

Natural Area Management Plan
City of Wilsonville

Prepared by Ash Creek Forest Management

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[City of Wilsonville and ACFM Logos]

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EXECUTIVE SUMMARY

[broad overview/abstract, to be written once the rest of the plan is complete]

INTRODUCTION

The Natural Areas Management Plan (NAMP) is a comprehensive framework for the City of Wilsonville to use to manage ecosystems and steward its natural areas. This plan is designed to help the City achieve its vision of a more ecologically resilient future and the over-arching goal of improving the health and resilience of ecosystems in its natural areas.

The guiding objectives in the development of this plan are:

- To promote long-term maintenance, enhancement, and community appreciation of the City's natural areas
- To recognize that natural spaces are a valuable resource for community resilience, public engagement/education, and stewarding healthy habitats
- To engage with the public and facilitate an inclusive and transparent planning process
- To develop and recommend strategies that are based on data, best management practices, and integrated pest management (IPM)
- To recommend opportunities for community engagement in management of the City's natural areas

The NAMP outlines general, over-arching objectives and strategies for the City to use in developing specific management plans for its natural areas. This Plan highlights 14 city-owned and managed natural areas and uses information gathered from those natural areas to inform recommended management strategies based on proven best practices and integrated pest management (IPM) practices. For the purposes of this Plan, a natural area is an area that:

- Retains “*relatively intact historical vegetation communities and habitats*” (The Intertwine Alliance, 2012)
- Contains significant contiguous natural habitat (greater than 0.5 acres) (AECOM, 2022)
- Contains valuable habitat for (or has the potential to support) a large diversity of native plants and animals (Oregon Administrative Rules Database, 2019)
- Contains valuable areas for recreation, and promotes community appreciation of natural features (Oregon Administrative Rules Database, 2019)
- Contains degraded habitat but has the potential for restoration.

The NAMP also outlines potential opportunities for the City to incorporate public engagement into its natural area management. To achieve the overall goal of creating more resilient natural areas, this plan highlights a suite of actions and strategies aimed at reducing wildfire, enhancing habitat for native fish, wildlife and plant species; managing exotic pests; reducing risk of wildfire; and improving access for public recreation and volunteerism.

BACKGROUND

Wilsonville is located approximately 24 miles south of the Oregon and Washington border in Clackamas and Washington counties and encompasses approximately 7.8 square miles. The City of Wilsonville sits on the ancestral lands of the Confederated Tribe of Siletz Indians and the Confederated Tribes of Grand Ronde (Wallamut and Kalapuya Tribes).

The City contains approximately 193 acres of natural area (Table 1) which is managed by the Wilsonville Parks and Recreation Department (WPRD) and the Natural Resource Program (NRP). These natural areas contain a variety of habitats ranging from wetlands, meadows/prairie, and riparian and upland mixed conifer/deciduous forests.

Benefits and Importance of Natural Areas

- Define the benefits and importance of natural areas
 - Preserving and enhancing habitats for native species
 - Supporting ecosystem services (e.g. biodiversity, pollination, flood control, clean water, and clean air)
 - Providing opportunities for public engagement and education, supporting human health and well-being
 - Help maintain connectivity of ecosystems in urban landscapes
- Define ecosystem resilience and the importance of ecosystem health
 - Ability for an ecosystem to tolerate and withstand disturbance
 - Healthy habitats support ecosystem services
 - Support for native species
- Define habitat restoration/enhancement
 - Habitat restoration is the act of returning an ecosystem to its historic natural state. The goal of habitat restoration is to create high quality habitat that will support a diversity of plants and animals and to repair and maintain ecosystem services. In the Pacific Northwest, some the most common habitat restoration strategies include removing invasive plants (e.g. Himalayan blackberry, English ivy, and reed canary grass) and reestablishing native plant and climate-adaptive communities that provide fish and wildlife habitat and other ecosystem services.

Planning Issues and Considerations

Issues facing Wilsonville's natural areas are important to consider and inform the recommendations and management strategies outlined in this Plan:

Wildfire

- Fire suppression has led to higher fuel loads, drought and extreme heat increase fire severity and risk
- Proximity of urban areas to natural areas increases risk to homeowners and to natural areas
- Historical context of fire in the Willamette Valley – much of the Willamette Valley, including parts of Wilsonville, were historically managed by indigenous peoples using prescribed fire

- Certain noxious weeds in monoculture can increase the risk of fire and fire intensity (ex: HBB, scotch broom)

Invasive Species

An invasive species is a plant, animal, insect, or disease that did not historically occur in an area or was introduced and can cause harm to ecosystems, economies, or human health. Many invasive species have traits that facilitate rapid growth and reproduction, and they often lack natural enemies in the areas where they are not native, they are able to spread quickly and often out-compete native species, reducing biodiversity and disrupting ecosystem services such as clean water and pollination. Invasive species can spread through human activity (e.g. shipping and transportation, moving firewood, via equipment/boots). In the Pacific Northwest, notable invasive plant species include Himalayan blackberry, English ivy, English holly, and garlic mustard, among many others.

Mediterranean oak borer (MOB) and emerald ash borer (EAB) are a major issue of concern for the City. In 2023, MOB was detected in Oregon for the first time in Troutdale, and later that year MOB infestations were confirmed in Wilsonville. MOB infests oak species, including the Oregon white oak (*Quercus garryana*), and carries a fungus that impedes water flow through trees, causing a wilting disease and eventually killing the trees (ODF, 2024). In Oregon, EAB primarily infests Oregon ash (*Fraxinus latifolia*) and impedes water and nutrient flow through the trees, and while EAB has not been detected in Wilsonville as of early 2025, it has been detected in Multnomah, Clackamas, and Yamhill Counties.

The City is already involved in significant work to reduce the presence of invasive and exotic species, especially to manage and prevent spread of species such as Himalayan blackberry, English holly, English hawthorn, MOB, and EAB. See Section on Past and Ongoing Restoration Efforts in Wilsonville.

Climate Change

- Extreme weather events, temperature, and precipitation changes have significant impacts on ecosystems and ecological processes
 - Mortality of native species, encroachment of invasive species,
 - Reduction and loss of habitat for native wildlife species
 - Increased risk severe disturbances from flooding/wildfire/drought
- Climate-smart restoration can help improve ecosystem resilience

Recreation

Recreation is an important consideration in natural area management. Natural areas provide an important resource for the public to connect and engage with nature, however the impacts of recreation create unique considerations for management. Off-trail hiking can trample native vegetation and compact soil, leading to reduced vegetative cover and damage to vegetation. Additionally, recreation in riparian areas can carry the above impacts while also increasing the risk of erosion and degradation of water quality. Unmanaged recreation can become a vector for the introduction of noxious weed seeds and other pest species through vehicles, movement of firewood, and footwear.

Past and Ongoing Natural Area Enhancement in Wilsonville

WPRD and the NRP have been actively managing greenspaces and natural areas in Wilsonville for many years. In 2018, the City developed and adopted an Integrated Pest Management Plan. IPM is a strategy that uses a combination of pest management techniques (e.g. manual, mechanical, and chemical) to achieve more effective and efficient pest control. IPM practices are based on pest biology and life cycles, technology and equipment, and environmental conditions, which reduces reliance on pesticides, reduces economic cost, and minimizes risk to natural resources, wildlife, people, and the environment. The City has implemented many projects to manage invasive species, restore stream health, and reduce wildfire risk in many natural areas. Examples include:

- Boeckman Creek and Boeckman Road Improvements: Management of invasive species, installation of trail system to create a publicly accessible natural area; construction of wildlife passages included in redesign of Boeckman Road and restoration of surrounding wetlands; future removal of flood control structure and plans to redirect stream flow to historic conditions and restore stream health
- Memorial Park: Management invasives species such as English holly, Himalayan blackberry, and English ivy through grazing with goats, manual removal, and chemical treatments; removal of culverts and restoration of stream habitats
- Park at Merryfield: Fuel reduction via brush removal to manage wildfire risk; in collaboration with Metro who manages adjacent natural area (Graham Oaks)
- Arrowhead Park: Removal of Himalayan blackberry, installation of natives plants
- Coffeelake Creek Wetlands:

Since MOB was detected in Wilsonville, the City has partnered with ODF, ODA, Metro to develop plans and strategies for removing infested Oregon white oaks trees and preventing further spread. With funding from the Climate Resiliency fund, the City has partnered with local arborist companies like Barlett Tree Experts to remove infested trees and to proactively treat healthy trees with insecticides and fungicides to reduce risk of infestation.

The City has a long history of utilizing partnerships and community efforts to enhance its natural areas. Since 2002, the City has partnered with Friends of Trees to restore and enhance natural areas within the City. Volunteers have helped establish new native forest vegetation and created healthy pollinator habitats in natural areas throughout the City, including Memorial Park, Arrowhead Creek Park, Tranquil Park, and Boeckman Creek Corridor. For the last six years, the City has also participated in the Neighborhood Trees program that provides and plants low-cost yard and street trees for homeowners, with the goal of enhancing urban tree canopy. The City also organizes volunteer workdays like the annual WERK (Wilsonville Environmental Resource Keepers) Day, where volunteers rebuild and enhance trails and remove invasive species like Himalayan blackberry, English ivy, and English holly at Memorial Park. This event typically attracts more than 300 volunteers each year. The City also partners with many other organizations to implement projects, provide resources to communities, and engage communities in stewardship. These include the Center for Research in Environmental Sciences & Technologies (CREST), the Backyard Habitat Certification Program, the Xerces Society, and the Pollution Prevention Resource Center (PPRC), and Northwest Youth Corps.

Related Management Plans and Reports

The City has developed a number of plans that are relevant to natural area management, listed here with other management plans that include City natural resources. These plans and reports have been reviewed and integrated into the NAMP:

- Climate Action Plan (City of Wilsonville, *draft*)
- Urban Forest Management Plan (City of Wilsonville, 2021)
- Comprehensive Plan (City of Wilsonville, 2020)
- Hazard Mitigation Plan (City of Wilsonville, 2019)
- Coffee Lake Creek Wetlands Site Conservation Plan (Metro, 2019)
- Integrated Pest Management Plan (City of Wilsonville, 2018)
- Parks and Nature Systems Plan (Metro, 2016)
- Regional Conservation Strategy (Intertwine Alliance, 2012)
- Willamette River TMDL Implementation Plan (City of Wilsonville, 2009)
- Surveys of Fish Species and Habitat in Wilsonville Streams 2006
- Wildlife and Habitat Assessment (City of Wilsonville, 2001)
- Graham Oaks Management Plan

COMMUNITY ENGAGEMENT

Community Engagement Objectives and Strategies

The City's Natural areas are invaluable to both the surrounding landscapes and the communities that utilize those greenspaces. The City is committed to a community engagement process that is transparent and inclusive. During the development of NAMP, the community engagement objectives are to:

- Identify community groups, members of the community, and other organizations and government agencies that are indirectly or directly connected to the natural areas planning process.
- Identify public concerns regarding natural areas.
- Provide opportunities for interested community members, groups, and agencies to learn about the NAMP, provide feedback, and ask questions.
- Outline recommendations for future outreach the City can do to engage with community members and other organizations and how to use community volunteer efforts in future restoration projects.

To accomplish these objectives, the City will utilize the following public engagement strategies:

- Published a project page on Let's Talk Wilsonville (LTW) that provides project overview and information, frequently asked questions, a brief survey, comment submission portal, and contact information for City and ACFM staff
- Attended and tabled at the 2024 Earth Day Celebration (second event upcoming in 2025)
- Published two press releases in Boones ferry Messenger to share project updates and announce upcoming public meetings
- Published social media posts to announce the public meeting
- Hosted a public Open House at Wilsonville City Hall

Public Survey Outcomes

- Summarize results of public survey (closing on May 23rd), highlighting common public concerns for City's natural areas

NATURAL AREAS and HABITAT TYPES

A primary objective of the natural area management planning process is to create a catalog of all natural areas in Wilsonville. The NAMP only includes natural areas that are owned and managed by the City of Wilsonville. Other entities, including Metro, Tualatin Valley Water District, and private landowners, own and manage other natural areas within the City. Many of these additional natural areas have existing management plans and/or are being actively managed by the entities that own them. For example, one of the largest natural areas in Wilsonville is Graham Oaks, which is owned and managed by Metro. The City has collaborated on managing parts of this natural area with Metro, but Graham Oaks is not included in this site catalog, because it is primarily managed by Metro.

The NAMP is intended to align with and work in tandem with existing plans where possible. Having consistent management across all natural areas will improve ecosystem resilience and habitat connectivity throughout the City. To acknowledge the importance of natural areas that are privately or publicly owned, the NAMP outlines recommendations for how the City can pursue potential collaborations with landowners or other entities to manage these important natural spaces.

For the purposes of this Plan, a natural area is a city-owned and managed parcel of land that:

- Retains “*relatively intact historical vegetation communities and habitats*” (The Intertwine Alliance, 2012)
- Contains significant contiguous natural habitat (greater than 0.5 acres) (AECOM, 2022)
- Contains valuable habitat for (or has the potential to support) a large diversity of native plants and animals (Oregon Administrative Rules Database, 2019)
- Contains valuable areas for recreation, and promotes community appreciation of natural features (Oregon Administrative Rules Database, 2019)
- Contains degraded habitat but has the potential for restoration to a healthy natural ecosystem

City-owned parcels that are not considered as natural areas include narrow right-of-way zones, parcels that are primarily comprised of parking lots or other infrastructure, and urban parks with less than 0.5 acres of natural habitat. For parks that have greater than 0.5 acres of natural habitat, areas such as sports fields, playgrounds, and other hardscaped infrastructure is excluded from the acreage shown in Table 1.

Due to the high variability of natural spaces in Wilsonville, it is important to determine where restoration and management efforts should be focused. Generally, restoration practitioners prioritize restoring areas that are somewhat intact and healthy, because those areas are typically easier, quicker, and more cost effective to restore than highly degraded habitats or highly urbanized parks. This does not mean the City should not invest in restoring highly degraded natural areas or urbanized parks, but these areas tend to be a lower priority because they are generally more expensive to restore to a natural state.

Two factors were considered when prioritizing the City’s natural areas and developing management recommendations: natural resource function/value and baseline habitat conditions.

For the purposes of this plan, fourteen natural areas were designated as priority areas based on natural resource function and value (Appendix A) and then evaluated for current habitat conditions.

Natural resource function and value

Natural resource function and value of the City's natural areas was assessed using a points-based scoring system (Appendix A) that was adapted from the Portland Parks & Recreation Natural Area Management Plan (Portland Parks & Recreation, 2015). In the PPR system, we determined which natural areas have the highest natural resource value and identified which sites to prioritize for on-the-ground surveys for existing habitat conditions. Data for this scoring system was collected using data from GIS, natural resource inventories, and discussions with WPRD staff. The primary data sources were the City of Wilsonville and the Oregon Department of Fish and Wildlife. Natural resource function and value scores of 22-33 (of 33 points possible) are considered High; scores of 11-21 were considered Medium; and scores of less than 11 are considered Low (Table 1). Of all City-owned tax lots, 14 parcels scored High or Medium for natural resource function and value, met the criteria of a natural area, and were selected for baseline habitat surveys (Appendix A). There were eight parcels that scored Medium, but did not meet the size requirements to be considered a natural area. See Appendix A for a detailed breakdown of scoring for each parcel.

Baseline habitat conditions

To further assess ecological function, condition, and management needs of the City's natural areas, surveys were conducted to determine baseline habitat conditions of the priority natural areas. Baseline conditions inform the recommended management strategies in this Plan. Habitat surveys were conducted in each of the high and medium priority areas during the summer of 2024. At each natural area, surveyors used transects and quadrats at random locations to collect data on non-native species cover, native species cover, species richness, and native tree stem count. See Appendix B for more detailed survey methods.

To develop an overall baseline habitat condition score for each of the parks, the parameters outlined above were averaged for each park (Appendix C). Points for each parameter were determined by using quartiles to assign points based on where the parameter each park fell relative to the rest of the parks. Scores for parameters for each park were averaged to give an average score per park (0-3). Scores between 0 and 1 are considered Poor; scores between 1 and 2 are considered Fair, and scores between 2 and 3 are considered Good. Overall, 21% of the parks that we surveyed scored Good, 29% scored Poor, and 50% scored Fair for existing habitat conditions (Table 2). Parks that scored Poor generally had high invasive species cover and low native vegetation cover. Parks that scored Good had high cover and richness of native vegetation and low cover of invasive species. Parks that scored Fair had varied levels of native and invasive cover.

Table 1. Summary of natural resource function/value and existing habitat conditions for 14 natural areas in Wilsonville.

Natural Area	Acres	Natural Resource Function/Value	Baseline Habitat Condition
Memorial Park	62.44	High	Fair
Boeckman Creek Corridor	38.2	High	Fair
Boones Ferry Park	14.18	Medium	Fair
Kinsman Road	13.72	Medium	Poor
Coffee Lake Creek Wetlands	11.86	High	Poor
Edelweiss Park	10.8	Medium	Good
Murase Plaza	10.4	High	Poor
Park at Merryfield Park	8.17	Medium	Good
Canyon Creek Park	7.06	Medium	Good
Arrowhead Creek Park	6.46	High	Fair
Tranquil Park	4.5	Medium	Fair
Tivoli Park	2.87	Medium	Fair
Oulanka Park	1.03	Medium	Poor

Habitat Delineations

- What is the purpose and importance of habitat delineations; what information does it tell us?
 - Helps guide decision making when planning and strategizing for restoration
 - Need to understand species will do well in certain habitat types and what treatment strategies are most effective in various habitat types
- Methods
 - Dominant plant species observations were documented at each plot along with information about hydrology
 - Habitats were mapped using survey information, satellite imagery, and other available data
 - WEB Soil Survey was used to get information about historical/potential habitat types
- Habitat Types - include brief description and characteristics of each habitat type and approximate acreages
 - Mixed Conifer/Deciduous (Upland and Riparian)
 - Conifer (Upland and Riparian)
 - Deciduous (Upland and Riparian)
 - Wetland
 - Meadow/Prairie (Upland and Riparian)
- **Appendix D** – include maps of each priority park with habitats delineated; table of habitat types, dominant species, and potential/historical habitat types for each park

MANAGEMENT OBJECTIVES and STRATEGIES

To achieve the overarching goal of creating more ecologically resilient ecosystems in the City's natural areas, the following management objectives have been identified for management of the City's natural areas:

1. Enhance ecological processes and native vegetation communities
2. Control invasive and noxious weeds
3. Improve resilience against climate change
4. Reduce wildfire risk
5. Proactively manage for emerging pests/diseases
6. Provide the public with safe and accessible opportunities to recreate, learn, and be stewards of natural areas

Management Strategies

The management strategies in this Plan are organized into general and habitat-specific strategies that the City can utilize to achieve the management objectives outlined above.

General Strategies

1. Enhance ecological processes and native vegetation communities	<ul style="list-style-type: none">• After invasive species control, replant with native species to help suppress invasive weeds (might take multiple years of treatment to prep areas with high invasive cover before planting is feasible or recommended)• Choose species that will do well with the light, moisture, and soil conditions
2. Control Invasive species	<ul style="list-style-type: none">• Utilize IPM approach with multiple strategies to maximize effectiveness and impact; time treatments appropriately• Refer to 2018 IPM Plan for detailed treatment specifications<ul style="list-style-type: none">○ Himalayan blackberry – cut and spray large brambles, manage small resprouts with manual removal or targeted spot sprays○ English ivy – spray large swaths, air gap ivy that is growing up trees, utilize volunteer labor to hand pull, especially in areas with high native density○ Weedy trees (e.g. English holly, English hawthorn, cherry laurel, bird cherry) – girdle or cut-stump and treat with herbicides to prevent resprouting• Install boot brushes at entrances/parking areas to reduce spread of invasives
3. Improve resilience against climate change	<ul style="list-style-type: none">• Use climate adaptive species in planting (e.g. drought/heat tolerant species)

	<ul style="list-style-type: none"> • Select species that are sourced from areas where climate is hotter/drier • Increase diversity of native species and stand age (in forests)
4. Reduce wildfire risk	<ul style="list-style-type: none"> • Incorporate existing wildfire risk management plans <ul style="list-style-type: none"> ○ See Clackamas Community Wildfire Protection Plan ○ See Wilsonville Hazard Management Plan • Utilize Brush management and thinning to mitigate wildfire risk <ul style="list-style-type: none"> ○ Thin trees in overstocked forested areas ○ Remove ladder fuels from understory that could carry fire to canopy/crowns <ul style="list-style-type: none"> ▪ Target species like blackberry and scotch broom, which are very flammable. ▪ Use IPM strategies for invasive species management to manage dense fuels ○ Remove accumulations of dead/woody material ○ Plant native species that are more fire resistant <ul style="list-style-type: none"> ▪ Choose fire resistant native species; replacing invasive vegetation with native vegetation can help with reducing fuel loads • Work with local organizations to assess fire risk in natural areas, especially directly adjacent to neighborhoods (e.g. Boeckman Creek) • Partner with local organization to develop community engagement/organization/resources around wildfire management
5. Proactively manage for emerging pests/diseases	<ul style="list-style-type: none"> • Continue existing work to preventatively treat and manage for MOB; regularly monitor so that new infestations are detected quickly • Develop a proactive management strategy for EAB similar to other local jurisdictions so to prevent infestations; regularly monitor so that new infestations are detected quickly; do not include Oregon ash in planting lists
6. Provide the public with safe and accessible opportunities to recreate, learn, and be stewards of natural areas	<ul style="list-style-type: none"> • Install and/or update interpretive and educational signage in parks and natural areas • Establish and/or maintain designated trails through natural areas to encourage • Work with Homeowners' Associations that contain greenspaces or whose neighborhoods are adjacent to natural areas

	<ul style="list-style-type: none"> • Continue working with organizations like Friends of Trees to facilitate volunteer activities (invasive species management, native plantings, pollinator meadows) • Connect with local organizations like Intertwine/Blueprint/Connecting Canopies to provide opportunities for at-risk youth
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Habitat-Specific Strategies

Forested, upland (to be split into conifer and deciduous forest types)	<ul style="list-style-type: none"> • Treat and remove invasive species, monitor for new introductions of noxious weeds <ul style="list-style-type: none"> ○ Common noxious species: Himalayan blackberry, English Ivy, English hawthorn ○ EDRR species: garlic mustard, lesser celandine • Improve diversity of native plant communities by installing conifer and deciduous tree species where appropriate, understory shrub species, and seeding native herbaceous species. • Monitor for pest insects and manage infected canopies • Preserve snags and nurse logs where possible • Thin canopy density where necessary
Forested, riparian (to be split into conifer and deciduous forest types)	<ul style="list-style-type: none"> • Utilize same recommendations for forested, upland • Maximize stream shade with native trees and shrubs of various heights and life histories • Improve riparian complexity with preservation of beaver dams and log jams or installation of beaver dam analogs (BDAs) and post-assisted log structures (PALS)
Grassland/prairie	<ul style="list-style-type: none"> • Treat and remove invasive species • Monitor for new introductions of noxious weeds • Seed diverse mixes of native grasses and forbs • Manage woody species encroachment with chemical or mechanical methods or prescribed burning
Scrub/Shrub Wetland	<ul style="list-style-type: none"> • Treat and remove invasive species • Monitor for new introductions of noxious weeds • Plant diverse wetland shrub and low-stature trees, including willows, spirea, black twinberry, ninebark
[add additional habitat types as delineations are complete]	

Grant and Funding Opportunities

- List potential grant and funding opportunities that the City could utilize for restoration, outreach, or other natural area management activities

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CONCLUSION

- Summarize the purpose of the plan, objectives, and strategies

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REFERENCES

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LIST of APPENDICES

[see separate documents for Appendices]

Appendix A. Natural Resource Function and Value

Appendix B. Survey Methods

Appendix C. Baseline Habitat Conditions

Appendix D. Habitat Delineations

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Appendix A. Natural Resource Function and Value

Table A-1. Scoring system for Natural Resource Function and Value of natural areas in Wilsonville. Adapted from Portland Parks & Recreation (2015).

Natural Resource Function/Value Scoring System:	
3 points	<ul style="list-style-type: none">• Presence of fish bearing stream• Overlap with Significant Resource Overlay Zones (SROZ) (City of Wilsonville, 2001)• Overlap with ODFW Strategy Habitats• Terrestrial Species of Concern Ranking 1 or 2 (ODFW, 2016)• Aquatic Species of Concern Ranking 1 or 2 (ODFW, 2016)• Terrestrial Crucial Habitat Ranking 1 or 2 (ODFW, 2016)• Aquatic Crucial Habitat Ranking of 1 or 2 (ODFW, 2016)• Existing or past capital projects or restoration activities
2 points	<ul style="list-style-type: none">• Presence of non-fish bearing stream• Terrestrial Species of Concern Ranking 3 or 4 (ODFW, 2016)• Aquatic Species of Concern Ranking 3 or 4 (ODFW, 2016)• Terrestrial Crucial Habitat Ranking of 3 or 4 (ODFW, 2016)• Aquatic Crucial Habitat Ranking of 3 or 4 (ODFW, 2016)• Overlap with Conservation Opportunity Area (ODFW, 2016)• Overlap with Priority Wildlife Conservation Areas (PWCA) (ODFW, 2016)
1 point	<ul style="list-style-type: none">• Terrestrial Species of Concern Ranking 5 or 6 (ODFW, 2016)• Aquatic Species of Concern Ranking 5 or 6 (ODFW, 2016)• Terrestrial Crucial Habitat Ranking of 5 or 6 (ODFW, 2016)• Aquatic Crucial Habitat Ranking of 5 or 6 (ODFW, 2016)• Active volunteer or stewardship activities

Table A-2. Insert table of detailed Natural Resource Function and Value scores for each city-owned taxlots

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Appendix B. Survey Protocols

Survey Protocol

- Establishing Survey Plots:
 - Upon arriving at a given natural area random points were mapped. The number of points mapped at each natural area were dependent on the acreage of the site to ensure that data is representative of the scale of the park. These random points were then used as starting points to establish a transect for monitoring.
 - After establishing where the transect will begin, a random number generator was used to determine the cardinal direction in which the transect extends. Then the number generator was used again to determine the location(s) of the survey plot(s) on the transect. Finally, to determine which side of the transect the survey plot was placed, a number generator was utilized again. This procedure was repeated to establish two macroplots at each transect.
 - Parameters for number generator:
 - ❖ **Transect direction:** 0 = North, 1 = West, 2 = South, 3 = East
 - From the starting point extend the transect in the direction determined above
 - ❖ **Plot location on transect (m):** 0 = 0 meters, 1 = 10 meters, 2 = 20 meters, 3 = 30 meters, 4 = 40 meters
 - ❖ **Plot location (side of transect):** 0 = left, 1 = right
 - Once the number generator determined where on the transect the two survey plots will be established, surveyors measured out 10 by 10-meter plots which will be used as macroplots. For surveying purposes, 1x1-meter subplots were also established in all four corners of the established macroplots. Transects and macroplots were recorded for each natural area using Field Maps and surveyors conducted photo monitoring at both ends of transects to allow for ongoing monitoring.
- Data Collection:
 - Macroplots were surveyed to assess botanical and ecological attributes including stem counts of native and non-native trees and shrubs, tree and shrub species richness, and dominant tree and shrub species. Bare ground was estimated as a percentage of the total plot. Canopy cover was evaluated using photo monitoring and digital analysis in each macroplot.
 - Subplots were surveyed to assess the herbaceous coverage and richness. Percent cover was estimated by functional group including native and non-native graminoids, forbs, shrubs, and bare substrate. Additionally, surveyors recorded herbaceous species richness and estimated percentage cover of noxious weed species. Lastly, dominant herbaceous species were noted to determine habitat type.
 - Overall habitat conditions (soil moisture / compaction, riparian or upland habitat) were also determined by surveyors to determine habitat type and assess suitable future management of natural areas. Notable disturbances such as off trail recreation, major erosion, and human caused degradation were recorded.

- Data Analysis:
 - To determine the ecological function of each natural area, metrics from transects and herbaceous subplots were averaged by park. Quartiles were identified and points assigned to each park per metric. The lowest quartile was awarded 0 points up to the highest quartile receiving 3 points. Metrics used included native tree and shrub stem count, native species cover, non-native species cover, and species richness. Points awarded for each metric were averaged to determine each site's ecological condition rating, a measure between 0 and 3, with 3 being the highest rating. Ratings less than 1 are considered poor, ratings between 1 and 2 are considered fair, and ratings above 2 are considered good.

Appendix C. Baseline Habitat Conditions

Table C-1: Vegetation data for each site, averaged across all survey plots

Site	Native Tree Stem Count	Tree and Shrub Richness	Canopy Cover	Native Herbaceous Cover	Native Shrub Cover	Herbaceous Richness	Non-Native Tree Stem Count	Non-Native Herbaceous Cover	Non-Native Shrub Cover	Noxious Weed Cover
Memorial Park	6.90	5.13	60.33	14.50	9.58	4.60	6.37	36.65	14.55	35.57
Boeckman Creek	9.98	3.88	65.90	19.72	9.11	2.69	5.58	13.89	22.06	33.06
Kinsman Road	0.75	2.00	3.13	11.91	0.00	5.06	4.00	66.19	6.31	12.41
Boones Ferry Park	5.13	4.31	70.00	4.06	2.53	4.88	0.94	62.41	3.92	14.75
Coffee Lake Wetlands	2.67	1.50	2.33	0.00	5.83	1.00	0.00	74.58	0.21	74.58
Murase Plaza	3.00	6.00	25.33	7.33	1.25	3.33	2.83	25.83	39.58	55.67
Edelweiss Park	27.67	7.17	75.00	7.58	24.58	4.33	2.33	23.67	0.42	14.25
Tivoli Park	3.50	6.75	2.50	11.25	8.50	6.75	2.00	63.38	3.00	3.88
Willow Creek	9.25	5.25	66.00	10.25	4.00	3.25	11.25	29.00	27.13	57.38
Oulanka Park	2.25	2.50	0.00	9.63	0.00	3.00	0.00	69.13	0.00	54.75
Park at Merryfield Park	8.00	5.50	84.00	57.13	5.75	6.00	14.75	8.50	8.25	9.25
Tranquil Park	7.50	7.25	89.00	3.75	10.50	3.25	11.75	5.88	61.25	73.25
Canyon Creek Park	10.50	8.00	42.50	10.00	19.13	5.25	2.00	19.13	5.00	20.63
Arrowhead Park	5.00	4.00	77.50	6.38	47.88	4.25	6.75	31.00	0.63	28.50

Table C-2: Ecological condition scores and ratings by site

Site	Score	Rating
Canyon Creek Park	2.75	Good
Edelweiss Park	2.5	Good
Park at Merryfield Park	2.125	Good
Memorial Park	1.75	Fair
Boeckman Creek	1.75	Fair
Tivoli Park	1.75	Fair
Willow Creek	1.75	Fair
Tranquil Park	1.75	Fair
Arrowhead Park	1.375	Fair
Boones Ferry Park	1	Fair
Kinsman Road	0.875	Poor
Murase Plaza	0.75	Poor
Coffee Lake Wetlands	0.5	Poor
Oulanka Park	0.5	Poor



Figure C-1: Northwest Wilsonville natural areas with habitat condition ratings

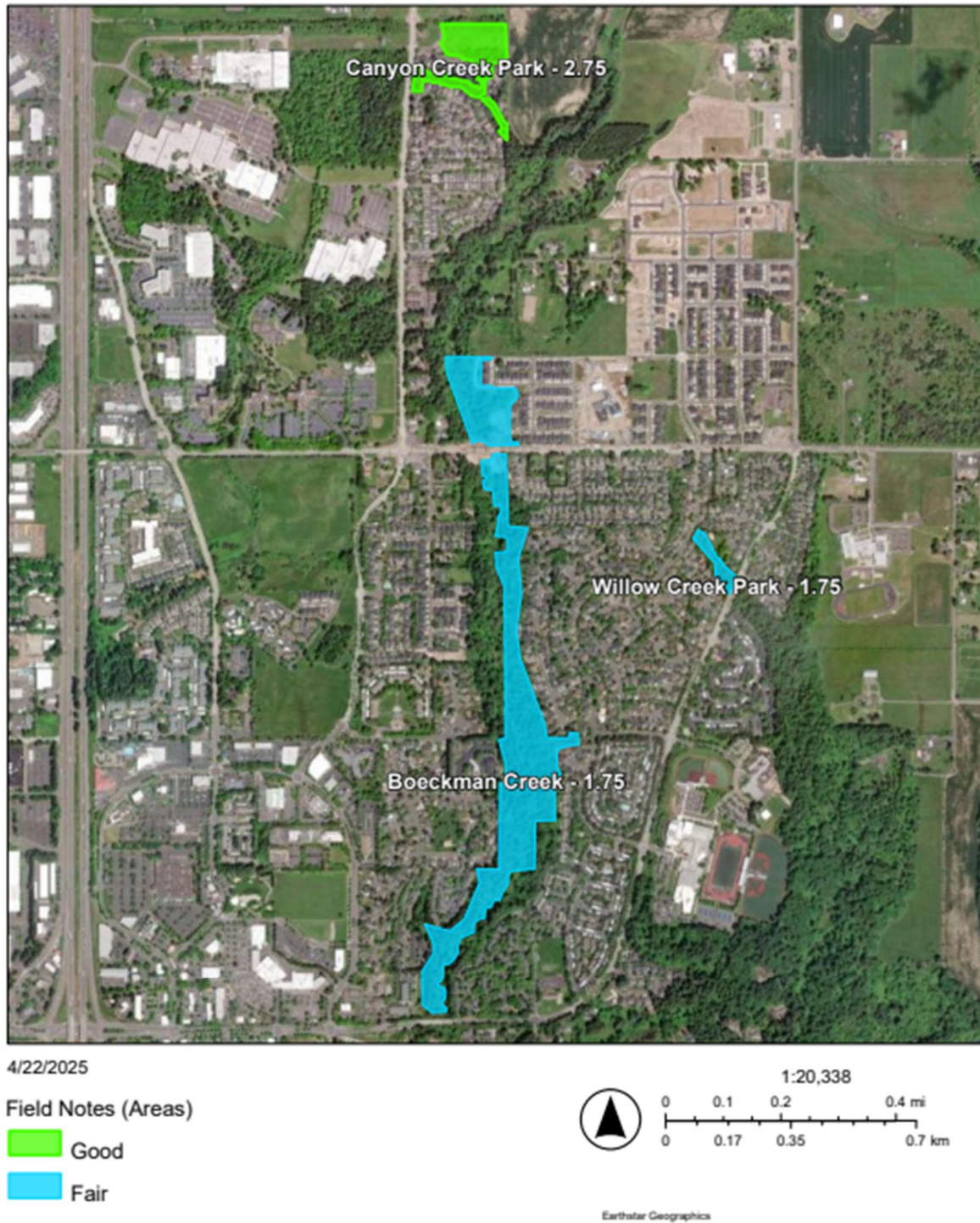


Figure C-2: Northeast Wilsonville natural areas with habitat condition ratings

City of Wilsonville Natural Areas - Baseline Habitat Conditions

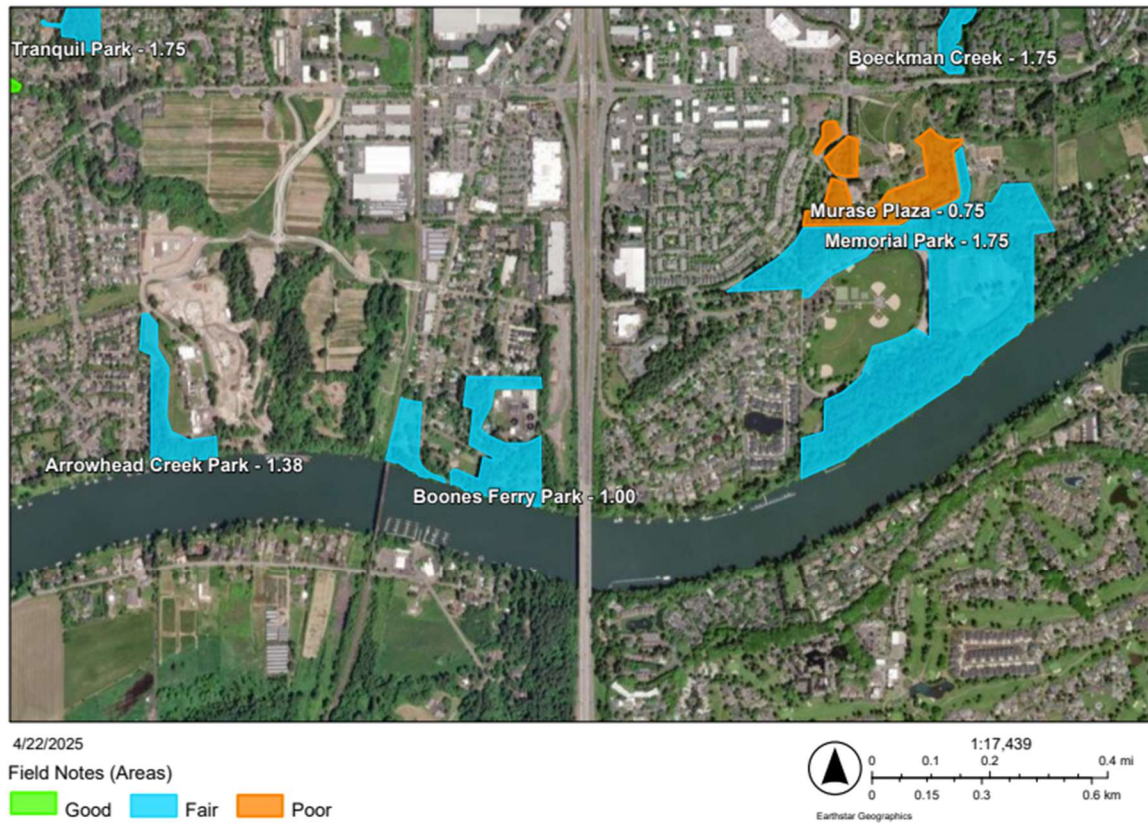


Figure C-3. South Wilsonville natural areas with habitat condition ratings

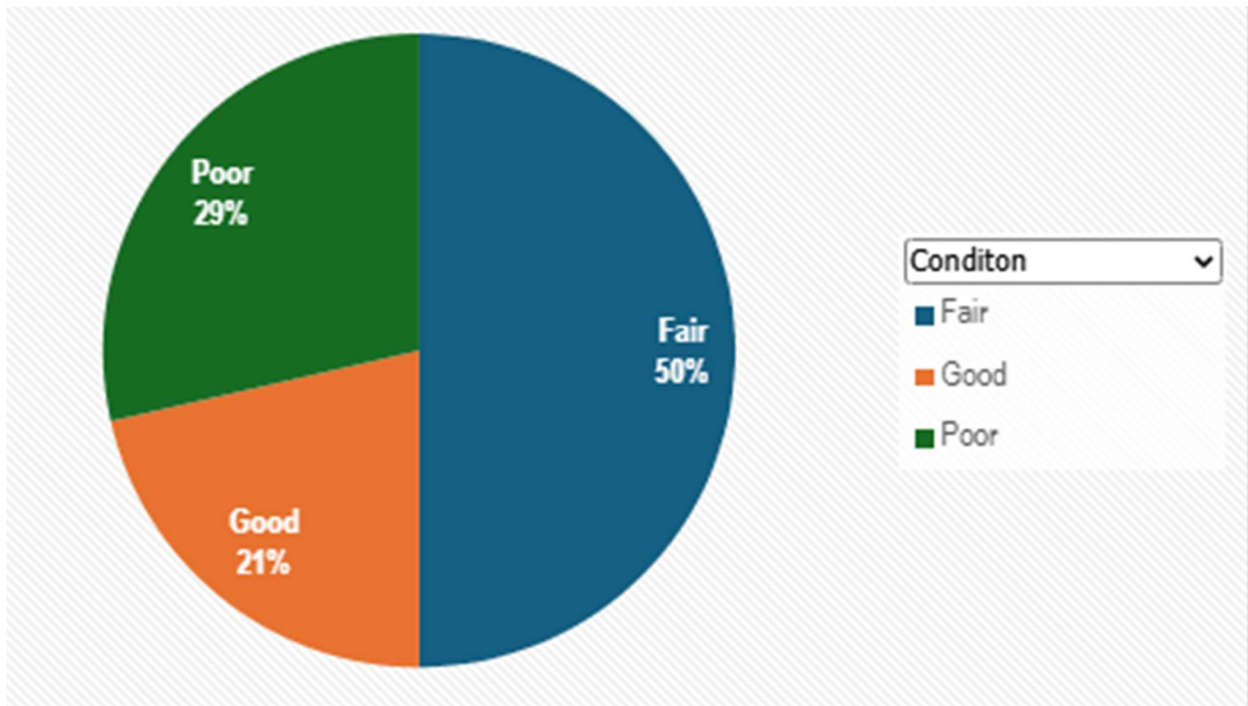


Figure C-4: Distribution of habitat conditions across Wilsonville's natural areas

Appendix D. Habitat Delineations

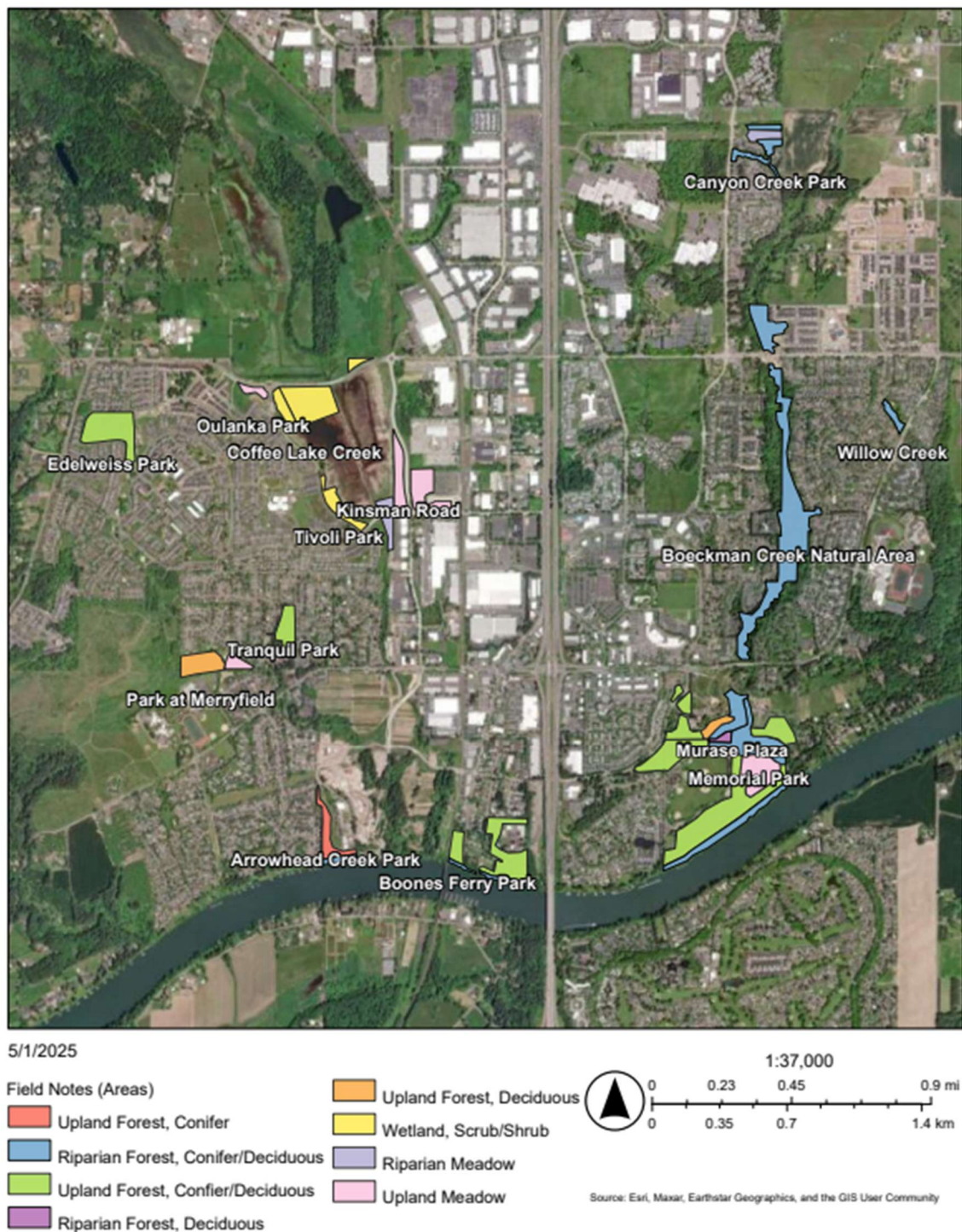


Figure D-1. Habitat delineations across all natural areas in Wilsonville

Figure D-2 – Figure D-14. Maps of each natural areas with habitat delineations

DRAFT

Natural Area Management Plan DRAFT

Parks Board Meeting – May 2025



Planning Objectives

- Develop a comprehensive framework for natural area management
- Promote long-term maintenance, enhancement, and community appreciation of the City's natural areas
- Recognize that natural spaces are a valuable resource for community resilience, public engagement/education, and stewarding healthy habitats
- Engage with the public and facilitate an inclusive and transparent planning process
- Develop and recommend strategies that are based on data, best management practices, and IPM
- Recommend opportunities for further community engagement in natural areas



Natural Area Definition

- Intact historical vegetation communities and habitats
- Significant amount of contiguous natural area (> 0.5 acres)
- Supports (or has the potential to support) large diversity of native plants and animals
- Valuable areas for recreation and promotes community appreciation of nature
- Degraded habitat but has potential for restoration to a healthy state

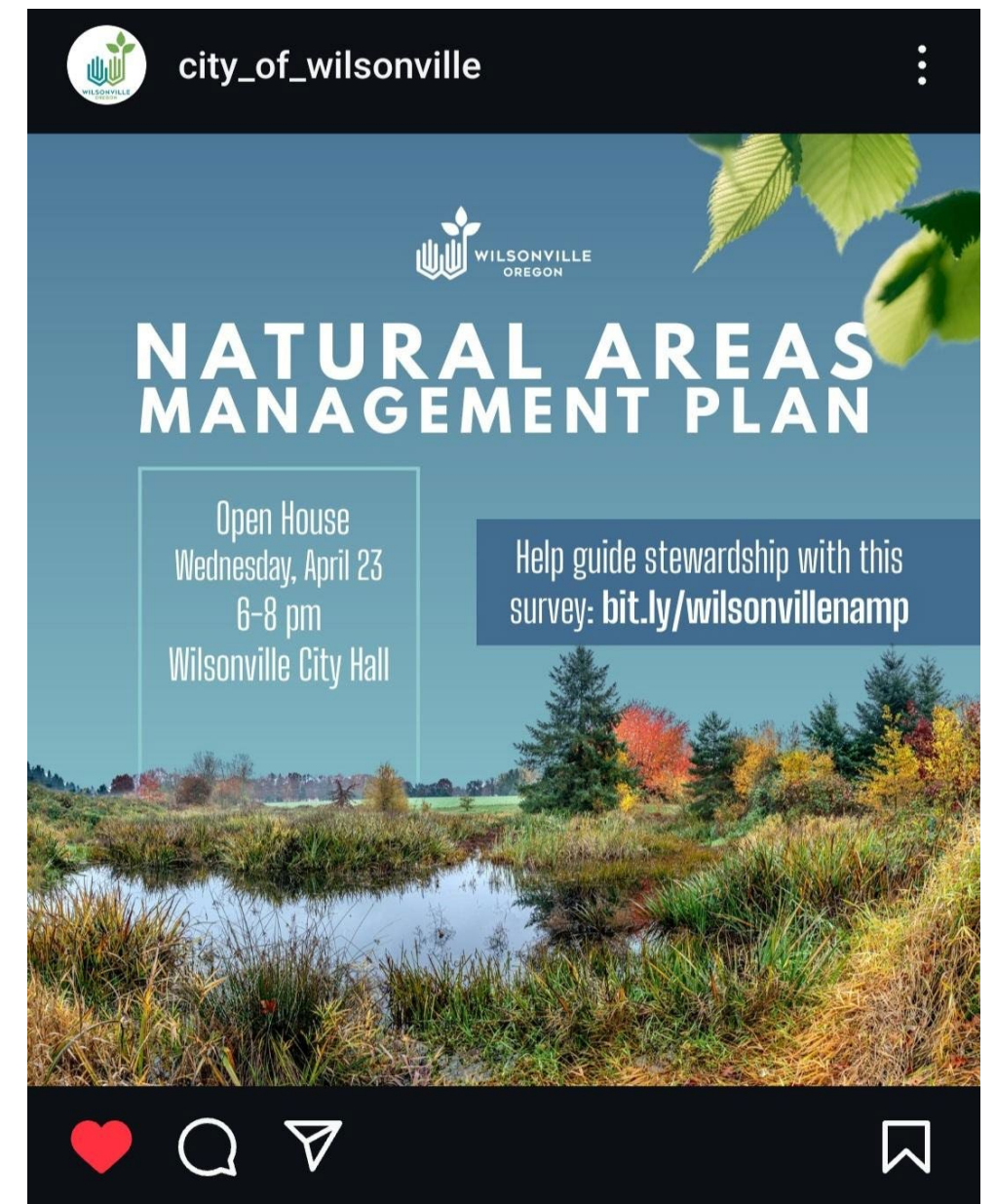
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Community Engagement

- Let's Talk Wilsonville Page
- Public survey to gather information about concerns and priorities regarding natural areas
 - Survey open until May 23rd
 - Outcomes will be summarized in final management plan
- Boones Ferry Messenger press releases
 - 2 published, 1 more planned for June
- Open House on April 23rd
- Earth Day 2024
 - Attending 2025 Earth Day/WERK Day

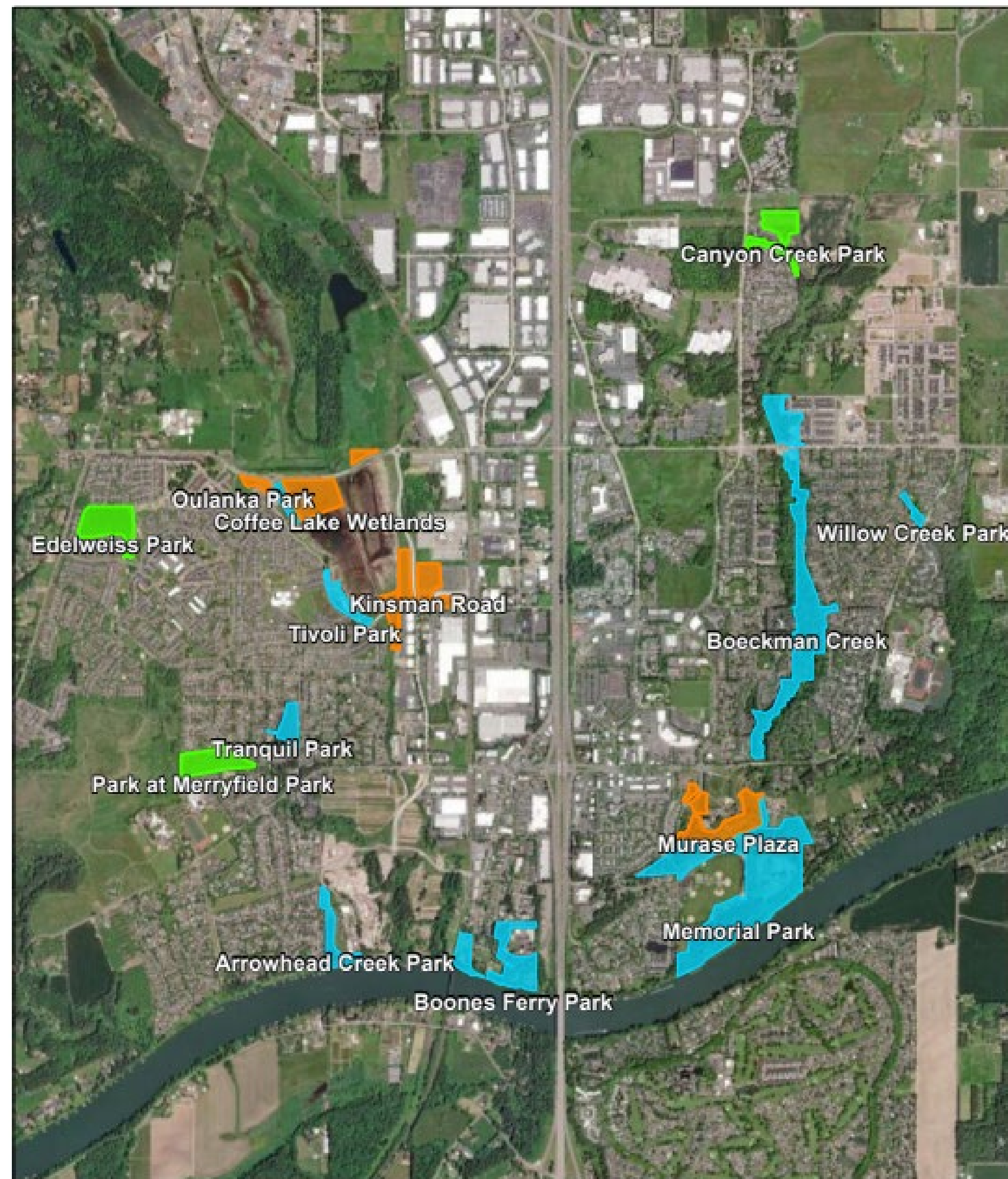


Preliminary Results

Table 1. Summary of natural resource function/value and existing habitat conditions for 14 natural areas in Wilsonville.

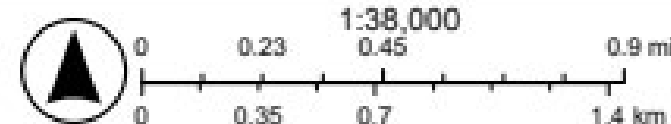
Natural Area	Acres	Natural Resource Function/Value	Baseline Habitat Condition
Memorial Park	62.44	High	Fair
Boeckman Creek Corridor	38.2	High	Fair
Boones Ferry Park	14.18	Medium	Fair
Kinsman Road	13.72	Medium	Poor
Coffee Lake Creek Wetlands	11.86	High	Poor
Edelweiss Park	10.8	Medium	Good
Murase Plaza	10.4	High	Poor
Park at Merryfield Park	8.17	Medium	Good
Canyon Creek Park	7.06	Medium	Good
Arrowhead Creek Park	6.46	High	Fair
Tranquil Park	4.5	Medium	Fair
Tivoli Park	2.87	Medium	Fair
Oulanka Park	1.03	Medium	Poor

Preliminary Habitat Conditions



5/1/2025

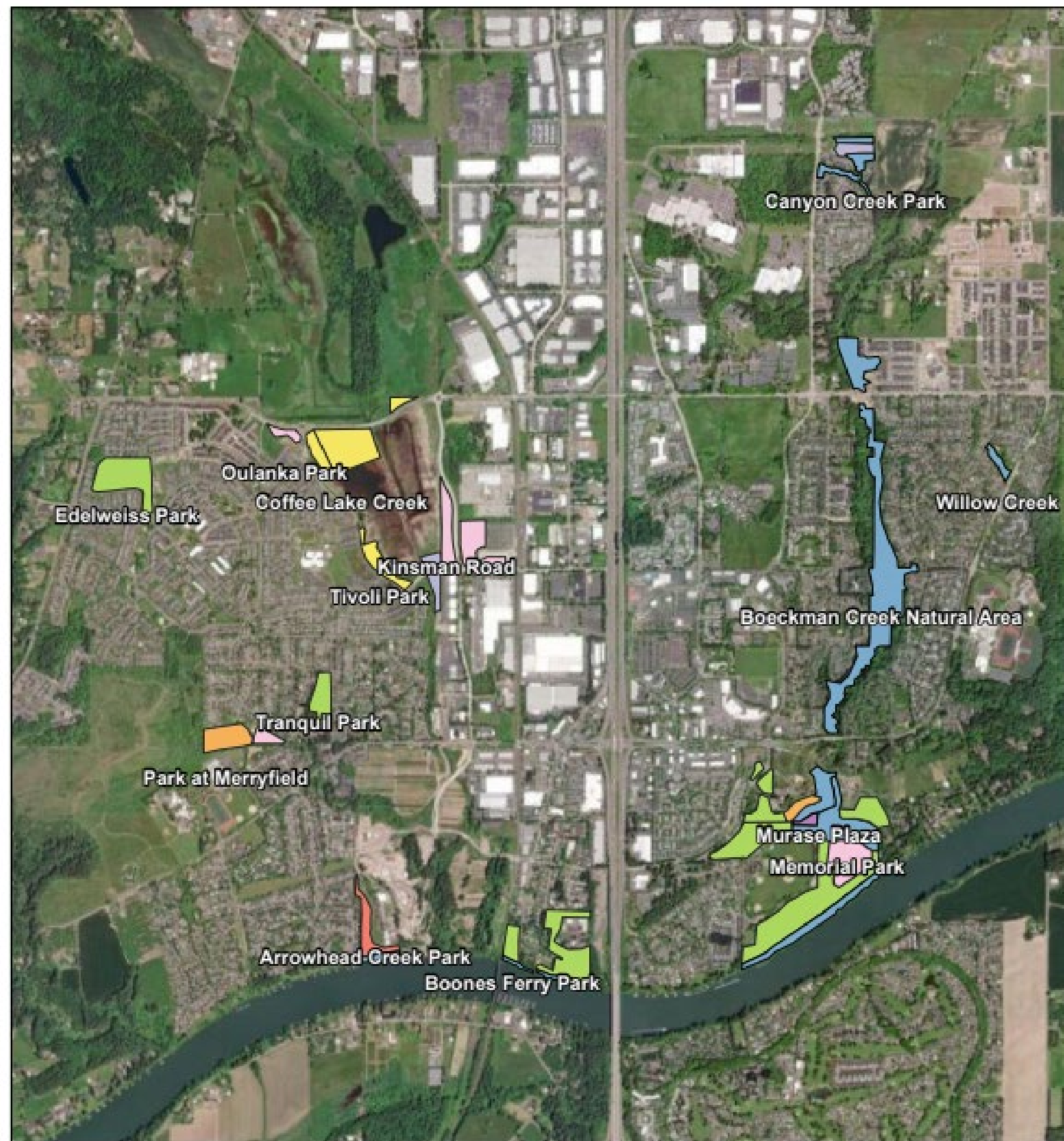
Habitat Conditions



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

- Scores are derived from data from vegetation surveys
 - Native species cover
 - Invasive species cover
 - Species richness
 - Native and non-native tree count
- Scores are relative to the natural areas within the City
- Scores are general - within each natural area, there is more variability in habitat condition
- **Good** – generally high cover of native species, high species richness
- **Fair** – variable cover of natives and invasives, moderate species richness
- **Poor** – Higher invasive cover, fewer species present

Preliminary Habitat Delineations

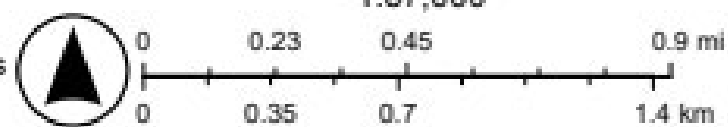


- Observational data recorded during surveys
- Cross referencing with satellite imagery and other data sources
- Final management plan will also include information about habitat potential from WEB Soil Survey Ecological Sites

5/1/2025

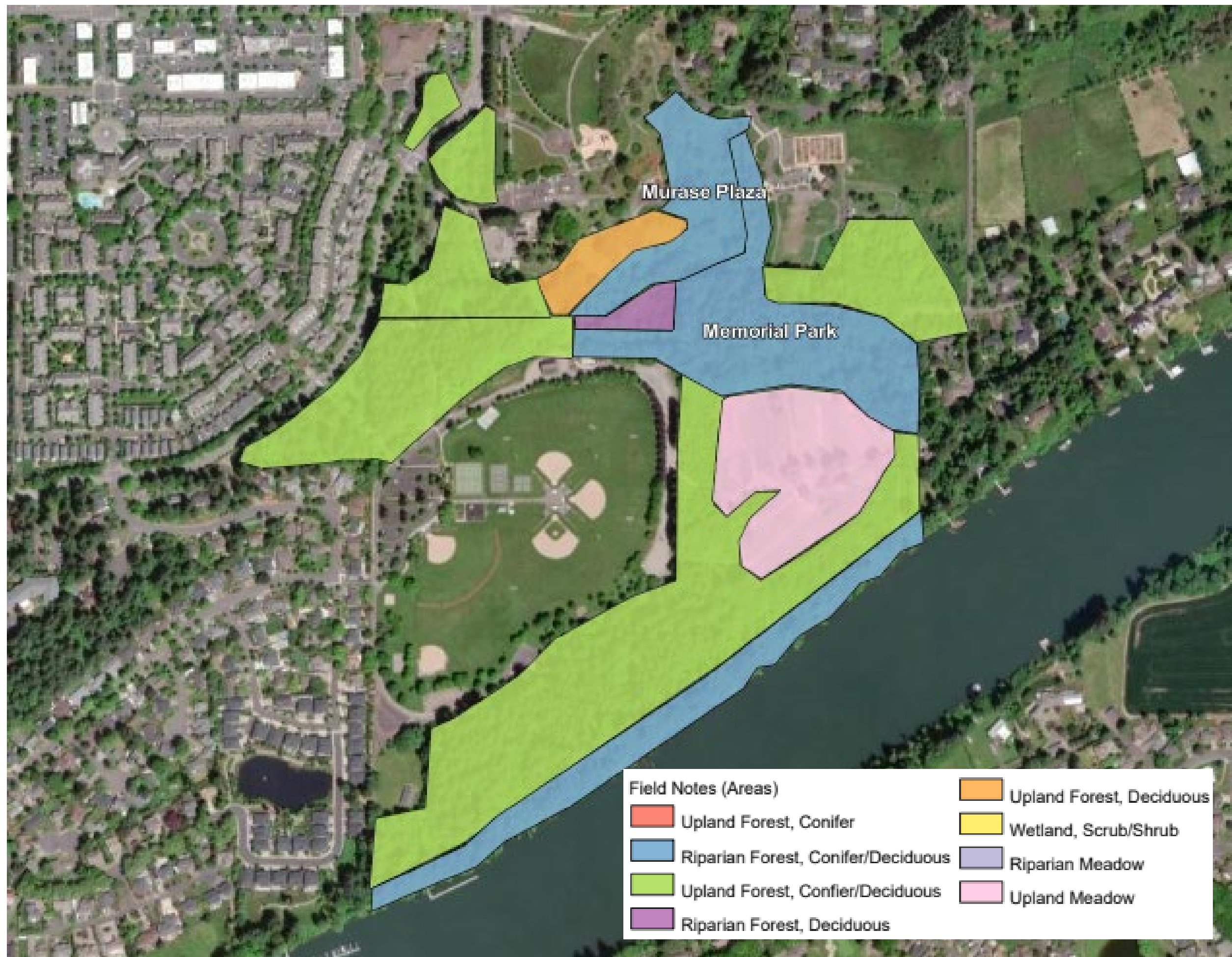
Field Notes (Areas)

 Upland Forest, Conifer	 Upland Forest, Deciduous
 Riparian Forest, Conifer/Deciduous	 Wetland, Scrub/Shrub
 Upland Forest, Conifer/Deciduous	 Riparian Meadow
 Riparian Forest, Deciduous	 Upland Meadow



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Preliminary Habitat Delineations Memorial Park



Management Objectives

1. Enhance ecological processes and native vegetation communities
2. Control invasive species
3. Improve resilience against climate change
4. Reduce wildfire risk
5. Proactively manage for emerging pests/diseases
6. Provide the public with safe and accessible opportunities to recreate, learn, and be stewards of natural areas



Management Strategies

- General Strategies: strategies that can be applied to all natural areas
 - Strategies align with each of the management objectives
- Habitat-Specific Strategies: specific recommendations for different habitat types
 - Example: wetlands require different management techniques than a forested habitat
 - Target invasives for treatment and plant types for native revegetation will vary among habitat types



A photograph of a forest floor. The ground is covered in a dense layer of green vegetation, including various ferns, grasses, and leafy plants. Several tall, slender tree trunks are visible, some with thin, bare branches reaching upwards. Sunlight filters through the canopy, creating dappled light on the forest floor. A semi-transparent white rectangular box is centered over the image, containing the word "Questions?".

Questions?