



Intertwine Oak and Prairie Working Group 2022 Strategic Action Plan

Prepared by the Intertwine Oak and Prairie Working Group
Under OWEB Focused Investment Grant # 209-8301-16572

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Executive Summary

Across the bi-state Intertwine region of northwest Washington and southwest Oregon, oak and prairie ecosystems provide habitat for hundreds of plant and wildlife species, serve as the cultural bedrock for Native American communities, and are a strikingly beautiful component of our region's natural heritage. But they are threatened by ongoing habitat loss and fragmentation. This strategic action plan (SAP) charts a course of action for Intertwine Oak and Prairie Working Group (OPWG) partners and their collaborators in conservation to protect and restore oak and prairie habitats, and to spur public understanding, appreciation, and stewardship for them over the long term.

This 2022 SAP was developed using the Open Standards for the Practice of Conservation. Developed by the Conservation Measures Partnership, the Open Standards process links a threats analysis to a theory of change and prioritizes actions to address threats to oak and prairie ecosystems. In this SAP, we outline general priorities for oak and prairie ecosystems in the Intertwine region that focus on habitat acquisition, protection, and restoration in and around priority oak conservation opportunity areas. Separately, we identify and detail collaborative conservation priorities that will be led by the Intertwine Oak and Prairie Working Group (OPWG) over the next 10 years. Those priorities include strengthened outreach and communications, enhanced easement and incentive programs, refined technical assistance tools/guidance, and coordination and expansion of the partnership, as well as policy and advocacy to improve conservation outcomes for oak and prairie ecosystems. We also outline a framework for monitoring progress and describe a governance structure for the OPWG.

Consistent with the OPWG's collaborative nature, every action in this SAP 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.

Success will not come easily. Restoring oak and prairie ecosystems in the Intertwine region will require a concerted, coordinated, well-communicated, and well-funded effort at multiple scales that addresses a range of ecological, social, and economic barriers. But the potential rewards are great. Success will enable the region to go beyond improving the health and survival of local oak and prairie ecosystems to meeting a range of other social and environmental goals associated with long-term livability, equity, climate, and culture within the region.

Acknowledgments

Land Acknowledgement

What we now call the Intertwine region is the traditional lands and waterways of the Cascades, Clackamas, Chinook, Cowlitz, Grand Ronde, Kalapuya, Kathlamet, Molalla, Multnomah, Siletz, Tualatin, Tumwater, Wasco, and many other Tribes of the Willamette Valley and Western Oregon. We will never be able to name every Tribe that visited or lived on this land because these communities frequently traveled for trade and other reasons. The Indigenous peoples lived, traded, and navigated along great rivers and tributaries currently named the Clackamas, Columbia, Molalla, Sandy, Tualatin, and Willamette. Many of the original inhabitants of this land died from disease or war and other conflicts. Those that survived these tragedies were forcibly removed and relocated by European settlers and the U.S. government because of the land's value. Today, their descendants live on, still carrying on the traditions and cultures of their ancestors.

We honor the Native American people of the Intertwine region as a vibrant, foundational, and integral part of our community here today. We respectfully acknowledge Wy'east (also known as Mount Hood) and Hyas Tyee Tumwater (also known as Willamette Falls) as sacred sites for many Native Americans. We thank those who are connected to this land and serve as stewards, working to ensure that our ecosystem stays balanced and healthy.

Acknowledging the original people of the land is a simple, powerful practice that demonstrates respect by making Indigenous people's history and culture visible. It is also a small step along the path toward reconciliation and repair. Please join us in taking this opportunity to thank and honor the original caretakers of this land.



Contributors

This update to the 2018 Intertwine Oak and Prairie Working Group Strategic Action Plan was completed under the Oregon Watershed Enhancement Board grant number 209-8301-16572 to the Urban Greenspaces Institute. Matching funds were provided by Metro, the Clackamas Soil and Water Conservation District (SWCD), and the Tualatin SWCD.

A steering committee consisting of the following individuals helped guide this update:

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Numerous other individuals and organizations provided background support and/or contributed to this update, the original 2018 strategic action plan, and/or regional oak mapping efforts. A list of these individuals and their affiliations is presented in Appendix A. Mary Bushman (consultant) helped develop the foundation for this update to the 2018 strategic action plan and conducted outreach to new partners. Sara Evans Peters (Pacific Birds Habitat Joint Venture) assisted with the development of the open standards process and refinements. Ted Labbe authored an early draft of this strategy, and Ann Sihler served as technical editor.

Acronyms and Abbreviations

BIPOC	Black, Indigenous, and People of Color
BHCP	Backyard Habitat Conservation Program
BMP	best management practice
CPOP	Cascadia Prairie Oak Partnership
ITEK	Indigenous Traditional Ecological Knowledge
NAYA	Native American Youth and Family Center
ODF	Oregon Department of Forestry
ODFW	Oregon Department of Fish and Wildlife
OPWG	Oak Prairie Working Group
OWEB	Oregon Watershed Enhancement Board
PPR	Portland Parks and Recreation
PSU	Portland State University
RCS	Regional Conservation Strategy
RHCWG	Regional Habitat Connectivity Working Group
SAP	strategic action plan
SWCD	Soil and Water Conservation District
WHCMP	Wildlife Habitat Conservation and Management Program



Photo provided by Lori Hennings

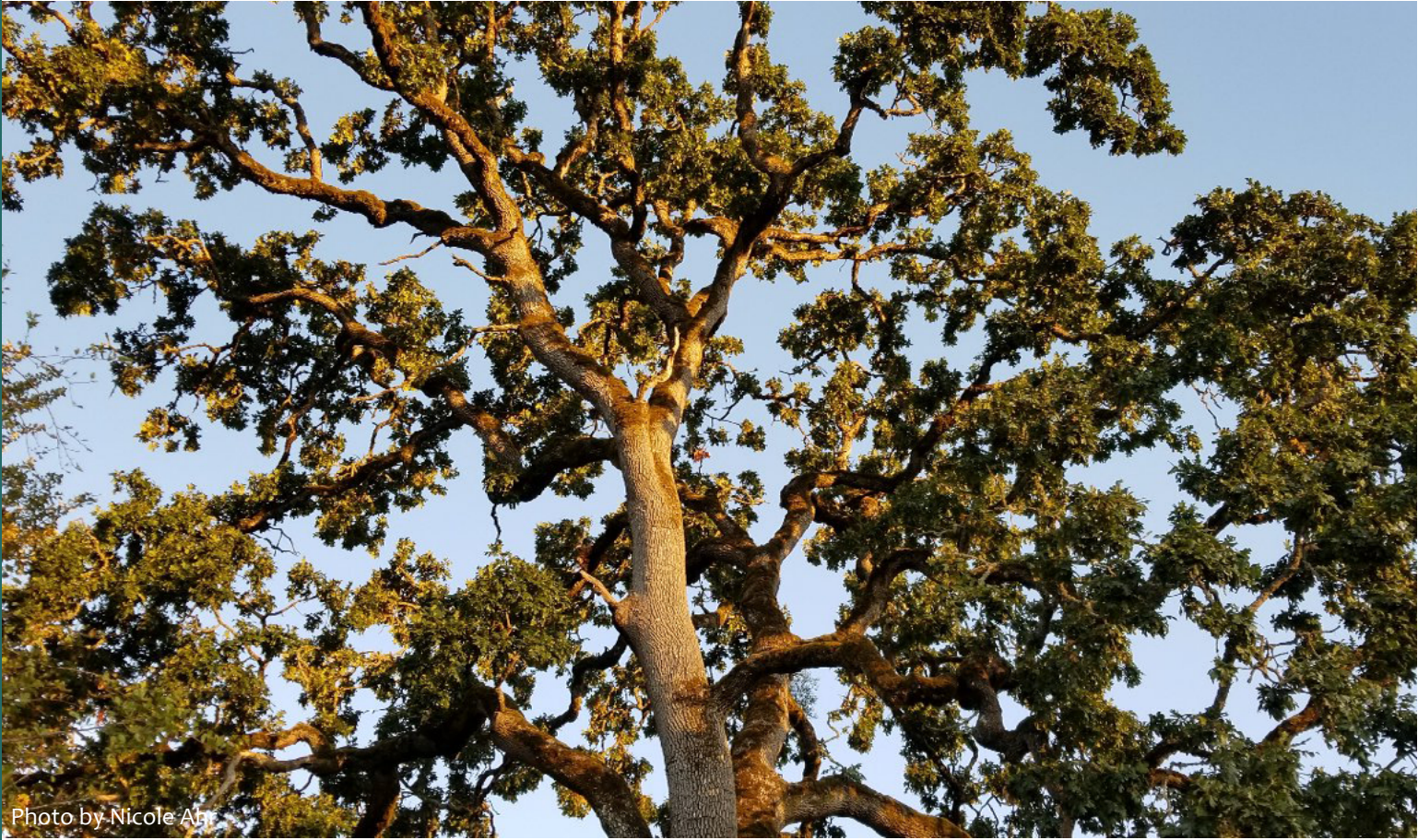


Photo by Nicole An

Introduction

About This Plan

This strategic action plan is intended to guide the work of the Intertwine Oak Prairie Working Group (OPWG) for the next 10 years (2022-32) as the OPWG advances conservation actions, science, stewardship, and education related to the area's imperiled native oak and prairie ecosystems.

In the Pacific Northwest, more than 200 wildlife and 300 plant species depend on oak and prairie ecosystems. Many of these plant and animal species are imperiled, some are found only in the Willamette Valley or the bi-state Intertwine region of northwest Oregon and southwest Washington, and a host of them are culturally significant species that have sustained Northwest Tribes over millennia.

Currently, oak and prairie ecosystems within and beyond the Intertwine region exist mostly in fragments. Their integrity and connectivity continue to be threatened by ongoing urbanization, land use changes, invasive species, loss of natural fire regimes, and climate change. With this strategic action plan, the OPWG charts a course toward a more secure future for oak and prairie habitats that fall within the Intertwine region (see Figure 1). Although remnant oak and prairie habitats in this area are small and isolated, they play an outsized ecological role in northwest Oregon and southwest Washington, bridging to similar habitats to the north, south, and east.

About the OPWG

In 2012, during development of **The Intertwine Alliance’s Regional Conservation Strategy for the Greater Portland-Vancouver Region**, the Intertwine OPWG formed to address the lack of regional data necessary to improve conservation outcomes for imperiled Oregon white oak ecosystems. After an initial focus on oak mapping, in 2015 the group broadened its work to address stewardship, science, restoration, and education, with a focus on native oak and related prairie habitats.

Currently the OPWG includes more than 35 agency, nonprofit, and community partners that represent fish and wildlife agencies, Native American Tribes, Soil and Water Conservation Districts (SWCDs), park districts, cities, land trusts, watershed councils, environmental nonprofits, and 'small community-based organizations. For small groups, participating in the OPWG has enabled them to leverage limited resources and actions with those from the larger partnership, which offers diverse expertise and capabilities.

Intertwine Oak and Prairie Working Group members

- Audubon Society of Portland
- City of Gresham
- City of Portland Bureau of Environmental Services
- City of Portland Parks and Recreation Department
- Clackamas Soil and Water Conservation District
- Clark Conservation District
- Clark County
- Clark Public Utilities
- Clean Water Services
- Columbia Land Trust
- Columbia Soil and Water Conservation District
- Confederated Tribes of the Grande Ronde
- Conservation Biology Institute
- Portland State University Institute for Natural Resources
- Scappoose Bay Watershed Council
- Society for Conservation Biology
- Samara Group LLC
- Tualatin Hills Parks and Recreation District
- East Multnomah Soil and Water Conservation District
- Ed Alverson, private consultant/oak expert
- Forest Park Neighborhood Association
- Helvetia Community Association
- Judy Bluehorse Skelton, cultural expert
- Mark Wilson, private consultant/oak expert
- Metro
- Native American Youth and Family Center (NAYA)
- North Clackamas Parks and Recreation District
- Oregon Department of Fish and Wildlife
- Oregon Department of Forestry
- Oregon Wildlife Foundation
- Portland State University Indigenous Nations Studies
- Tualatin Soil and Water Conservation District
- U.S. Fish and Wildlife Service
- Urban Greenspaces Institute
- Washington Department of Fish and Wildlife
- Washington Department of Natural Resources
- West Multnomah Soil and Water Conservation District

2 The Intertwine region is the **planning area** in the Regional Conservation Strategy for the Greater Portland-Vancouver (The Intertwine Alliance, 2012). See Figure 1.

Figure 1. The Intertwine region



In 2018 the OPWG released its first strategic action plan. Then, in 2020, the group formalized its governance structure, conducted outreach to new partners, and initiated an Oregon Watershed Enhancement Board-funded update of its strategic action plan, using **Open Standards for the Practice of Conservation** (referred to hereafter as Conservation Standards). Developed by the Conservation Measures Partnership, the Open Standards for the Practice of Conservation are a widely adopted set of principles and practices for designing, managing, and monitoring conservation projects using shared concepts, approaches, terminology, and tools, such as Miradi adaptive management software.

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.**

Accomplishments to Date

Over the last 10 years the OPWG has had numerous successes, including:

- » Completed the first **map of Oregon White oak** tree occurrences, canopy cover, habitat connectivity, and conservation opportunity areas within the Intertwine region.
- » Conducted outreach to urban residents in oak-rich neighborhoods of north Clackamas County and piloted naturescaping workshops for those residents.
- » Published **Conserving Oregon White Oak in Urban and Suburban Landscapes**, a guidebook for property managers interested in protecting, establishing, or improving oak habitat on their land.
- » Launched the **Clackanomah Oak Habitat Conservation Initiative** to support oak habitat restoration on private rural lands in Clackamas County and west Multnomah County.
- » Built and extended the OPWG partnership into Columbia and Clark counties.
- » Partnered with the Native American Youth and Family Center (NAYA) and Portland State University (PSU) Indigenous Nations Studies Program to mentor three emerging Native American women leaders who are reinstating traditional oak and prairie stewardship practices at natural areas through the **KelipiCamas project**.
- » Engaged more than 200 community members during 2014-15 in documenting and mapping Oregon white oak occurrences across the region.
- » Provided a platform for collaboration and information sharing by agencies and nonprofits that are working to secure protection of oak habitats on public land and to restore oak habitats on both public and private lands.
- » Supported the inclusion of culturally significant plants and landscapes as a priority within the 2019 Metro Parks and Nature bond measure, to accelerate and strengthen oak and prairie conservation actions within Multnomah, Clackamas, and Washington counties.
- » Advocated for **restoration of the Oregon Department of Fish and Wildlife's (ODFW) wildlife habitat tax deferral program** to strengthen incentives for oak conservation on private rural lands in Oregon.
- » Elevated the visibility of imperiled oak and prairie habitats, and communicated their ecological and cultural significance outward to others.

These accomplishments represent a solid beginning to the development of a conservation program for oak and prairie habitats in the Intertwine region. However, success in restoring these ecosystems will require a concerted, coordinated, and well-funded effort at multiple geographic scales to address ecological, social, and economic challenges. How that work is envisioned, organized, and prioritized is the focus of this strategic action plan (SAP).

Strategic Action Plan Structure and Content

The SAP is organized into seven chapters, plus appendixes. Chapter 2 provides an overview of oak and prairie habitats within the Intertwine region. Chapter 3 describes the OPWG’s mission and vision for oak and prairie conservation. Chapters 4 and 5 identify the threats, conservation needs, and opportunities, as well as our theory of change to remedy threats to oak and prairie habitats. These two chapters also detail the Conservation Standards planning process results that the updated strategy builds on. Chapter 6 presents the OPWG’s framework for monitoring progress and conducting adaptive management. Chapter 7 outlines our new governance structure and partner roles going forward.

This 2022 strategic action plan, was restructured and reorganized from the original 2018 strategic action plan, is based on the Conservation Standards described above, and focuses specifically on the collaborative work of the OPWG partnership. Details of the 2018 strategic action plan pertinent to the work of individual partners are preserved via links in Appendix F. Appendix A includes a list of all contributors. Appendixes B and C provide links to other plans and strategies plus a description of current regulations and conservation programs that govern oak and prairie habitats, respectively. Appendix D provides more details on the Conservation Standards’ “results chains,” and Appendix E shows how the original 2018 strategy actions were reorganized as part of this 2022 strategic action plan.



Photo by Mike Houck

Regional Context

This strategic action plan 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 this larger regional strategy.

As previously discussed, the OPWG's strategic action plan will address priorities in The Intertwine Alliance's **Regional Conservation Strategy** (2012) and other broad-scale conservation plans, including the Oregon Department of Fish and Wildlife's statewide **Oregon Conservation Strategy** (2016) and the U.S. Fish and Wildlife Service's **Willamette Valley Conservation Study** (2017).

This SAP was developed to align with strategic action plans that guide oak and prairie conservation efforts in the upper Willamette Valley, eastern Columbia River Gorge, Umpqua Valley, and Klamath-Siskiyou region of southern Oregon/northern California. Those plans, which were developed for the Willamette Valley Oak Prairie Cooperative, East Cascades Oak Partnership, Umpqua Prairie and Oak Partnership, and Klamath Siskiyou Oak Network, respectively, complement the work of this Intertwine OPWG strategic action plan. A list and links to these related plans and strategies is provided in Appendix B. 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.





Photo by Lori Hennings

Profile of Oak and Prairie Habitats Within the Intertwine Region

Oak and prairie habitats within the Intertwine region are part of a larger system of oak and prairie habitats that extends south into the Willamette Valley, north into the Puget Lowlands, and east up the Columbia Gorge. These ecosystems are among the most drought-tolerant, fire-resilient, and pollinator-rich lowland habitats in the Pacific Northwest, with more than 500 species of plants and wildlife depending on them. Moreover, the cultural significance of these habitats looms large. They harbor a diversity of Native American “first foods” and historically were the breadbasket for Northwest Tribes. Their current distribution and extent are in part a legacy of historical Indigenous cultural burning, which was used to periodically renew these ecosystems for harvests of acorns, camas, game, and other resources.

Historically, oak and prairie were the most common land cover types in the Willamette Valley. With European colonization and settlement, Indigenous peoples were removed from the land and cultural burns were discontinued. Over the last 200 years, market agriculture spread throughout the valley bottoms and industrial forestry became the dominant land use in uplands. More recently, development has contributed to further loss and fragmentation of oak and prairie habitats.

Today, remnant oak and prairie ecosystems typically occupy relatively dry, rocky, or thin-soiled environmental settings. However, they also can be found in or adjacent to wetlands or wet soils, and Willamette Valley wet prairies are a special example of this. With the termination of cultural burning after European settlement, oak and prairie ecosystems were invaded by shrubs and conifer trees, which contributed to the development of mixed oak/conifer stands and stands with high understory shrub cover. Within the Willamette Valley, less than 7 percent of the historical oak habitat remains, and less than 1 percent of native prairie habitat.

Box 2. More about oak and prairie habitats

Useful references

There are many excellent discussions of the flora and fauna associated with regional oak and prairie habitats, as well as threats and strategic opportunities to address them. For oak and prairie biota, their ecological significance, and management challenges, we especially like pp. 47-58 in The Intertwine Alliance's **Biodiversity Guide for the Greater Portland-Vancouver Region**. Other descriptions of these habitats, associated species, and their ecological and cultural significance can be found in the **Oregon Conservation Strategy, Washington's Comprehensive Wildlife Conservation Strategy**, and various resources on the website of the **Cascadia Prairie Oak Partnership. Oregon's Oak: A Vanishing Legacy**, a short video from Yamhill Watershed Stewardship Fund, also is informative.

General characteristics

Oregon white oak woodlands, savanna, and prairie represent a continuum of habitats shaped by natural and cultural fire over millennia. Oregon white oak is the only native oak within the Intertwine region and serves as the flagship for the more than 140 wildlife and 375 plant species that are closely associated with oak woodland, savanna, and prairie ecosystems. Oak woodlands have an open canopy (30 to 70 percent closure), are dominated by Oregon white oak, and have an understory of grasses, forbs, and scattered low shrubs. Both oak savanna (which has up to 30 percent tree canopy) and prairie (with few or no trees) often have similar species of understory grasses and forbs, which evolved to tolerate frequent, low-intensity burns. Oak and its diverse associated species are drought and fire tolerant but do not tolerate shade; they decline or die out with competition from more fire-sensitive and shade-tolerant trees, such as Douglas-fir and big leaf maple.

Associated species

Prominent wildlife species characteristic of oak woodlands, savanna, and/or prairie include Fender's blue butterfly, savanna sparrow, slender-billed white-breasted nuthatch, acorn woodpecker, western bluebird, western meadowlark, and western gray squirrel. Plants characteristic of these habitats include tarweed, camas, wild onion, fawn lily, Oregon sunshine, California fescue, poison oak, bracken fern, western serviceberry, and madrone, as well as various lupines, biscuitroots (*Lomatiums*), checkermallows, asters, and other bulbs (*Brodiaea*, *Triteleia*, and *Fritillaria* species). The entire range of the oak habitat-endemic species **white rock larkspur (*Delphinium leucophaeum*)** is contained within the Intertwine region.

Threats

Threats to Pacific Northwest oak and prairie habitats are many and varied. The conversion of oak and prairie environments to farms, production forest, and urban and residential areas has led to fragmentation and isolation of remnant habitats. This historical change has led to the loss of local native biodiversity and enabled invasions by non-native species. Oak woodlands once dominated by widely spaced trees are becoming forests crowded with competing conifers and understory shrubs. Legacy oaks in residential and farmland settings may persist for decades, but a lack of reproduction dooms their long-term prospects. Vineyard development on land once deemed unsuitable for farming is causing ongoing habitat loss. The lack of strong markets for oak wood and a healthy demand for softwoods favors the conversion of oak woodlands to conifer plantations. Additionally, park managers, arborists, and homeowners may select other tree species for landscaping because of Oregon white oak's reputation for slow growth and large stature.

Cultural significance

The cultural significance of oak and prairie habitats is reflected in the cultural burning practices that various Native American Tribes developed to cultivate and promote certain plant and animal species. Native peoples used fire and harvest to maintain and expand populations of camas, tarweed, biscuitroots, and other native bulbs. They also used fire to maintain forage for game and to hunt game. Some traditional management and cultural practices are being revived at select natural areas with oak and prairie habitats.

Climate change

Climate change may lead to more frequent and/or prolonged drought and wildfire—conditions that favor oak. However, rapid climate change may have negative effects on species that occupy small, isolated habitat patches because of limitations on dispersal and migration. Without climate-adaptive conservation and management, the persistence of oak habitats in the Intertwine region is at risk.



Photo by Mike Houck

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. Community access to the remaining publicly owned oak prairie plays an important role in preserving and connecting Oregon's communities to the habitats' cultural significance and increases the diversity of stewards throughout the urban and rural parts of the Intertwine region. Oak distribution maps for the region completed in 2019 show remnant oak scattered widely, occupying urban and rural lands. Several oak- and prairie-rich parks and natural areas are embedded within this landscape and offer a glimpse of less disturbed habitats; Table 1 lists a selection of these access points. Regulations governing oak and prairie habitat conservation within the region are few; they are summarized in Appendix C.

Table 1. Select Intertwine region parks and natural areas with oak and prairie

1. Camassia Natural Area, West Linn	12. Milo McIver State Park, Estacada
2. Canemah Bluff Natural Area, Oregon City	13. Mt Talbert Nature Park, Clackamas
3. Champoeg State Park, St Paul	14. Nob Hill Nature Park, St Helens
4. Cooper Mountain Nature Park, Beaverton	15. Oaks Bottom Wildlife Refuge, Portland
5. Elk Rock Island, Milwaukie	16. Ridgefield National Wildlife Refuge, Ridgefield
6. Gladstone Nature Park, Gladstone	17. White Oak Savanna, West Linn
7. Graham Oaks Nature Park, Wilsonville	18. Tanner Springs Park, Portland
8. Iron Mountain Park, Lake Oswego	19. Tualatin Hills Nature Park, Beaverton
9. Lacamas Park, Camas WA	20. Tualatin River National Wildlife Refuge, Sherwood
10. Liberty Hill Camas Bluff, St Helens	21. Washougal Oaks Natural Area, Washougal
11. Mary S Young State Park, West Linn	22. Willamette Narrows, near West Linn

Figure 2. Distribution of oaks and prominent parks and natural areas with oak-rich habitat within the Intertwine region

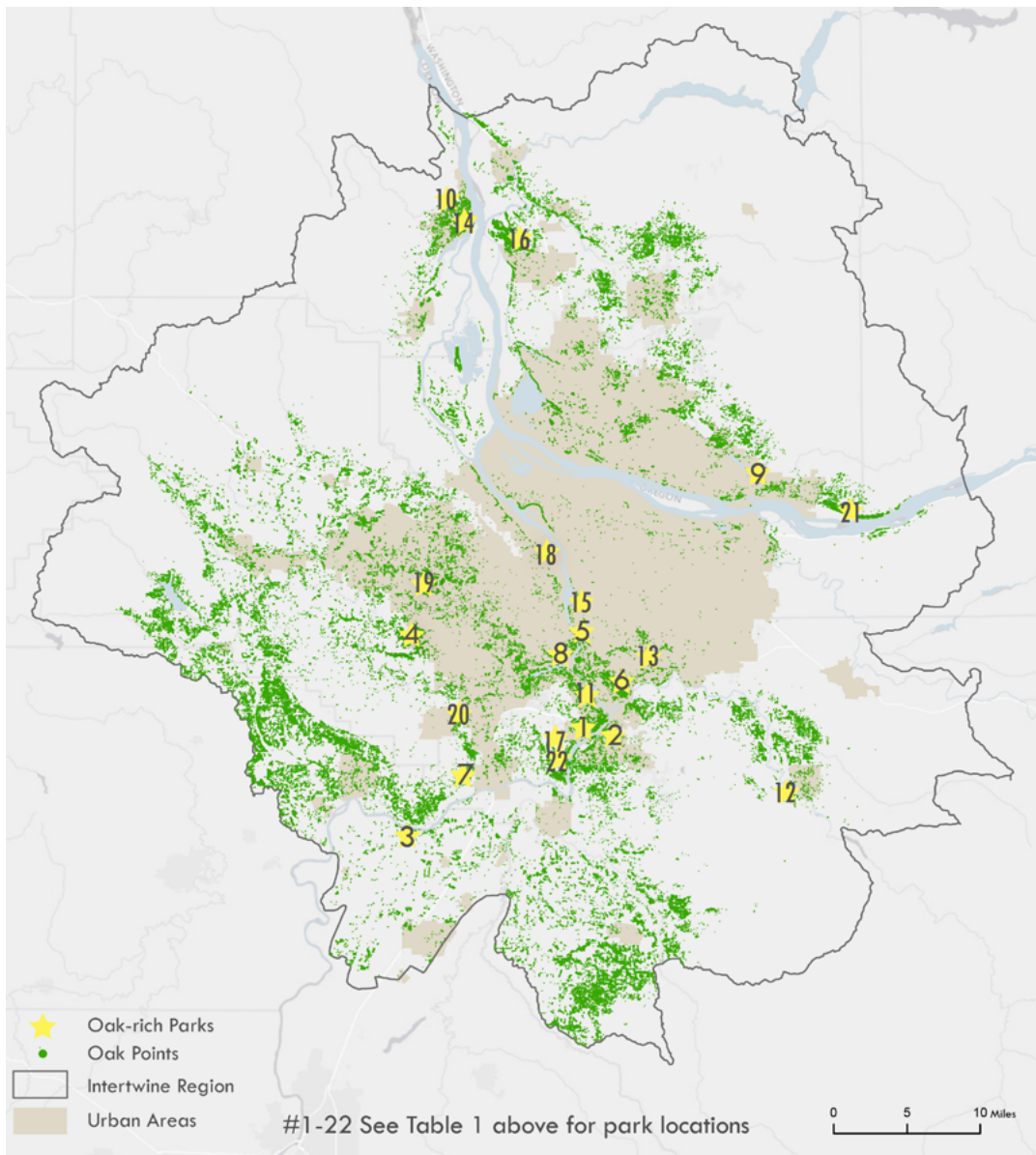




Photo by Nicole Ruggiero

Oak and Prairie Conservation Vision, Mission, and Values

Our Vision and Mission

The Intertwine OPWG envisions a future where native oak and prairie ecosystems and species are abundant, diverse, and under active stewardship, thus enriching the region's diverse human communities and cultures. Our mission is to conserve and restore oak and prairie habitats, and to empower and educate people to cherish and nurture oak and prairie ecosystems.

This strategic action plan was developed as a collaborative effort by various OPWG partners. Not all partners will be involved in the implementation of each action, and each partner will self-determine their own role and level of engagement, consistent with their capacity and mission. This 2022 update differs significantly from our original 2018 OPWG strategic action plan in that it focuses on joint actions, planning, and initiatives led by the OPWG. We attempt not to detail and prioritize all actions by individual OPWG partners but rather to integrate these diverse conservation actions into a coherent program of policy, land acquisition, stewardship, landowner/manager incentives, outreach, education, and more.

Guiding Values



A. Diversity, with inclusive and equitable relationships

The OPWG seeks out and welcomes a diverse group of participants in its work. We seek to create and nourish an inclusive and equitable partnership that lifts up and centers Black, Indigenous, and People of Color (BIPOC) in our learning, activities, and governance. Relationships are key, and require ongoing work.



B. Effective communication

The OPWG will strive for effective communication, both within and beyond the partnership. Communication and messaging are key to elevating the visibility and importance of oak and prairie habitats and needed conservation measures.



C. Collaborative partnerships

Few agencies, nonprofit organizations, or landowner/managers have the resources to implement successful oak and prairie conservation measures at scale, working independently. To be effective, most actions we take will require collaboration among existing and potentially new partners. Because more than 90 percent of the remaining oak and prairie habitats are on private land, this collaboration requires trust and effective public-private partnerships.



D. Knowledge, learning, and adaptive management

Both Western science and Indigenous Traditional Ecological Knowledge (ITEK) will inform our decision making. We will strive to implement adaptive management and ongoing learning by monitoring our actions to support continuous improvement and refinement of our strategy and actions.



E. Broad vision and connections

Because habitats, management approaches, and priorities are fragmented across all portions of the urban-to-rural landscape, OPWG partners will strive to identify opportunities for connection and to work across jurisdictional boundaries, ownerships, and land use types.



Photo provided by Lori Hennings

Conservation Need, Limiting Factors, and Threats

Both the 2016 Oregon Conservation Strategy and The Intertwine Alliance's 2012 Regional Conservation Strategy define Pacific Northwest oak and prairie habitats and species as high priorities for conservation investment and action. In national assessments, oak and prairie habitats have been identified as among the most biodiverse and imperiled ecosystems in the United States because of land conversion and altered fire regimes. In addition to their biodiversity conservation values, oak and prairie habitats have high cultural significance to Native American Tribes.

One acknowledged challenge of the 2018 OPWG strategic action plan was the lack of a strategy and prioritization framework. To organize our thinking and prioritize responses to conservation threats facing oak and prairie habitats, the Intertwine OPWG initiated a Conservation Standards planning process and developed a map of oak conservation opportunity areas (Figure 3).

For the spatial prioritization, the OPWG developed a framework to identify and map areas of opportunity for oak conservation and to highlight connectivity, as a means of pinpointing areas for future outreach, oak restoration, conservation, and land acquisition. OPWG partners will continue to develop and refine this map to better define conservation opportunities and risks across the continuum of urban to rural lands.

To learn more about the development of the oak distribution and spatial prioritization map products, see the **OPWG's User's Guide to Intertwine Oak Maps**. For a full description of the Conservation Standards approach and process, see this **Version 4.0 guide** and **this introductory video**, which covers the Step 1 (Assess) and Step 2 (Plan) phases that we used to develop this 2022 strategic action plan.

We identified the threats in Table 2 from existing oak and prairie habitat assessments and ranked them for scope, severity, and irreversibility in the Intertwine region. For this analysis, threats were defined as human-induced actions or events that directly degrade a system or habitat. Historical threats were not considered because there are no direct, contemporary interventions to address historically lost habitats.

Table 2. Potential threats to oak and prairie habitats in the Intertwine region

- » **Fire exclusion**
- » **Non-native invasive species**
- » **Incidental tree removal**
- » **Incompatible grazing**
- » **Transportation and utility networks**
- » **Incompatible agriculture**
- » **Development**
- » **Conifer and woody encroachment**
- » **Conversion to commercial timber**
- » **Pests and pathogens**
- » **Incompatible recreation**



Photo by Nicole Ruggiero

The OPWG then ranked these potential threats to the ecological integrity (i.e., biological diversity and ecosystem resilience) of oak and prairie habitats in the region for urban and rural areas separately, using information from various applicable plans and studies, as well as professional working knowledge. (See Table 3.)

Figure 3. Oak conservation opportunity areas in the Intertwine region

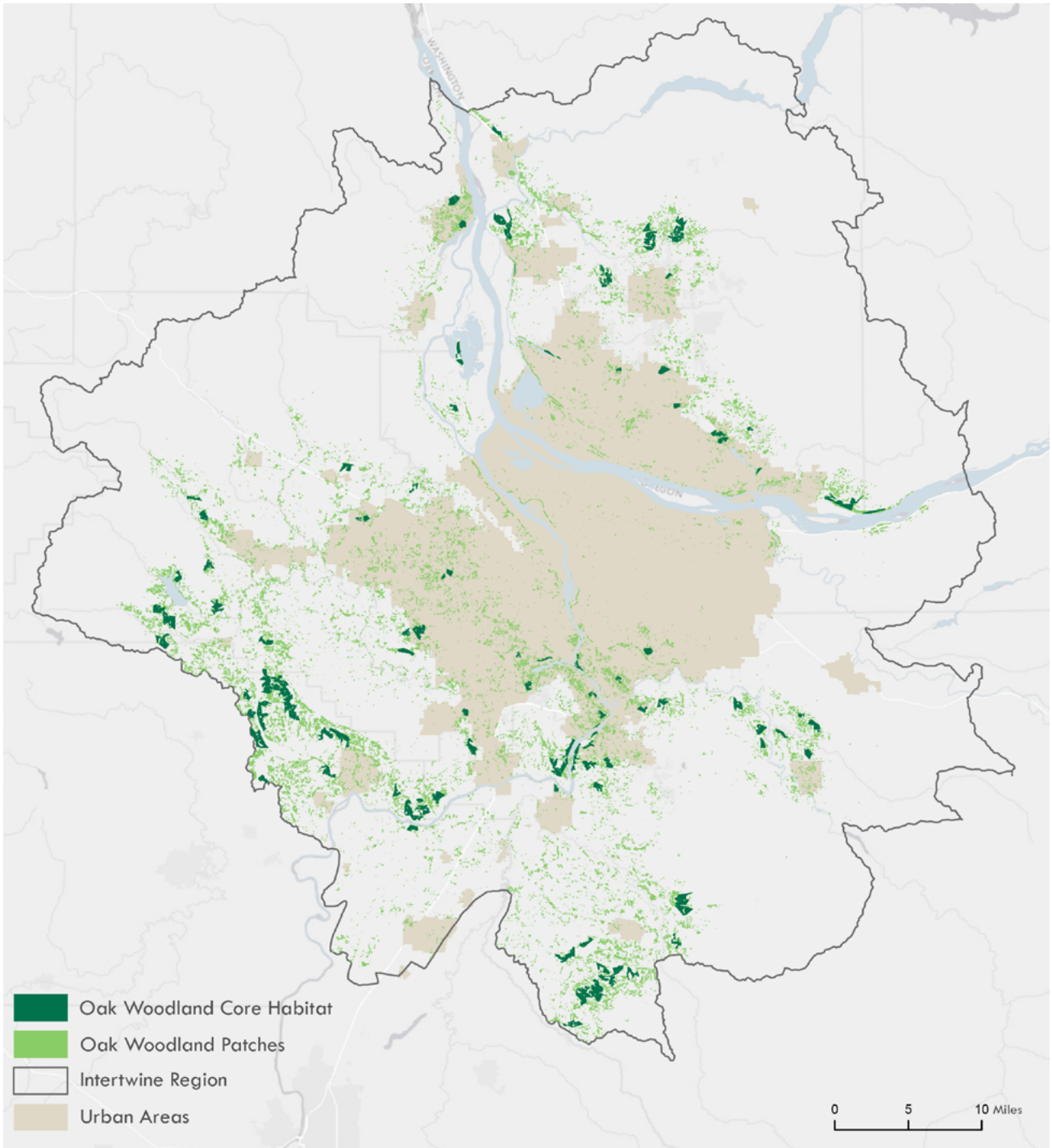


Table 3. Threats rating results for the OPWG conservation standards process

Threats/Targets	Rural	Urban	Summary Threat Rating
Fire exclusion	High	High	High
Non-native invasive species	High	High	High
Development	High	Very High	High
Woody encroachment	High	High	High
Incidental tree removal	Medium	High	Medium
Incompatible grazing	High	Low	Medium
Conifer encroachment	Medium	Medium	Medium
Transportation and utility networks	Medium	High	Medium
Incompatible agriculture	High	Low	Medium
Conversion to commercial timber	Medium	Low	Low
Pests and pathogens	Low	Low	Low
Incompatible recreation	Low	Low	Low



Photo by Nicole Ruggiero

Theory of Change

Our theory of change describes the sequence of events that is expected to lead to a particular desired conservation outcome. It shows a causal pathway from current conditions to the desired situation by specifying what is needed for goals to be achieved, and articulating underlying assumptions that can be tested and measured. Our approach was twofold: first we identified and prioritized conservation actions for oak and prairie habitats in the Intertwine region as a whole. Then we narrowed our scope to prioritize those actions that will be the main focus of the OPWG. In this second step, we excluded actions such as land acquisition and habitat restoration that will be led by individual OPWG partners.

Using the four prioritized Intertwine oak and prairie habitat threats, we constructed flow diagrams that visually model our theory of change, to elucidate hypothesized relationships and assumptions that link the strategy actions back to conservation threats and contributing factors. Points of intervention and system change were mapped into the model to show relationships and chronological flows between long-term outcomes and desired impacts. The links between desired outcomes are explained by statements regarding why one outcome is thought to be a prerequisite for another.

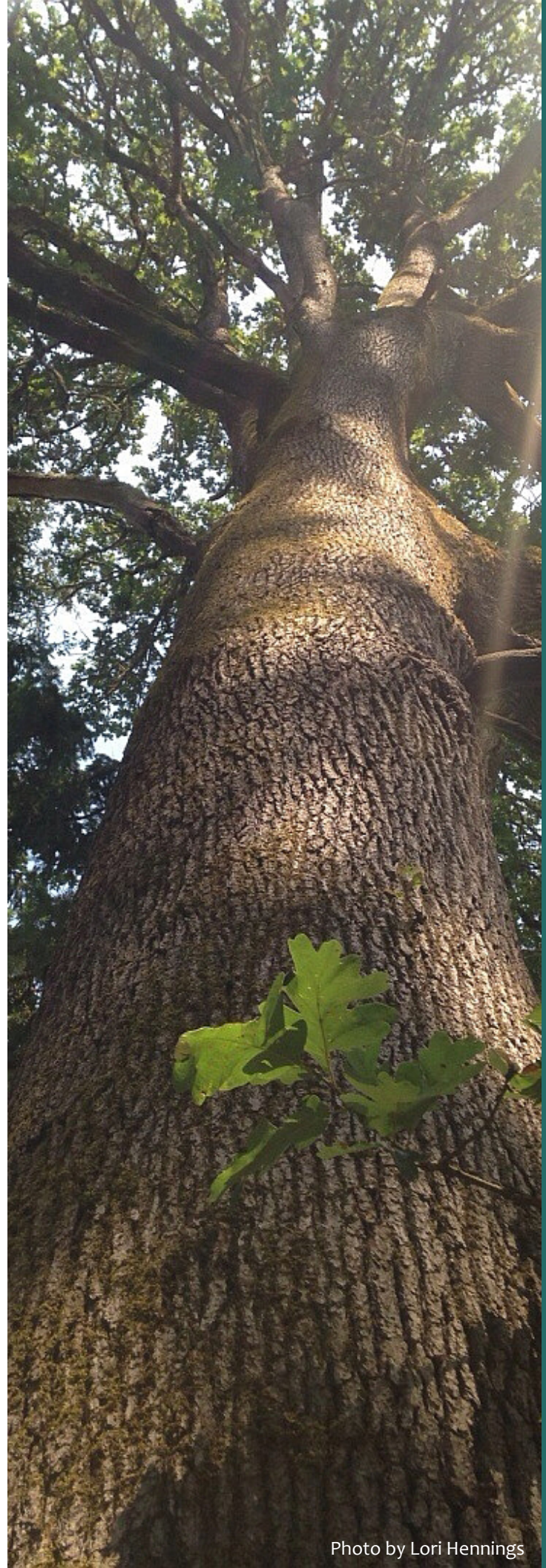
The Intertwine region oak and prairie conservation theory of change is described in four “results chains,” one developed for each of the four principal threat groups, with associated contributing factors (Appendix D). The four completed results chains incorporate and reorganize actions from our 2018 strategic action plan.

Conservation Priorities Led by Individual Entities

The highest ranked threats to Intertwine region oak and prairie landscapes are fire exclusion and woody encroachment, limited stewardship for ITEK-informed plant tending and access, agricultural conversion and intensification, and urban development, transportation, and utilities. To address these threats, OPWG partners will focus their actions on reducing or reversing these threats within and around the mapped Intertwine conservation opportunity areas (see Figure 3), using the following actions:

- 1.** Acquisition of fee-simple title or conservation easements
- 2.** Habitat restoration and enhancements to:
 - a.** Decrease conifer and other tree/shrub encroachment
 - b.** Release oaks from competition
 - c.** Increase acres burned and the capacity to implement prescribed fire
 - d.** Decrease invasive vegetation
 - e.** Restore native understory vegetation

Most of these prioritized conservation actions will be led by one or more OPWG partners (such as Clark County Legacy Lands Program, Columbia Land Trust, Metro, West Multnomah SWCD, or Clackamas SWCD), rather than all the OPWG members working together.



OPWG Collaborative Conservation Priorities

Next, the OPWG partners and consultants identified those actions most relevant to the OPWG as a collaborative whole, i.e., actions where OPWG leadership and convening can best advance conservation goals and outcomes for oak and prairie habitats within the Intertwine region. We grouped these collaborative conservation or joint prioritized actions into five work areas:

- A.** Outreach and communications
- B.** Easements and incentives
- C.** Technical assistance and best management practices (BMPs)
- D.** Coordination, transparent governance, and building trust with BIPOC communities
- E.** Policy and advocacy

Problem Statements

To further focus our dialogue on the role of the OPWG in advancing oak and prairie conservation in the Intertwine region, the steering committee for the 2022 update of the strategic action plan developed problem statements for each of the five work areas:



A. Outreach and communications

To thrive, oak ecosystems often require (1) active human stewardship, and (2) widespread public understanding and appreciation of successful oak conservation. Thus, it is crucial to have robust and ongoing communications and messaging around the ecological significance and threats to the region's oak ecosystems—to galvanize support of and involvement in oak conservation from both the general public and specific groups.

Central to the story of successful oak conservation is the role of area Tribes, through Indigenous Traditional Ecological Knowledge, the cultural legacy of oak habitat management, and the Tribes' continuous tending of First Foods into the present. However, for Tribes and urban Native Americans to blossom as leaders in today's oak conservation efforts, they need adequate funding. Additionally, culturally specific communication strategies will be important in delivering educational and other important messages to historically disenfranchised communities, who may not regularly access mainstream methods of communication.

Certain other groups also need more nuanced and tailored media and educational materials, to aid them in valuing oak ecosystems and integrating stewardship into their land management practices. These groups include landowners/managers with oak, property owners in oak-rich residential neighborhoods, and landscape designers/developers.



B. Easements and incentives

Rural and urban residents and property owners concerned about oak habitat often seek tools such as conservation incentives that make oak conservation a logical choice. However, incentives have not always been as effective as expected, for several reasons. First, BIPOC and other disenfranchised community members historically have been left out of oak conservation discussions and incentive programs, thus keeping them from engaging as land stewards. Second, incentive tools themselves, such as easements and tax credits to conserve oak habitats, frequently are under-developed or misaligned with community engagement and oak habitat conservation needs. Third, on rural lands, farm and forestry tax credits favor active management of crop production, which is not necessarily compatible with oak conservation efforts; in such cases, alternative incentive programs are needed. Programs and approaches that can provide financial incentives, technical and/or maintenance assistance, tax credits, easements, and land management certification should be made equally accessible to all community groups.



C. Technical assistance and best management practices

Enhanced technical assistance and best management practices (BMPs) are needed for landowners/managers with oak habitat. Without a higher level of technical assistance and development of more detailed BMPs, private and public landowners/managers will undervalue oak habitat, neglect its active management, replace old oaks with faster growing trees, and fail to stem continual loss of oak habitat from land conversion. Tailored BMPs and technical assistance are needed for discrete groups, including farmers, small forestland owners/managers, large institutions, landscape designers/architects, developers, and parks districts. There is also an ongoing need to integrate ITEK and practices into BMPs, and to more fully develop sustained learning and feedback systems to improve conservation outcomes for oak over the long-term.





D. Coordination, transparent governance, and building trust with BIPOC communities

Continuous coordination of the OPWG partnership is needed to advance the goals of this strategic action plan. Without the commitment of partner resources to the coordination and leadership of the OPWG, the strategic plan will not be fully implemented, and partner efforts will proceed in a fragmented and uncoordinated fashion, hindering effective oak conservation within the region. Effective coordination, partner-led education, equitable outreach, messaging, technical assistance, and BMP and conservation tool development all are vital in creating a collective impact and resonance across the region. An open, transparent, and flexible governance structure is needed to build relationships and leadership within BIPOC and other historically excluded groups. Additional resources also are needed to support these groups' participation, leadership, and workforce development in the OPWG. Transparent and trusting relationships with BIPOC and other historically disenfranchised communities are needed if we are to undo the devastation that settler colonialism brought in the past.



E. Policy and advocacy

Oak ecosystems lack the land use protections and conservation incentives that are afforded to riverine-riparian and wetland systems. Oak habitat is under continual loss across the urban-rural continuum, and what little active stewardship and restoration that is occurring happens mostly on public lands. Without active policy development and advocacy to raise their profile and advance new initiatives (particularly on private lands, where 90 percent of the habitat occurs), we will continue to see the incremental loss and degradation of remaining oak habitat as a result of land use and conversion. Not all OPWG partners need to participate in this policy and advocacy work, but a more active, deliberate core of advocates must coalesce around priority policy and advocacy actions to complement active stewardship and restoration work on protected lands.



Ranking of Collaborative Group Strategies

Once the OPWG partners had the five work area problem statements, they grouped candidate strategies under the work areas and ranked each strategy in terms of potential impact and urgency, using the Miradi adaptive management software. Table 4 presents those rankings.

Table 4. OPWG collaborative group strategies

Strategy		Potential Impact	Urgency	Roll-up
1.1	Develop public communications strategy	Very high	Very high	Very high
1.2	Outreach campaign to rural landowners/managers and communities	Very high	Very high	Very high
1.3	Outreach to developers/planner valuation of oak	Very high	Medium	Medium
1.4	Promote oak and prairie naturescaping to landscape professionals and oak-rich neighborhoods	Very high	Very high	Very high
1.5	Develop outreach strategy and materials targeted at public land managers and partners with aligned missions	High	High	High
2.1	Enhance, optimize and support property tax incentive programs	Very high	Very high	Very high
2.2	Develop/outreach cost-benefit analysis for retaining oak	Very high	High	High
2.3	Support/expand Backyard Habitat Certification Program	Medium	High	Medium
2.4	Develop “oak-friendly communities” certification program	Medium	Medium	Medium
3.1	Improve access to technical information and resources + develop targeted materials	High	Very High	High
3.2	Document, consolidate, and communicate information on incentives and other non-fee approaches	High	High	High
3.3	Better connect OPWG to prescribed fire networks	High	Medium	Medium
3.4	Develop more know-how on oak and prairie naturescaping	Medium	High	Medium
3.5	Partner with and provide training to developers, planners, landscape professionals, and designers	High	Very High	High
4.1	Improve internal and external coordination	Very High	High	High
4.2	Foster an inclusive, collaborative culture within the OPWG	Very High	Very High	Very High
5.1	Create an OPWG Policy Activation Network	Very High	High	High
5.2	Develop and implement an advocacy strategy	High	High	High



Photo by Nicole Ahr

From this exercise, the highest ranked joint OPWG strategies are as follows:

1.1 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.

1.2 Develop an outreach campaign directed at rural landowners/managers and rural communities about native Northwest oak and prairie conservation and the importance of rural oak habitats on the landscape.

1.4 Promote the importance of native oak and prairie naturescaping practices directly to landscape professionals and residents of oak-rich neighborhoods through the Backyard Habitat Certification Process, community groups, Neighborhood Associations, local nurseries, etc.

2.1 Enhance, optimize, and support property tax incentive programs that benefit oak and prairie habitat.

3.1 Improve access to technical information and resources for oak and prairie management. Provide technical guidance on the management of non-native invasive species and the encroachment of conifers and woody shrubs. Develop and distribute resource information about vendors and nurseries that have oak and prairie plant materials and expertise.

4.2 Foster an inclusive and collaborative culture within the OPWG to create a more diverse partnership. Engage new partners and create leadership opportunities for BIPOC community members in oak and prairie habitat conservation. Integrate learning from the ongoing Knot Design/ Multicultural Collaborative equity scan into OPWG group planning and processes.

Over the next 10 years, the OPWG agreed to focus the group's collaborative efforts on these six priority strategies.



Photo by Mike Houck

Progress Monitoring and Adaptive Management

To align OPWG efforts with those of other oak and prairie partnerships across Washington, Oregon, and California, the OPWG developed the following monitoring objectives, targets, and indicators. These indicators will be used to measure ecological and social progress with implementation over time, to gauge successes and challenges in oak and prairie conservation within the region. Ecological and social metrics will be collected and reported on every year. This OPWG strategic action plan proposes six measures to use in monitoring progress on strategy implementation. These measures are grouped under three broad goals:

- Habitat protection
- Stewardship and management
- Community engagement and education

Table 5 details these monitoring measures, their alignment with the three broad goals, and partner leads for the period 2022-32. Certain monitoring measures align with more than one of the broad goals.

Table 5. Monitoring measures for implementation of the Intertwine OPWG SAP

Monitoring Measure	Goals	Associated Threats	Lead	Notes
A. Acres of oak and prairie habitat protected through acquisition or conservation easements	Habitat Protection	Development, transportation and utility networks, incidental tree removal, incompatible agriculture	Metro, SWCDs, Columbia Land Trust	Where feasible, track acres protected within priority oak habitat areas
B. Acres of oak and prairie habitat lost/converted to more intensive land uses	Habitat Protection	Same as above	Metro	Where feasible, track acres lost within priority oak habitat areas
C. Number and acres of oak and prairie restoration projects and conservation programs initiated and maintained	Stewardship, Community	Fire exclusion, woody encroachment, non-native species, incompatible agriculture	Portland Audubon, Columbia Land Trust, SWCDs, Willamette Partnership, ODFW, Clark County	Track by enrollment in voluntary incentive programs (BHCP, Oak Accord) and tax incentive programs (Wildlife Habitat Conservation and Management Program [WHCMP] tax incentives, Clark County current use program for open space—with oak)
D. [To be determined after further consultation with area Tribes and urban Native Americans]	Stewardship, Community	Limited stewardship and access for ITEK-informed plant tending	Unknown	OPWG to initiate conversations in 2022
E. Number and distribution of active oak habitat stewardship or Friends groups	Stewardship, Community	Lack of public engagement in oak and prairie stewardship	Urban Greenspaces Institute	Where feasible, summarize by county
F. Number of people reached with oak-prairie conservation-themed outreach and education materials, and number participating in active stewardship activities	Community	Lack of public understanding of and appreciation for oak and prairie habitats	Multiple partners	Where feasible, summarize by county

The monitoring measures in Table 5 are for a mix of actions that the OPWG and its partners are responsible for under this strategic action plan. One role for the OPWG during implementation will be to collect input from all OPWG partners and report on progress made during the period of 2022-32. A simple reporting system and form will be developed by the OPWG coordinator to facilitate reporting on the six measures by OPWG partners during the early 2022. These monitoring measures will be reported on every 1 to 2 years, maintained and validated by the OPWG, and then used to evaluate performance and potential adjustment of the strategy every 4 to 5 years.



Photo by Lori Hennings

The list of monitoring measures in Table 5 is not exhaustive and will be supplemented with other tracking and monitoring by OPWG partners. For example, certain partners may monitor the number of oak trees planted, acres of controlled burns, etc. Urban Greenspaces Institute also is tracking the number and types of oak/oak habitat protection on private lands by community (e.g., tree codes, Significant Natural Resources/Critical Areas ordinances, other programs).

At the time this 2022 strategic action plan was developed, no process had been identified for revising or updating it. During initial implementation, OPWG partners will use baseline monitoring of these measures to develop numerical targets and will consult with Tribes and urban Native Americans on appropriate metrics for Monitoring Measure D. Pending the collection and analysis of implementation monitoring data, the OPWG steering committee may propose an approach for revising and updating this strategic action plan if sufficient progress is not being made toward regional oak and prairie habitat conservation.



Photo by Mike Houck

Governance Structure and Roles

Until now, the OPWG has operated on an ad hoc basis, with no adopted governance structure or decision-making framework. This approach has enabled the group to be flexible and nimble, and to develop a series of new tools and working relationships. However, for external parties seeking to engage with the group, this approach creates barriers to participation and inclusion.

To address this challenge, the OPWG developed a new **Declaration of Cooperation** and a set of **operations and procedures** that describe how the group will make decisions and organize itself going forward. At the time this 2022 strategic action plan was developed, various OPWG partners were signing on and reviewing which aspects of their work could be aligned to support the strategic action plan.

Alongside implementation of this strategic action plan within the Intertwine region, new partnerships are emerging with groups from beyond the region to advance the conservation of oak and prairie habitats in the Pacific Northwest. Chief among these is a network composed of five different oak partnerships in Oregon, coordinated by the Pacific Birds Habitat Joint Venture:

- Willamette Valley Oak and Prairie Cooperative
- East Cascades Oak Partnership
- Klamath Siskiyou Oak Network
- Umpqua Oak Partnership
- Intertwine Oak and Prairie Working Group

In addition to this network, the OPWG is coordinating with the Intertwine Regional Habitat Connectivity Working Group (RHCWG, which has also modeled oak habitat and connectivity), Connecting Canopies regional urban forestry partnership, and Cascadia Prairie Oak Partnership (CPOP). The Declaration of Cooperation and set of operations and procedures will better facilitate how we interact and coordinate with these other partners, and these governance agreements will be adopted by the partners in 2022. The new, expanded, and more deliberately structured OPWG steering committee will assist in interfacing with these various groups and guiding the future work of the OPWG.



Photo by Mike Houck

Appendixes

The following links to appendixes supplement the OPWG's 2022 strategic action plan and are grouped together in a separate document.

- A. Contributing Individuals**
- B. Related Plans and Strategies**
- C. Current Regulations and Conservation Programs for Native Oak within the Intertwine Region**
- D. Development of Results Chains**
- E. Regrouped 2018 OPWG Strategy Actions**
- F. Background on Original 2018 OPWG SAP**