key partners: Cascadia Prairie Oak Partnership

Resources needed: $50,000, mostly through existing staff costs

Estimated completion: TBD

Subactions:

C3.1 Increase access to existing shared knowledge regarding the creation and enhancement of oak habitat.

- Develop and maintain a list of technical experts from the public and private sectors and across the urban/rural spectrum.
- Develop and maintain a reference list of best management practices, by linking to existing resources (e.g., the Cascadia Prairie Oak Partnership [CPOP]) and curating new ones as needed to support locally unique resources.
- Host annual practitioner-focused field trips to share lessons learned and encourage broader information sharing among restoration practitioners, revegetation contractors, arborists, foresters, loggers, ranchers, fire crews, landscapers, etc.

C3.2 Expand the use of underutilized or innovative management tools to meet evolving challenges.

- Identify and expand the use of promising tools and methods from farming, forestry, and ranching; adapt technologies to meet oak habitat stewardship objectives.
- Identify and collaborate on emerging management challenges facing oak stewards.

C4. Increase ability to employ fire as a management tool.

Enable land managers to more easily employ prescribed fire as a management tool effectively and efficiently.

Explanation: Fire is an essential process in the historical formation and maintenance of oak habitats that has largely been removed from the landscape in the Willamette Valley by banning anthropogenic fire ignition. The ability of prescribed fire to provide multiple ecological benefits in oak and prairie stewardship is well documented. Political, financial, and technical capacity barriers have limited the use of prescribed fire as a management tool throughout the ecoregion, especially in the greater Portland-Vancouver region.

Identifying the barriers to employing prescribed fire throughout the greater Portland metropolitan region would be a positive first step to making prescribed fire a more readily available tool locally. A potential partnership to help overcome barriers and increase capacity might exist with the USFWS and the interagency Willamette Valley Fire Partnership, which primarily works in the southern half of the Willamette Valley. Safe and cost-effective use of prescribed fire is a critical and foundational tool for achieving ecological objectives for which a region-wide effort is needed to overcome current barriers.

Key outcomes:

- Documentation of current barriers to prescribed fire.
- Increased local knowledge of prescribed fire utilization.
- Development of an essential tool (i.e., prescribed fire) for oak stewardship.

Lead organization: Metro

Key Partners: USFWS, THPRD, CWS, TSWCD, CSWCD, WMSWCD, TRNWR, CLT, NRCS

Estimated cost: $49,000, consisting mostly of staff time

Estimated completion: 2019

Subactions:

C4.1 Identify current local barriers to using prescribed fire and strategies for overcoming them.

C4.2 Explore whether partnerships can be formed with USFWS and the Willamette Valley Fire Partnership to help navigate and overcome current barriers.

C5. Encourage maintenance of conservation values on priority habitats where landowners are not interested in formal land protection measures.

Explanation: Conservation of oak and prairie habitats on private lands depends on landowners knowing that they have habitat on their land, valuing that habitat, and being willing to preserve, enhance, and create it.

Partnership with private landowners for oak conservation is not a new concept, but there is urgency to scale up efforts as existing habitat ages and urbanization and land conversion intensify. The majority of remnant oak habitat on private lands lacks the active management necessary to ensure ongoing habitat conservation. Current efforts aimed at private landowners have been inadequate to address the loss of oak habitat stemming from changes in land use and management.

Enhancing the efforts currently led by agencies that work directly with private landowners (SWCDs, the Natural Resources Conservation Service, Oregon Department of Forestry, Oregon State University Extension), with additional resources and partners on a regional strategy, can produce substantial and sustainable results that transcend property lines.

Key outcomes:

- Training on available tools for staff in organizations that work with landowners.
- Coordinated outreach.
- Effective engagement with landowners.

Lead organization: West Multnomah, Tualatin, and Clackamas SWCDs

Key partners: Columbia Land Trust, SWCDs, Oregon Department of Forestry, Oregon State University Extension

Resources needed: $1 million, plus dedication of current staff

Estimated completion: Ongoing

Subaction:

C5.1 Work with Soil and Water Conservation Districts and private landowners of priority sites not currently interested in selling property rights to support voluntary efforts to improve management for oak habitat and build relationships that may lead to future land protection.

- Help users understand and apply mapping data and prioritization tools.
- Educate staff who work directly with private landowners on the suite of land conservation tools available to private ownership.

- Coordinate on targeted outreach to priority private land parcels and geographic focus areas identified through mapping and prioritization, including assessment of conversion risk.
- Develop funding sources to create, protect, and restore oak habitat on privately owned land.

C6. Improve the availability of plant materials for habitat creation and enhancement.

Explanation: Inadequate diversity and supply of plant materials will limit the pace and quality of habitat creation and enhancement efforts. Because effective prairie/savanna restoration often involves significant site disturbance, protecting existing native species can be difficult or impossible. A regionally specific seed banking program will ensure that we have the capacity to replace species lost on a site basis while ensuring appropriate seed sources to protect local gene pools. Early program efforts will focus on documenting existing diversity, banking seed to ensure local species conservation, identifying gaps in commercial production, and developing partnerships to resolve supply limitations.

Key outcomes:

- Documentation of plant diversity at existing anchor sites.
- Banking of seed from species not available through the commercial market or species that have special genetics.
- Increased use of genetically appropriate plant materials.
- Effective partnerships to collect and grow species not currently available through the commercial market.

Lead organization: Metro

Key partners: Willamette Valley Plant Materials Partnership (Institute for Applied Ecology), Cascadia Prairie Oak Partnership, SWCDs

Resources needed: $200,000

Estimated completion:

- Documenting plant diversity: 2018 at Metro sites; other sites unknown.
- Developing and implementing seed bank strategy for Metro sites: 2018; other sites unknown.
- Other outcomes depend on future OPWG decisions.

Subactions:

C6.1 Document and bank seed of all plant taxa on protected anchor sites that have medium to high fidelity to oak and prairie habitats and that are not available on the commercial market.

- Create an advisory group to support current Metro efforts.
- Identify site locations, by species.
- Develop and select storage options and funding.
- Collect and store seeds.

C6.2 Broaden user groups that will buy native seed to support the market.

- Consider partnerships for seed increase projects.
- Explore the Backyard Habitat Certification Program (Portland Audubon, Columbia Land Trust) as a demand source for native seeds.
- Consider organizing an annual oak or prairie garden tour or contest.

C76.3 Develop partnerships to expand the availability of seed for key species not available on the commercial market.

C76.4 Support the Willamette Valley Plant Materials Partnership by buying seed from the partnership whenever it is available.

C7. Agree on measures of habitat quality and prioritize areas for restoration and enhancement.

Explanation: Spatial priorities for restoration and habitat creation are not necessarily the same as those for land protection (i.e., acquisition) and thus the issues need to be addressed separately. Funding and staff capacity limit the amount and pace of habitat creation and enhancement that can occur. As a result, focusing work on the areas that are most likely to contribute to a functional regional system will maximize the benefit that accrues from restoration and enhancement efforts at multiple scales. A transparent plan also maximizes stakeholder and investor confidence.

Key outcomes:

- Agreed-upon measures of habitat quality, including integration of non-vegetation-based approaches.
- A prioritization tool or map to focus work on the most important areas.
- Most habitat enhancement and creation work occurring in priority areas.

Lead organizations: Metro, Columbia Land Trust

Key partners: Xerces Society for Invertebrate Conservation (testing invertebrate-based measures of habitat quality), Cascadia Prairie Oak Partnership (synthesizing current measures of success)

Resources needed: $125,000

- Assessing current measures of habitat quality: Can be done mostly or entirely with existing staff time.
- Development of non-plant-based measures: $50,000 to $100,000.
- Restoration prioritization: Significant staff time and perhaps up to $25,000 for GIS analysis.

Estimated completion:

- Assessing current measures of habitat quality: 2018
- Developing non-plant-based measures: 2023
- Restoration prioritization: 2018 or 2019

Subactions:

C7.1 Use existing habitat quality assessment tools (key ecological attributes, ecological integrity indices, oak habitat metrics, etc.) as a basis for developing restoration prescriptions and a habitat quality assessment.

- Convene an OPWG working group to coordinate with the East Cascades Oak Partnership and Cascadia Oak and Prairie Partnership to review oak and prairie assessment tools.
- Develop and fund research to improve assessment tools (includes testing the inclusion of invertebrates as an indicator).
- Develop an updated framework as appropriate.

C7.2 In collaboration with the Regional Connectivity Working Group and using completed oak mapping data, develop a prioritization approach for restoring oak and prairie habitats.

- Convene an OPWG working group to develop a work plan.
- Identify and develop resources needed.
- Implement a prioritization effort.

C7.3 Work with SWCDs to identify and implement priority opportunities for creating and enhancing oak and prairie habitats on private lands.

- Ensure that SWCD staff have opportunities to participate in conversations about prioritization modeling and data display.
- Meet with SWCD staff and boards to help them understand and use the data.

CHALLENGES, GAPS, AND OPPORTUNITIES

Habitat extent and quality. The decline of the extent and quality of oak and prairie habitat throughout the Willamette Valley is well documented. Encroachment by more shade-tolerant trees is suppressing or killing oaks. Declines in forb diversity from shrub encroachment, invasive species, and a lack of active management threatens native food webs. During the past 20 years, practitioners have developed approaches for effectively rescuing existing oaks and re-establishing and maintaining prairie and oak habitats, and there is still time to restore or enhance existing habitat. Success will require an integrated approach that increases awareness of the existing tools, expands our ability to use some tools (especially prescribed fire), develops expertise among practitioner and contractor pools, and commits adequate funding from diverse sources on a variety of land uses to restore and maintain oak and prairie habitats over time.

Habitat fragmentation and regional priorities for restoration. Habitat loss has led to habitat fragmentation and isolation. In turn, fragmentation leads to local extinction of plant and animal populations and a loss of resiliency. The creation of a map of existing oak trees by July 2018 will empower development of the first credible, data-based prioritization for reconnecting existing anchor habitats by strategically creating and enhancing oak and prairie habitats on protected and non-protected lands; this will include the use of oaks and oak/prairie-related species as landscaping elements and street trees.

Awareness of effective restoration strategies. The OPWG has many capable practitioners, consultants, and project managers, and our region is blessed with private landowners who have a strong commitment to conservation. However, most landowners are not aware of or trained in how best to manage for oak and prairie habitats. Improving stewardship guidance and tools, increasing awareness of those tools, and providing strategic support for effective use of those tools can leverage our region's substantial human and financial capacity.

Measures of success. Having commonly agreed-upon measures of success increases the consistency and ultimately the regional effectiveness of conservation practices. Shared participation in crafting measures of success increases the likelihood of broad acceptance. However, measures that are difficult to track or that do not result in real conservation benefit are unlikely to be widely used or lead to success. A modest investment in discussing and developing more robust and easily applied measures will pay off in increased efficiency and means of communicating conservation success.

Availability of plant materials for restoration. Although great headway has been made in the availability of oak and prairie plant materials during the last two decades, a lack of knowledge of what is present on existing sites and low confidence that existing species can be replaced if lost limits freedom of restoration action. Low demand for native seed increases the cost and limits availability. Cataloguing and banking existing plant species and broadening the use of oak and prairie seeds will increase the pace and effectiveness of restoration efforts.

Strategy Element D: KNOWLEDGE

GOAL

⇒ *Synthesize and develop knowledge, information, and data sources to support the improvement of stewardship practices and conservation prioritization across the region. These efforts will seek to encompass knowledge and information that reflect multiple cultural approaches.*

This goal will be accomplished by cataloging and reviewing existing knowledge and data, surveying and mapping oak- and prairie-related flora and fauna, identifying research topics and questions to fill information gaps, improving key ecological attributes (KEAs) to drive better management guidance and habitat targets, developing management guidance for the restoration and management of oak and prairie habitats, exploring partnerships to enhance cultural connections and incorporate indigenous management practices, and recommending monitoring and adaptive management approaches. Priority actions for the Knowledge strategy element will focus on developing tools to support Strategy Elements B, C, and E: Land Conservation, Active Stewardship, and Community Education, Engagement, and Advocacy.

Resources needed: *We estimate that approximately $135,000 is needed over the 10-year duration of the plan to accomplish the tasks outlined below. This estimate includes in-kind staff time as well as new revenue for as-yet-unfunded actions.*

IMPORTANCE

To support coordinated conservation and stewardship efforts that will connect habitat across the region's urban-influenced oak and prairie habitats, it will be necessary to develop and apply regionally focused management guidance for restoring and protecting oak and prairie habitats.

Some data and information needed for the development of management guidance already exist but are not organized in a way that it is easy to access and analyze. Additionally, the existing management guidance that has been tested across the Pacific Northwest many not be best for the greater Portland-Vancouver region's urban-influenced habitats. A coordinated and concerted effort is needed to gather existing data and resources, identify gaps in knowledge and management guidance, and make these resources available to partners who are actively conserving and restoring these habitats in the greater Portland-Vancouver region.

Finally, the organization and presentation of knowledge and data should endeavor to reach a wide audience and meet a range of needs in support of conservation and stewardship of oak and prairie habitats.

CURRENT STATUS

Contemporary efforts to restore and conserve oak and prairie habitats in the Portland area have been underway for a couple of decades. Those projects have been primarily accomplished on Metro bond measure-acquired lands, in regional park districts, and on private properties with the support of Soil and Water Conservation Districts. Relative to the regional potential for restoration and conservation, those projects have been limited in scope and have served primarily as early action projects with site-specific goals. Although the projects have been critical to the identification of strategies and actions for successful restoration and conservation, a collective approach to sharing those practices among regional partners has yet to be undertaken.

The regional effort to map oak trees and oak and prairie habitats is nearly completed. The next steps toward applying the maps to garner wide support for the prioritization and application of oak and prairie restoration and conservation must be built on a foundation of "regionally appropriate" best available science and must incorporate traditional ecological knowledge (TEK) when available. Regional partners agree that there is a need to base future restoration and conservation work on management guidance that is suitable for our region. In the process of developing management guidance, the promotion of relationships with all partners—especially indigenous cultures—will allow us to better understand the breadth of knowledge that is available, as well as the technical resources partners will need to have to be successful.

Much of the restoration work in the greater Portland-Vancouver region to date has focused on oak habitats, but it will need to be expanded to include restoration and conservation of prairie habitats. Partners in the southern Willamette Valley and Puget Sound have completed many prairie habitat projects that have realized some success; however, prairie-focused projects in the greater Portland-Vancouver region have been smaller in scale and more limited in scope. Additionally, the methods and approaches used elsewhere may be challenging to apply in our region because our region (1) has a high concentration of non-native species that thrive in open habitats, and (2) lacks designated critical habitat for rare (i.e., listed) species as a driver to raise funds and focus goals and priorities. The Knowledge strategy element will focus on providing information and data to support improved conservation and restoration of prairie habitat in our region.

KEY PARTNERS AND EXPERTISE/CONTRIBUTION

Key partners have expressed an interest in working together to refine and develop adaptive approaches to oak and prairie management in the greater Portland-Vancouver region. Guidance elements will be developed that are applicable on private and public lands, large and small. Areas of overlap in developing areas of expertise include building relationships with private landowners, implementing voluntary conservation measures, working with tribes to incorporate long-term management goals to support traditional practices, and including research and study opportunities for academic institutions.

- **Metro**
  Capacity to propose funding measures, negotiate land deals, own and manage land and easements, and lead science-based processes.
- **Native American tribes**
  Stakeholder with interest in increasing land ownership of oak habitats; potential owner of land or easement holder.
- **Natural Resources Conservation Service (NRCS)**
  Federal support for conservation districts; technical expertise and conservation planning for farmers, ranchers, and forest landowners wanting to make conservation improvements to their land.
- **Parks and recreation districts**
  Interested in working collaboratively to establish best management practices that support habitats and promote connectivity.
- **Soil and Water Conservation Districts**
  Relationship building with private landowners; implementation of voluntary conservation measures.

PRIORITY ACTIONS

For details on subaction-level measures of success, priorities, and target completion dates, see Appendix A.

D1. Work with partners to build relationships and develop cultural connections that will support the inclusion of traditional knowledge in the development of management guidance.

Resources needed: $25,000 per year for 2 years

Subactions:

D1.1 Build intentional and authentic relationships for better understanding and incorporation of a continuum of perspectives. Solicit input throughout the process and be accountable to the relationships and input given from them. Encourage understanding of the reliance on the social facets of millennia-long stewardship of oak and prairie habitats.

- Build on existing efforts at Metro, PP&R, the Native American Community Advisory Council (NACAC), and the Intertribal Forestry Council to explore incorporating tribal practices into contemporary oak and prairie management techniques.

- Begin a conversation to create broadly inclusive ground rules and desired outcomes for implementing the OPWG strategic action plan and management practices.
- Compile and develop resources to support and engage in long-term relationships with the Native American community and other food-gathering communities.

D1.2 Through work with stewardship and conservation subgroups, identify areas to seek to broaden knowledge of habitat types and guide prioritization of regional conservation and stewardship activities. Coordinate this task with the Intertwine Alliance's Regional Connectivity Working Group. Encourage understanding of the reliance on the social facets of millennia-long stewardship in oak and prairie habitats.

- Conduct a needs assessment across all interested partner groups, including tribes and diverse communities.
- Clarify information sources for choosing habitat types and understanding the needs of oak-associated species.
- Integrate concepts of landscape-level and regional connectivity.
- Take a regional look at vegetation and wildlife information to identify "no regrets" sites (i.e., sites where there is a high degree of certainty that conservation investments are worthwhile).
- Define characteristic plant communities (i.e., oak habitat types) and their range of conditions.
- Define characteristic wildlife associated with oak and prairie habitats and describe the range of conditions.
- Define drivers for the vegetation and wildlife communities, such as patch size and connectivity relationships.

D2. Integrate a full range of knowledge and data resources to provide guidance for stewardship and conservation practices.

Explanation: Currently, conservation and management-related information is housed with individual partners and is not applied regionally. There is a need for a broad assessment of existing information, data, and management guidance. Once resources have been evaluated, all partners should have access to the information through a centralized location. In addition, identifying data and management guidance gaps would allow partners to make progress in creating much-needed best practice documents for use throughout the region.

Resources needed: $25,000 per year for 2 years

Subactions:

D2.1 Synthesize information priorities and needs for the range of partners. Review CPOP resources and assess and develop regionally specific data needs. Create a plan (with priorities, timeline, resources, and scope of work) based on the needs assessment and gap analysis of Action D1 to develop knowledge, data, management guidance, and social resources.

D2.2 Standardize and centralize knowledge, information, and data to support conservation and stewardship of oak and prairie habitats across the RCS planning area.

- Gather hard data, existing management guidance, data, and references.
- Identify the existing body of knowledge, management guidance, and data that fit the needs of the region.
- Identify data gaps.
- Develop resources that support the social aspects of stewardship.
- Incorporate habitat and connectivity information.

D2.3 Develop new or use existing habitat quality assessment tools as a basis for supporting restoration prescriptions. Be inclusive of the full range of potential audiences (e.g., public lands managers, large-scale private property owners/managers, owners of backyard habitats). Organize existing resources into broad categories for easier use. Provide definitions and assessments to support understanding of the life history, physical processes, and community interactions of oak and prairie communities by developing the following tool kit:

- Use existing or develop new key ecological attributes for specific oak and prairie communities.
- Develop or adopt survey and assessment tools such as ecological integrity indices and oak habitat metrics.
- Create restoration prescriptions and/or management guidelines to support management guidance for oak and prairie plant communities and habitats.
- Develop or adopt regional monitoring methods and protocols.
- Develop specific guidelines for selecting and documenting plant materials to be used in restoring and enhancing oak and prairie vegetation communities and habitat types.

D3. Ensure that technical and social resources are made available to support long-term conservation and stewardship.

The subactions below support the implementation of management guidance, adaptive management processes, and monitoring of regional progress toward oak and prairie conservation by diverse regional partners.

Resources needed: $25,000 per year for 1 year plus $10,000 for web development and hosting

Subactions:

D3.1 Develop a forum for sharing resources.

D3.2 Integrate approaches that support traditional, technical, and emerging knowledge.

D3.3 Include new approaches needed for urban and suburban issues and private properties.

D3.4 Support adaptive management systems. Incorporate climate change data into dynamic management approaches.

- Evaluate the success of partners using regional standards and practices (i.e., monitoring protocols) created through this element.
- Look at how local climate change models predict conditions that may be beneficial or detrimental to oak and prairie habitats.

CHALLENGES, GAPS, AND OPPORTUNITIES

Knowledge sets and management guidance. Concentrating and developing management guidance in ways that will broadly support the efforts of our diverse partners in the region is a critical step toward developing accessible tools that are implemented across the region. Although there currently is a significant amount of information about restoration and conservation of oak ecosystems, there also are significant gaps in knowledge that, when identified and filled, would greatly enhance our ability to conserve oak and prairie habitats. Examples include how best to manage the impacts of insects and disease on oak habitat, particularly as the climate changes. Developing relationships with all partners, including indigenous cultures, will allow us to better understand the breadth of knowledge available as well as what resources partners need to have to be successful.

Collaboration. Broadening relationships with partners can be challenging and can take significant time. However, there is a great deal of interest among resource managers to work together to build support for regional practices that will advance oak and prairie conservation and stewardship.

Data repository. A centralized regionally specific data sharing forum may have to be built from scratch, and staff and resources will need to be identified for maintaining it. However, there already are many resources (e.g., CPOP and Northwest Forest Research work, tribal sources of information sharing) that can be used to start populate such a data repository.

Information transfer. Current information that could inform management guidance is often interwoven in research and scientific reports. These sources should be retooled to meet the needs of the partners who want to take advantage of stewardship and conservation opportunities.

Prioritization. It is important to gather data that support identification of high-priority areas and actions for the Conservation and Stewardship strategy elements of this plan.

Regional goal setting. Implementation of the actions in the Knowledge strategy element should coordinate with the Intertwine Alliance's Regional Connectivity Working Group to (1) support development of sources and increased understanding of the distribution of high-priority species, and (2) establish regional goals and practices for oak and prairie conservation and stewardship.

Strategy Element E: COMMUNITY EDUCATION, ENGAGEMENT, AND ADVOCACY

GOAL

⇒ *Increase public awareness of and engagement with Northwest native oak and prairie habitats and their conservation across the region—to grow the stewardship community, safeguard remnant oak and prairie habitats, and foster restoration, enhancement, and conservation on public and private lands.*

The OPWG partners recognize that many of the actions identified under this element represent new activities and that the majority of the work is unfunded at this time.

Resources needed: *We estimate that approximately $630,000 is needed over the 10-year duration of the plan to accomplish the tasks outlined below. This estimate includes in-kind staff time as well as new revenue for as-yet-unfunded actions.*

IMPORTANCE

More than 95 percent of remaining oak and prairie habitats are on private lands; publicly owned natural areas that harbor native oak and prairie habitats represent a tiny fraction of the historical distribution of this ecosystem. Without an active and engaged public, the long-term prospects for oak and prairie conservation in the greater Portland-Vancouver region are dim. More than 300 species of endemic plants and invertebrates depend on this ecosystem, and the region sits at a crossroads of the oak ecosystem, with the Willamette Valley to the south, Puget lowlands to the north, and Columbia Gorge to the east.

Northwest oak and prairie ecosystems are among the most drought-tolerant, wildfire-resilient, and pollinator-rich native habitats. They harbor a diversity of Native American “first foods” and are the breadbasket for Northwest tribes. They are light-filled, colorful through the seasons, and include a varied plant palette that can integrate well with built environments. As the popularity of naturescaping grows, oak and prairie conservationists can capitalize on these natural assets and promote the integration of oak and prairie landscaping with urban and suburban development and redevelopment to reconnect remnant habitats that thread across the region.

CURRENT STATUS

Public awareness of and engagement with native Northwest oak and prairie conservation is currently limited, occurs at only a handful of sites within the region, and/or has been intermittent or short term. A lack of continuous and consistent messaging about native oak and prairie conservation hinders general public awareness of the challenges and opportunities needed to safeguard these imperiled habitats.

Several “friends” groups have formed around the conservation of specific oak-rich natural areas (see Table 2), but these groups collectively are small and operate in an ad-hoc fashion with little or no support from more organized formal conservation efforts or agencies. Several significant oak-rich parks and natural areas, such as Cooper Mountain, Mount Talbert, and Willamette Narrows, lack “friends” groups, and/or the local friends group is engaged with other, non-oak-related conservation activities (e.g., Friends of Iron Mountain Park in Lake Oswego, Friends of Historic Champoeg).

Table 2
Community-based Oak Conservation Groups in the Greater Portland-Vancouver Region

Group	Location	Level of Activity
Friends of Ridgefield National Wildlife Refuge	Ridgefield, WA	Active but small
Friends of Tualatin River National Wildlife Refuge	Sherwood, OR	Active but small
Friends of Three Creeks Natural Area	Clackamas, OR	Intermittent —activist oriented
Sellwood Natural Amenities Committee (SNAC)	Sellwood neighborhood in Portland, OR	Active—neighborhood scale
Friends of Baltimore Woods	St Johns neighborhood in Portland, OR	Active but small
Friends of Overlook Bluff	Overlook neighborhood in Portland, OR	Intermittent, 1-2 people
Friends of Nob Hill Nature Park	St Helens, OR	Active but small
Friends of Tualatin Hills Nature Park	Beaverton, OR	Active but small
TNC Camassia Natural Area volunteers	West Linn, OR	Active but informal; organized
Neighbors for a Livable West Linn/White Oak Savanna	West Linn, OR	Active but small
Friends of the Columbia Slough	North/NE Portland, OR	Active but small
Friends of Elk Rock Island/Island Station Neighborhood	Milwaukie, OR	Active but small
Sauvie Island Partnership	Sauvie Island, OR	Active but small

Larger-scale groups are listed in Table 3; this table does not include agencies and land trusts working on site-level conservation for native Northwest oak and prairie habitats.

Table 3
Larger-scale (Regional, Statewide, Pacific Northwest) Organizations, Agencies, and Working Groups with a Northwest Oak or Prairie Conservation Focus

Initiative	Geographic Scope	Notes
The Intertwine Alliance Oak Prairie Working Group	RCS planning area	Developed oak and prairie naturescaping guide
OakQuest	RCS planning area	Developing regional oak map
KelipiCamas	Regional	TEK learning and community work parties at oak/prairie natural areas
Oak Accord	Regional	Organized by Willamette Partnership; rural focus
Cascadia Prairie-Oak Partnership	Pacific Northwest	Information sharing network; organizes conference every two years
Backyard Habitat Certification Program (Portland Audubon, Columbia Land Trust)	Regional	Naturescaping learning and certification for urban residential landowners, schools, etc.
ODFW Wildlife Habitat Conservation and Management Program tax incentives	Select Oregon counties, including all within the RCS planning area except Yamhill	See: http://www.dfw.state.or.us/lands/whcmp/
Clackamas and West Multnomah SWCD landowner outreach and engagement on oak restoration	Select SWCD service areas: Molalla, Rock Creek, Sauvie Island, and West Hills	Funded with a joint NRCS conservation implementation strategy grant
North Willamette Valley Upland Oak Restoration Partnership	Yamhill and Polk counties	See: https://www.nrcs.usda.gov/wps/portal/nrcs/detail/or/home/?cid=nrcseprd346418

With the completion of the *Regional Conservation Strategy* in 2012, several Intertwine Alliance partners coalesced to form the Oak Prairie Working Group (OPWG) (http://www.theintertwine.org/projects/oak-prairie-work-group) that started from a need to develop a map of Oregon white oak distribution across the region. In the summers of 2014 and 2015, 200 volunteers participated in "OakQuest" to develop the first-ever map of Oregon white oak distribution across the region. In 2016-2017, approximately 50

gardeners participated in a pilot oak and prairie naturescaping workshop for urban and suburban residential homeowners, led by Mark Griswold Wilson. One product of the latter workshops was an oak naturescaping guide (*Conserving Oregon White Oak in Urban and Suburban Landscapes*) specific to the north Willamette Valley. Both the ongoing oak mapping and oak naturescaping pilot work were early priority efforts of the OPWG. By 2017, the OPWG had grown to more than thirty members.

Meanwhile, the Backyard Habitat Certification Program (Portland Audubon, Columbia Land Trust) is growing and has recently expanded to oak-rich urban residential communities in north Clackamas County. Local retail nurseries are beginning to stock more oak and prairie plants, but the availability of certain species that are closely associated with oak and prairie ecosystems and are suitable for naturescaping remains limited. There is growing public interest in naturescaping and community and neighborhood stewardship of local natural areas. Nonetheless, habitat protection standards across the region are weak to nonexistent, and most local jurisdictions do not have sufficient safeguards to protect remnant oaks.

As priority habitats, Oregon white oak and prairie are afforded some protection under Washington land use rules, but in Oregon they lack regulatory protection. The Willamette Partnership has launched the Oak Accord (http://willamettepartnership.org/oak-accord/), a voluntary agreement to protect and restore oak on private agricultural lands in the Willamette Valley. With NRCS funding support, Yamhill, Clackamas, and West Multnomah SWCDs are conducting outreach to private landowners and assisting with oak release, planting, weed control, and understory enhancements on private rural lands.

The audience for our education and outreach efforts includes the general public, as well as public and private landowners with oak habitat, spread across the continuum of the urban-to-rural landscape.

KEY PARTNERS AND EXPERTISE/CONTRIBUTION

- **Local "friends" groups and watershed councils**
  Local expertise and connection with specific natural areas
- **Local jurisdiction community planners and parks providers, especially those in oak-rich portions of the region such as Clackamas, Columbia, and Washington counties**
  Opportunity to connect to local land-use planning and management efforts
- **Native plant nurseries, landscape professionals (designers, contractors, maintenance), and their professional organizations**
  Expertise in landscape design, plant materials, and landscape management
- **Backyard Habitat Certification Program (Portland Audubon, Columbia Land Trust)**
  Provides assistance and incentives to residents with lots of less than 1 acre to restore native wildlife habitat in their backyard
- **Regional natural resource efforts, such as the 4-County Cooperative Weed Partnership (https://4countycwma.org)**
  Collaborative efforts that share natural resource information and expertise

- **Soil and Water Conservation Districts: Clackamas, Columbia, East Multnomah, West Multnomah, Tualatin, and Yamhill in Oregon; Clark, Cowlitz, and Underwood in Washington** Relationship building with private landowners and implementation of voluntary conservation measures.
- **State agencies (Oregon Department of Fish and Wildlife, Oregon Department of Forestry)** State-level resources for public and private land management.

PRIORITY ACTIONS

For details on subaction-level measures of success, priorities, and target completion dates, see Appendix A.

E1. Raise broad public awareness of and appreciation for native Northwest oak and prairie ecosystems, their conservation, and specific stewardship options.

Explanation: Public support for oak habitat stewardship depends on effectively educating the public about the crucial biodiversity and ecosystem services they sustain, the need to conserve oaks, and the potential outcomes of oak habitat creation and enhancement. Improving awareness can be done by showcasing multiple sites throughout the region, as a way of informing the public and policy makers of the benefits of oak habitat on specific sites that can be scaled up regionally. Interpretive material and tours also would provide inspiration for actions people can take to enhance oak habitat on various scales, from the backyard to the ecoregional level. Effectively communicating the value of oak and prairie ecosystems also will support the other strategy elements in this plan, particularly Strategy Element C, Active Stewardship. This priority action should be undertaken in coordination with the activities of other Intertwine working groups, such as the Intertwine Alliance's Regional Connectivity Working Group.

Lead organization: OPWG

Key partners: Metro, USFWS, The Intertwine Alliance, SWCDs, Portland Audubon, Columbia Land Trust, BHCP, "Friends" groups

Resources needed: $45,000 to develop a marketing strategy, key messages, and a communications plan for regional oak and prairie conservation

Subactions:

E1.1 Develop key messages—both basic messages and messages for key audiences—that can serve as an overall statement of urgency and provide context on the cultural legacy of oak and prairie habitat. Ensure that the messages are inclusive and accessible for all.

E1.2 Identify multiple sites throughout the RCS planning area that demonstrate a diversity in stewardship approaches for different scales, objectives, land uses, and habitat types.

E1.3 Develop talking points for interpretive tours; identify and train guides.

E1.4 Create signage and materials as needed.

E1.5 Develop a larger public communications strategy or campaign about native Northwest oak and prairie conservation. Consider developing an oak conservation "brand" that is visible at oak and prairie sites across the region.

E1.6 Integrate high-level oak and prairie conservation messaging and branding into existing programming at the regional level to build public awareness of and support for oak conservation.

E2. Develop accessible, inclusive, and effective mechanisms and materials to disseminate oak habitat information to multiple audiences and engage the community in restoration. Provide deeper training for on-the-ground work and stewardship.

Explanation: With selected audiences (e.g., farmers and rural landowners with oak, residential gardeners and oak naturescapers, urban designers and landscape architects), there is a need for more detailed guidance and avenues for learning and sharing management guidance on oak and prairie conservation. There is a separate, corresponding need to make materials and tools more accessible for the region's rapidly diversifying population, such as through Spanish and other language translations. Efforts under this priority action seek to move distinct communities toward land use and stewardship practices that support and restore oak and prairie habitat across fragmented ownership and jurisdictional boundaries.

Lead organization: SWCDs, BHCP, Metro

Key partners: ODFW, Washington Department of Fish and Wildlife (WDFW), universities, land trusts, nurseries, landscape professionals, local park providers, and public landowners in oak-rich neighborhoods

Resources needed: $410,000 to develop audience-specific outreach materials and tools that are accessible and easy to adapt for the target audiences

Estimated completion: July 2020

Subactions:

E2.1 Encourage and promote land management practices that enhance native oak and prairie habitats through tours, special events, incentives, and programs (the Oak Accord, ODFW tax incentives, SWCD efforts, etc.). Present and widely share materials to help community members implement best management practices on private property.

E2.2 Promote native oak and prairie naturescaping practices in appropriate settings across the urban-suburban landscape continuum. Encourage wholesale and retail nurseries to carry more oak and prairie naturescaping materials and develop more know-how on oak and prairie naturescaping. Engage, educate, and incentivize landscape professionals on oak and prairie naturescaping.

E2.3 Reach out to and engage public land managers in the region to promote oak habitat protection and restoration. Regularly check on their progress.

E2.4 Expand the Backyard Habitat Certification Program (Portland Audubon, Columbia Land Trust) to encompass the four-county urban and suburban area by 2020.

E2.5 Formally partner with the Oregon Zoo Education Center. Update and rotate important conservation themes as part of the Education Center's display on oak habitat. Table together and regularly participate in oak habitat education activities, especially on dedicated theme days for environmental education.

E3. Strengthen and support community-based oak stewardship groups across the region.

Explanation: Community-based oak stewardship groups are small, isolated, and limited to piecemeal efforts at distinct oak and prairie natural areas across the region. Nonetheless, these groups represent the vanguard of a place-based conservation movement to safeguard oak and prairie habitats in our neighborhoods, on our farmlands, and across the region. To the extent that these groups can work together more and collaborate with agencies and other nonprofits, our native oak and prairie habitats will benefit. These groups face diverse challenges and would benefit from a forum and assessment of their needs, with the long-term goal of creating mechanisms and tools for capacity-building and support. A related but distinct challenge is rekindling indigenous oak and prairie stewardship practices and the public's appreciation for the cultural legacy of oak and prairie ecosystems.

Lead organizations: Not yet identified

Key partners: PSU Indigenous Nations Studies Program, "friends" groups, watershed councils, Urban Greenspaces Institute (UGI), Portland Audubon, OPWG, Metro, The Nature Conservancy (TNC), The Intertwine Alliance

Resources needed: $170,000 to create a platform for sharing and collaboration among various "friends" groups, to remedy needs and gaps in capacity among such groups, and to expand TEK practices and learning at oak and prairie natural areas

Estimated completion: December 2019

Subactions:

E3.1 Create a platform or forum for various groups to communicate and collaborate; cultivate collaborative relationships with diverse partners.

E3.2 Assess the gaps, needs, and challenges of community-based oak stewardship groups and lend support to those groups from various OPWG partners.

E3.3 Continue to expand TEK practices and learning at oak and prairie natural areas and integrate with "friends" group efforts.

E4. Develop and implement an advocacy strategy (among politicians, internally within agencies, and with developers) to increase land use protections for native oak and prairie habitats.

Explanation: As we continue to fragment and lose our remaining oak and prairie lands, there is a crucial need to better protect what remains. Land use protections for remnant oaks are weak to nonexistent, and rules are inconsistent across jurisdictions within the region. The WDFW priority habitats and species management guidelines for Oregon white oak (https://wdfw.wa.gov/publications/00030/) represent the best guidance we have for local land use planners and developers, but there is no parallel guidance in Oregon and we lack management guidance for the protection of prairie and individual oak trees in an urban setting across the RCS planning area. To safeguard oak, we need to strengthen local advocacy for oak conservation on urban, suburban, and rural lands.

Lead organization: Not yet identified; possibly UGI or Portland Audubon

Key partners: "Friends" groups, watershed councils, SWCDs, ODFW, Oregon Department of Forestry (ODF), local jurisdiction planners, Metro, OPWG, OWEB

Resources needed: $50,000 to support improved guidance for local land use planners on oak habitat protection

Estimated completion: Unknown/ongoing

Subactions:

E4.1 Create habitat protection standards.

E4.2 Strengthen local land use and planning regulations to protect oak and prairie habitat on private lands. Examples include city and county tree codes, land subdivision and conversion rules, and nuisance vegetation ordinances.

E4.3 Enhance and optimize tax incentives, create dedicated funds for oak conservation, and develop other non-regulatory tools to encourage oak and prairie protection on private lands.

E4.4 Strengthen and create effective processes and tools for oak advocates to respond to and influence development applications.

CHALLENGES, GAPS, AND OPPORTUNITIES

Visibility. Remnant oak and prairie habitats and their rich ecological and cultural legacy remain largely invisible to the general public.

Legal protections. There is a lack of legal protection for remnant oaks and an ongoing loss of oaks from the landscape.

Resources for oak and prairie habitat conservation. There is a lack of protection tools, incentives, and funding for those interested in working on oak and prairie habitat conservation; this includes resources and capacity with local "friends" groups and other community-based oak stewardship groups.

Landowner involvement. Many public and private landowners with remnant native Northwest oak and prairie habitats are not engaged in or aware of the need for active management to perpetuate the ecosystem into the future.

Capacity. Many conservation organizations have multiple focus areas (clean water, soil health, water quantity, etc.) and limited staff capacity and funding. As a result, oak and prairie management currently is fragmented, intermittent, and largely limited to the site scale.

CONCLUSION

The Intertwine Alliance OPWG Strategic Action Plan identifies 23 priority actions spread across five interwoven strategy elements. It is our vision that working together to accomplish these actions will not only lead to meaningful landscape-scale conservation of oak and prairie habitats in the region, but also increase the community's knowledge and enjoyment of these ecologically rich and beautiful ecosystems.

Although we believe and trust that this work represents our best thinking based on the knowledge and circumstances of today, this plan is intended to be a living document. Appendix A, in particular, will be updated to document accomplishments, remaining tasks, and upcoming opportunities. In addition, the OPWG will continue to meet quarterly to share information, collaborate, identify new partners and priorities, and, as needed, revise this plan so that it continues to reflect the changing needs of our partnership and new opportunities that may arise unexpectedly.

APPENDIX A – Subaction-level details

STRATGEY ELEMENT A: Spatial Data					
Action A1: Complete first-generation oak distribution map.					
Subactions	**Key Outcomes / Success Measures**	**Priority**	**Target Completion**	**Lead Organization**	**Key Partners**
A1.1 Refine and complete oak map for Oregon portion of RCS planning area.	Full coverage of oak within designated areas.	High	June 2018	Metro and UGI	OakQuest volunteers; funders: Clackamas and Tualatin SWCDs
A1.2 Refine and complete oak map for Washington portion of RCS planning area.	Full coverage of oak within designated areas.	High	June 2019	UGI, WDFW, Metro	Other Washington partners
A1.3 Provide training to partners and explore various ways in which the data can be used and refined to support more effective oak conservation across the region.	Partners are able to use the oak map in productive and appropriate ways.	High	August 2018	Metro, UGI	SWCDs, other OPWG partners
Action A2. Update oak distribution map as needed and resources allow.					
Subactions	**Key Outcomes/Success Measures**	**Priority**	**Target Completion**	**Lead Organization**	**Key Partners**
A2.1 Convene a group to determine whether, when, and how to refine the oak map.	Timeline and plan for longer-term revisions (e.g., every 5 years); protocols for how to integrate partner data.	Low	December 2020	Metro	UGI, select OPWG members (TBD)
A2.2 Refine spatial data products based on feedback from OPWG partners and others.	Updated oak map or additional layer with oak location information. Could include oaks that were cut down, planted, or previously unidentified. Refined and well-documented methods to integrate new data into regional oak map.	Low	December 2021	Metro	OPWG, other interested parties

*For definitions of acronyms, see Acronyms section in narrative portion of plan.

Action A3. Collect other oak and prairie spatial data for the RCS planning area.					
Subactions	**Key Outcomes/Success Measures**	**Priority**	**Target Completion**	**Lead Organization**	**Key Partners**
A3.1 Assess the need for a map of remnant prairie habitats, oak habitat types, and/or other priority species.	Brief 2- to 5-page report to OPWG on near- vs. long-term priorities for oak habitat, prairie, and priority species.	Medium	December 2019	Metro, U.S. Fish and Wildlife Service (USFWS), other partners TBD	Portland Audubon, Columbia Land Trust, SWCDs, City jurisdictions, academic/research institutions such as Portland State University and Oregon Natural Heritage Information Center
A3.2 If a need is identified, determine potential resources and develop or adapt protocols for mapping target habitats and species.	Written strategy with approach, funding needs, and other key elements needed to map oak habitat, prairie, and priority species.	Medium	TBD	Metro, USFWS, other partners TBD	Same as A3.1
A3.3 If A3.2 is executed, map target habitats and species.	Final map products, and a plan for how they will be integrated with the RCS land cover and habitat corridor data sets.	Medium	TBD	Metro, USFWS, other partners TBD	Same as A3.1
A3.4 Use oak distribution and parcel maps to derive a map of priority parcels for native oak conservation.	A flexible priority oak conservation parcel map that can be used at multiple scales to guide private landowner stewardship outreach and pinpoint areas for fee-simple land purchases or easements.	High	June 19	Metro, SWCDs	The Nature Conservancy, Columbia Land Trust, others

STRATGEY ELEMENT B: Land Conservation					
Action B1: Identify priority parcels for oak conservation using tax lot data.					
Subactions	**Key Outcomes/Success Measures**	**Priority**	**Target Completion**	**Lead Organization**	**Key Partners**
[See action above]	Tax lot-specific analysis of key oak property owners.	High	June 30, 2019, but periodically revised	Metro	Portland Audubon, Columbia Land Trust, SWCDs, city jurisdictions, academic/research institutions such as Portland State University and Oregon Natural Heritage Information Center
Action B2: Acquire conservation rights (fee title or limited property rights) to priority parcels.					
Subactions	**Key Outcomes/Success Measures**	**Priority**	**Target Completion**	**Lead Organization**	**Key Partners**
B2.1 Work with stakeholders to increase awareness and identify focal areas for public investment.	1. One or more presentations developed for shared use and adaptation. 2. Number of presentations given and increased awareness of the issue among community leaders.	High	Ongoing	Metro	Watershed councils, SWCDs, Columbia Land Trust
B2.2 Support passage of public funding measures for land acquisition, including conservation easements.	1. Number of community leaders and organizations engaged and their subsequent support for funding land protection measures. 2. Successful passage of funding measures.	Medium	TBD	Intertwine Alliance	All OPWG members depending on particular measure

Action B2: Acquire conservation rights (fee title or limited property rights) to priority parcels					
Subactions	**Key Outcomes/Success Measures**	**Priority**	**Target Completion**	**Lead Organization**	**Key Partners**
B2.3 Support partner grant applications to public and private funding sources for land acquisition and easements.	1. Grant applications that are broadly supported and staggered so as to not compete. 2. Meetings held with influential funders to communicate the value of near-urban habitat and the strength of our analysis and partnership.	High	TBD	OPWG coordinator	All OPWG members depending on particular proposal
B2.4 Acquire land or interest in land from willing sellers.	1. Acres and numbers of acquisitions of priority parcels. 2. Identification of acquisition goals. 3. Clear roles and responsibilities among organizations.	High	Ongoing	Various OPWG members	Various OPWG members

Action B3: Improve communication among practitioners.					
Subactions	**Key Outcomes/Success Measures**	**Priority**	**Target Completion**	**Lead Organization**	**Key Partners**
[See action above]	1. Inclusive, periodic forums for conservation partners to discuss land protection. 2. Smaller, geographically focused groups like the Tualatin Basin Conservation Partners. 3. Sharing of strategic and conservation plans by individual organizations, particularly as priorities associated with oak and prairie conservation change. 4. Informal conversations between project-level land protection staff on an ongoing basis. 5. Enhanced leadership and staff-level collaboration. 6. Reduced overlap among partners.	High	Ongoing	Undefined; potentially Intertwine Alliance staff, Coalition of Oregon Land Trusts, Columbia Land Trust, or Metro	All organizations conducting landowner outreach, but especially Columbia Land Trust and other regional land trusts, SWCDs, and Metro

Action B4: Improve toolkit for non-fee acquisition habitat protection.					
Subactions	**Key Outcomes/Success Measures**	**Priority**	**Target Completion**	**Lead Organization**	**Key Partners**
B4.1 Inventory and assess the role of non-fee approaches other than permanent conservation easements, such as leases, incentives, or other temporary tools.	1. Better regional understanding and increased ability to use non-fee approaches to oak conservation. 2. Landowners engaged and acres protected using non-fee non-easement approaches who would otherwise not be engaged.	Medium	December 2019	TBD (probably a SWCD or Metro)	SWCDs, Metro, local or regional park districts
B4.2 Improve knowledge and use of conservation easements.		Medium	TBD	Columbia Land Trust or Coalition of Oregon Land Trusts	Metro, SWCDs, local or regional park districts
Action B5: Encourage maintenance of conservation values on priority habitats where landowners are not interested in formal land protection measures.					
Subactions	**Key Outcomes/Success Measures**	**Priority**	**Target Completion**	**Lead Organization**	**Key Partners**
[See action above]	1. Number of private landowner partners engaged. 2. Acres of priority habitat conserved.	High	Ongoing	TBD	SWCDs, Portland Audubon, Columbia Land Trust

STRATGEY ELEMENT C: Active Stewardship					
Action C1: Create and enhance habitat in priority locations with early emphasis on protecting legacy trees.					
Subactions	**Key Outcomes/Success Measures**	**Priority**	**Target Completion**	**Lead Organization**	**Key Partners**
C1. Create and manage oak and prairie habitats in priority locations on public and private protected lands.	Acres of oaks released or planted. Acres and sites with additional habitat enhancement.	High	Ongoing	Metro, Columbia Land Trust	All parks districts, all land management agencies, SWCDs
C1.2 Release existing oak from competition.	Acres and number of sites where oak release has been implemented.	High	Ongoing	Metro, Columbia Land Trust	All parks districts, all land management agencies, SWCDs
C1.3 Maintain the full range of habitat types across the landscape by integrating details of oak and prairie habitat diversity concepts into restoration planning, practices, and BMPs to increase under-represented habitat types across the region.	Successful integration of habitat mapping work and BMP development into restoration practice.	Medium	Ongoing	Metro, Columbia Land Trust	All parks districts, all land management agencies, SWCDs
Action C2: Create and enhance habitat on unprotected lands.					
Subactions	**Key Outcomes / Success Measures**	**Priority**	**Target Completion**	**Lead Organization**	**Key Partners**
C2.1 Encourage the use and protection of oaks as components in settings where habitat is not the primary management driver, or where no level of protections exists. Examples include large-lot rural areas, small-lot urban and rural residential areas (e.g., backyard habitat), agricultural field trees and buffers, industrial lands, and developed parks, schools, and office landscaping.	Number of sites with habitat conservation in non-park and natural area settings.	Medium	Ongoing	SWCDs	Columbia Land Trust, Portland Audubon, USFWS Partners Program

Action C2: Create and enhance habitat on unprotected lands.					
Subactions	**Key Outcomes/Success Measures**	**Priority**	**Target Completion**	**Lead Organization**	**Key Partners**
C2.2 Work with local jurisdictions to protect legacy street trees and increase the planting of native oaks as street trees.	Stable or increasing number of oaks as street trees.	Medium	Ongoing	Portland Audubon	SWCDs, Columbia Land Trust, City jurisdictions, Friends of Trees
C2.3 Increase the use of conservation planning on private lands to match oak habitat conservation opportunities with landowner goals and objectives for owning lands.	Increased habitat restoration on private lands.	High	Ongoing	SWCDs	Columbia Land Trust, Natural Resources Conservation Service (NRCS), USFWS Partners Program
Action C3: Develop, share, and expand stewardship toolkit.					
Subactions	**Key Outcomes / Success Measures**	**Priority**	**Target Completion**	**Lead Organization**	**Key Partners**
C3.1 Increase access to existing shared knowledge regarding the creation and enhancement of oak habitat.	Creation of virtual library including links.	High	June 30, 2019, but periodically revised	Metro	SWCDs, Intertwine Alliance
C3.2 Expand the use of underutilized or innovative management tools to meet evolving challenges.	Trials of new approaches such as grazing. Presentations given and papers published.	Medium	Ongoing	SWCDs USFWS	All land management agencies
Action C4: Increase ability to employ fire as a management tool.					
Subactions	**Key Outcomes / Success Measures**	**Priority**	**Target Completion**	**Lead Organization**	**Key Partners**
C4.1 Identify current local barriers to using prescribed fire and strategies for overcoming them.	Strategic plan to increase use of fireIncreased use of fire as a management tool.	Medium	June 30, 2019	Metro	SWCDs, USFWS, BLM, local fire districts
C4.2 Explore whether partnerships can be formed with USFWS and the Willamette Valley Ecological Fire Partnership to help navigate and overcome current barriers.	Meetings held with appropriate organizations.	High	June 30, 2019	Metro	SWCDs, USFWS, Columbia Land Trust

Action C5: Encourage maintenance of conservation values on priority habitats where landowners are not interested in formal land protection measures.					
Subactions	**Key Outcomes / Success Measures**	**Priority**	**Target Completion**	**Lead Organization**	**Key Partners**
C5.1 Work with soil and water conservation districts and private landowners of priority sites not currently interested in selling property rights to support voluntary efforts to improve management for oak habitat and build relationships that may lead to future land protection.	1. Training on available tools for staff in organizations working with landowners. 2. Coordinated outreach. 3. Effective engagement with landowners.	High	Ongoing	West Multnomah, Tualatin, and Clackamas SWCDs	Columbia Land Trust, SWCDs, Oregon Department of Forestry, Oregon State University Extension
Action C6: Improve the availability of plant materials for habitat creation and enhancement.					
Subactions	**Key Outcomes / Success Measures**	**Priority**	**Target Completion**	**Lead Organization**	**Key Partners**
C6.1 Document and bank seed of all plant taxa on protected anchor sites that have medium to high fidelity to oak and prairie habitats and that are not available on the commercial market.	Species lists created and seeds stored for Metro sites. Species lists and seeds stored for non-Metro partners.	High	2018 for Metro sites, other sites unknown	Metro	All land managing partners, Native Plant Society of Oregon
C6.2 Broaden user groups that will buy native seed to support the market.	Increased use of local native seed.	Medium	Depends on future OPWG decisions	Metro	SWCDs, Portland Audubon, Columbia Land Trust
C6.3 Develop partnership to expand the availability of seed for key species not available on the commercial market.	Partnership formed as sub-group to Willamette Valley-wide partnership.	Medium	Depends on future OPWG decisions	Metro	SWCDs, Portland Audubon, Columbia Land Trust, USFWS (Tualatin NWR)
C6.4 Support the Willamette Valley Plant Materials Partnership by buying seed from the partnership whenever it is available.	New members of partnership or increased annual sales.		Depends on future OPWG decisions	Metro	All OPWG partners

Action C7: Agree on measures of habitat quality and prioritize areas for restoration and enhancement.					
Subactions	**Key Outcomes / Success Measures**	**Priority**	**Target Completion**	**Lead Organization**	**Key Partners**
C7.1 Use existing habitat quality assessment tools (key ecological attributes, ecological integrity indices, oak habitat metrics, etc.) as a basis for developing restoration prescriptions and a habitat quality assessment.	Integration of existing measures into widely accepted new measures.	High	2018	Metro	Washington DNR, Institute for Applied Ecology
C7.2 In collaboration with the Regional Connectivity Working Group and using completed oak mapping data, develop a prioritization approach for restoring oak and prairie habitats.	Prioritization map or tool.	High	December 30, 2019	Metro	SWCDs, Portland Audubon, Columbia Land Trust, WDFW, ODFW
C7.3 Work with SWCDs to identify and implement priority opportunities for creating and enhancing oak and prairie habitats on private lands.	Number of landowner partners engaged in restoration.	High	Ongoing	SWCDs	All OPWG partners

STRATEGY ELEMENT D: Develop knowledge, information, and data sources to improve stewardship practices and conservation decision making					
Action D1: Work with partners to build relationships and develop cultural connections that will support the inclusion of traditional knowledge.					
Subactions	**Key Outcomes / Success Measures**	**Priority**	**Target Completion**	**Lead Organization**	**Key Partners**
D1.1 Build intentional and authentic relationships for better understanding and incorporation of a continuum of perspectives. Solicit input throughout the process and be accountable to the relationships and the input given from them. Encourage understanding of the reliance on the social facets of millennia-long stewardship of oak and prairie habitats.	1. List of partners developed 2. Initiation of oak and prairie-focused TEK work group	High	Outreach to tribal partners summer/fall 2018	TBD	Metro, PP&R, NAYA, PSU Indigenous Nations Studies Program, Tribes, OPWG
D1.2 Through work with stewardship and conservation subgroups, identify areas to seek to broaden knowledge of habitat types and guide prioritization of regional conservation and stewardship activities. Coordinate this task with the Intertwine Alliance's Regional Connectivity Working Group.	1. Coordination with the Connectivity Working Group. 2. Development of conservation subgroups. 3. Support systems and products for conservation and stewardship elements.	High	2018-2019	Coordinator and Knowledge subcommittee	OPWG

Action D2: Integrate a full range of knowledge and data resources to provide guidance for stewardship and conservation practices.					
Subactions	**Key Outcomes / Success Measures**	**Priority**	**Target Completion**	**Lead Organization**	**Key Partners**
D2.1 Synthesize information priorities and needs for the range of partners. Review CPOP resources and assess and develop regionally specific data needs. Create a plan (with priorities, timeline, resources, and scope of work) based on the needs assessment and gap analysis of Action D1 to develop knowledge, data, management guidelines, and social resources.	1. Compilation of needs assessment developed, reviewed, prioritized. 2. Knowledge subcommittee work plan approved.	High	December 2018	Coordinator and Knowledge subcommittee	OPWG
D2.2 Standardize and centralize knowledge, information, and data to support conservation and stewardship of oak and prairie habitats across the RCS planning area.	1. Regionally specific data needs identified. 2. Cataloging of existing resources begun.	High	June 2019	Coordinator and Knowledge subcommittee	OPWG
D2.3 Develop new or use existing habitat quality assessment tools as a basis for developing restoration prescriptions. Be inclusive of the full range of potential audiences (e.g., public lands managers, large-scale private property owners/managers, owners of backyard habitats). Organize existing resources into broad categories for easier use. Provide definitions and assessments to support understanding of the life history, physical processes, and community interactions of oak and prairie communities by developing a tool kit.	1. Regionally appropriate restoration and stewardship prescriptions. 2. Habitat and vegetation community assessment tools available. 3. Audience-appropriate materials in development. 4. Organizational digital sharing system outlined.	High	December 2019	Coordinator and Knowledge subcommittee / web consultant	OPWG

Action D3: Ensure that technical and social resources are made available to support long-term conservation and stewardship.					
Subactions	**Key Outcomes / Success Measures**	**Priority**	**Target Completion**	**Lead Organization**	**Key Partners**
D3.1 Develop a forum for sharing resources.	Digital sharing forum in place.	Medium	June 2020	Coordinator/web developer	OPWG, CPOP
D3.2 Integrate approaches that support traditional, technical, and emerging knowledge.	Working relationships are in place.	High	Ongoing	NA	OPWG, TEK workgroup
D3.3 Include new approaches needed for urban and suburban issues and private properties.	Management guidelines for private properties.	High	June 2019	SWCDs	SWCDs, NRCS
D3.4 Support adaptive management systems. Incorporate climate change data into dynamic management approaches.	1. Oak and prairie conservation and stewardship projects that are based on regional standards and practices. 2. Evaluation processes identified. 3. Resources to support the ongoing development of data and tools.	High	Ongoing	NA	OPWG partners

STRATEGY ELEMENT E: Community Education, Engagement, and Advocacy					
Action E1: Raise broad public awareness of and appreciation for native Northwest oak and prairie ecosystems, their conservation, and specific stewardship options.					
Subactions	**Key Outcomes / Success Measures**	**Priority**	**Target Completion**	**Lead Organization**	**Key Partners**
E1.1 Develop key messages—both basic messages and messages for key audiences—that serve as an overall statement of urgency and provide context on the cultural legacy of oak and prairie habitat. Ensure that messages are inclusive and accessible for all.	One-page brochure with shareable language, RFP for 1.2	High	June 2019	OPWG	Metro, USFWS, Intertwine Alliance
E1.2 Identify multiple sites throughout the RCS planning area that demonstrate a diversity in stewardship approaches for different scales, objectives, land uses, and habitat types.	Sites identified.	Medium	June 30, 2020	TBD	All land managing organizations, SWCDs
E1.3 Develop talking points for interpretive tours; identify and train guides.	Presentation developed, guides recruited and trained.	Medium	June 30, 2020	Metro	SWCDs, Portland Audubon, Columbia Land Trust
E1.4 Create signage and materials as needed.	Materials created as needed.	Medium	June 30, 2020	Metro	Intertwine Alliance
E1.5 Develop a larger public communications strategy or campaign about native Northwest oak and prairie conservation. Consider developing an oak conservation "brand" that is visible at oak and prairie sites across the region.	Public campaign strategy and schedule; possibly an oak conservation brand.	Medium	June 2019	Private firm, with OPWG oversight	Metro, USFWS, Intertwine Alliance
E1.6 Integrate high-level oak and prairie conservation messaging and branding into existing programming at the regional level to build public awareness of and support for oak conservation.	Public awareness and support of regional oak/prairie conservation work.	High	Ongoing	Everyone	SWCDs, Metro, Backyard Habitat Certification Program (Portland Audubon, Columbia Land Trust), USFWS, "friends" groups

Action E2: Develop accessible, inclusive, and effective mechanisms/materials to disseminate information to multiple audiences.					
Subactions	**Key Outcomes / Success Measures**	**Priority**	**Target Completion**	**Lead Organization**	**Key Partners**
E2.1 Encourage and promote private land practices that enhance native oak/prairie habitats through tours, special events, incentives, and programs (the Oak Accord, ODFW tax incentives, SWCD efforts, etc.). Present and share widely materials to help community members implement BMPs on private property.	1. Number of handouts distributed. 2. Number of classes, tours, or other programming conducted. 3. Number of people reached.	Medium	TBD	SWCDs, ODFW, WDFW, Willamette Partnership	NRCS, Metro, watershed councils
E2.2 Promote native oak and prairie naturescaping practices in appropriate settings across the urban-suburban landscape continuum. Encourage wholesale and retail nurseries to carry more oak and prairie naturescaping materials and develop more know-how on oak and prairie naturescaping. Engage, educate, and incentivize landscape professionals on oak and prairie naturescaping.	1. Number of landowners/residents reached. 2. Number of retail nurseries aware of and selling oak/prairie species. 3. Number of landscape professionals offering oak/prairie naturescaping as part of their portfolio.	Medium	TBD	SWCDs, Backyard Habitat Certification Program (Portland Audubon, Columbia Land Trust)	Landscape professional organizations, high-profile settings (corporate HQs, HOAs, CDCs and community land trusts)
E2.3 Reach out to and engage public land managers in the region to promote oak habitat protection and restoration. Regularly check on their progress.	Number of new park/land managers, number of projects, and acreage where oak conservation is implemented.	High	Ongoing	Intertwine Alliance	Local jurisdiction park/ public works departments, or school districts
E2.4 Expand the Backyard Habitat Certification Program to encompass the four-county urban and suburban area by 2020.	More than 1,000 new properties participating per year.	High	July 2021	Backyard Habitat Certification Program (Portland Audubon, Columbia Land Trust)	SWCDs, Metro, cities, ODFW, PGE, water utilities

Action E2: Develop accessible, inclusive, and effective mechanisms/materials to disseminate information to multiple audiences.					
Subactions	**Key Outcomes / Success Measures**	**Priority**	**Target Completion**	**Lead Organization**	**Key Partners**
E2.5 Formally partner with the Oregon Zoo Education Center. Update and rotate important conservation themes as part of the Education Center's display on oak habitat. Table together and regularly participate in oak habitat education activities, especially on dedicated theme days for environmental education.	Number of zoo visitors reached per year (which serves the region), informed about oak conservation and reaching other public parks/natural areas with oak.	Medium	TBD	OPWG	Metro, USFWS, Intertwine Alliance
Action E3: Strengthen and support community-based oak stewardship groups across the region.					
Subactions	**Key Outcomes / Success Measures**	**Priority**	**Target Completion**	**Lead Organization**	**Key Partners**
E3.1 Create a platform or forum for various groups to communicate and collaborate; cultivate collaborative relationships with diverse partners.	1. New "friends" groups formed. 2. Existing "friends" groups and advocates strengthened. 3. Cumulative annual funding for "friends" groups reaches $50,000.	Medium	June 2019	Intertwine Alliance, UGI	Various (appropriate OPWG partner for particular Friends group locale)
E3.2 Assess the gaps, needs, and challenges of community-based oak stewardship groups and lend support to those groups from various OPWG partners.	One-on-one mentoring and grants received by "friends" groups.	Medium	December 2019	UGI	Intertwine Alliance, OPWG
E3.3 Continue to expand TEK practices and learning at oak and prairie natural areas and integrate with "friends" group efforts.	1. Continued support for annual Quamash Prairie camas harvest/restoration celebration. 2. Creation of 2-3 more annual TEK stewardship events at other oak-prairie conservation sites.	Medium	Ongoing	PSU Indigenous Nations Studies Program, Metro	UGI

Action E4: Develop and implement an advocacy strategy to increase land use protections and enhance and optimize incentives for native oak and prairie habitats.					
Subactions	**Key Outcomes / Success Measures**	**Priority**	**Target Completion**	**Lead Organization**	**Key Partners**
E4.1 Create habitat protection standards.	Oregon state model code developed	High	June 2020	TBD	ODFW, Metro, WDFW
E4.2 Strengthen local land use and planning regulations to protect oak and prairie habitat on private lands. Examples include city and county tree codes, land subdivision and conversion rules, and nuisance vegetation ordinances.	1. Number of new tree codes that prioritize protection of Oregon white oak 2. Oak habitat is designated as a local wildlife habitat of concern under local land use regulations	High	Ongoing	Portland Audubon, oak advocates, cities and counties	Metro
E4.3 Enhance and optimize tax incentives, create dedicated funds for oak conservation, and develop other non-regulatory tools to encourage oak and prairie protection on private lands.	State and local private land conservation incentives and funding for oak habitat are available and aligned with priority conservation needs: tree preservation, weed control, etc.	Medium	TBD	TBD	OWEB, SWCDs, ODFW
E4.4 Strengthen and create effective processes and tools for oak advocates to respond to and influence development applications.	Evaluate existing resources and work with advocates to develop tools for land use/ development review	Medium	TBD	Portland Audubon, UGI	"Friends" groups, oak advocates, watershed councils