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Forest Stewardship and Restoration Policy

Forest Stewardship and Restoration Program, Kitsap County Parks

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Introduction

The Forest Stewardship and Restoration Program is an integral part of the Natural Resources Program within the Kitsap County Parks Department. A primary goal of the Natural Resource Program is to restore, protect, and manage Kitsap County Parks' natural resources for current and future generations using science-based approaches and solutions while collaborating and respecting all Kitsap County inhabitants and communities involved. Within this context, the Forest Stewardship and Restoration Program works to ensure the long-term health of the forests on Kitsap County parks by moving forest habitats, compositions, and structures toward desired conditions that include large trees and high-quality habitats. Stewardship actions and activities ensure that the forests on Kitsap County parks are maintained and enhanced so they are passed to future generations of Kitsap County residents in healthy conditions (*sensu* Helms 1998). Restoration is the process of altering the conditions of forests that have departed from desired conditions through the management by past landowners so they will more closely align with desired conditions in the future (*sensu* Helms 1998). Desired conditions are guided by historical conditions and tempered by past and expected future climate changes. Using both stewardship and restoration through adaptive management¹ over the coming years and decades, the Forest Stewardship and Restoration Program seeks to create conditions on Kitsap County parks that are resilient to current stressors and expected climate changes while providing high quality habitats that are refugia for wildlife and the people of Kitsap County.

This updated policy is a major revision and expansion of the current policy, (adopted in 2012, revised in 2015) to account for updated science, refocus the program on restoration, create a more wholistic and structured forest stewardship and restoration approach, and integrate expected climate changes. It is intended to replace the current policy. Maintained in the updated policy is the spirit of the goals and resource protections of the current policy including:

- Enhance natural² ecosystem complexity and health,
- Protect and enhance soil, water quality, and fish and wildlife habitat, and,
- Is biologically, socially, and economically self-sustaining.

These goals are enhanced and expanded within each area. For each goal, objectives are developed to provide specific, often measurable, elements for achieving each goal. Goals define overarching directions for the County's Forest Stewardship and Restoration program. Objectives are quantitatively or qualitatively measurable elements used to assess forest conditions and tracking forest development progress toward goals.

Beyond goals and objectives, policies for specific elements of forest restoration are presented that generally follow a conceptual framework based on restoration components presented by the

¹ "Adaptive management is a process of gathering and using scientific information to evaluate and improve forest management decisions and practices on the ground." Washington Forest Protection Association, <https://www.wfpa.org/natural-resources-conservation/adaptive-management/> (last accessed 10/30/2024).

² Defined as: "vegetation where ecological processes primarily determine species and site characteristics". United States National Vegetation Classification. <https://usnvc.org/about/plant-communities-and-vegetation-classification/natural-vegetation-classification/> (last accessed 10/22/2024)

Society of Ecological Restoration in the Standards of Practice to Guide Ecosystem Restoration (**Error! Reference source not found.**). These standards were developed to provide land managers with a solid framework for restoration projects that yield achievable, efficient, and scientifically sound results. The components of a restoration project as it applies to forestry in Kitsap County Parks are broadly broken down into the following components:

- **Forest and Resource Assessment:** Policies related to how assessments of forests and other resources would be conducted including:
 - the types of surveys and inventories used;
 - the types of data collected;
 - the development of reference and desired conditions used in assessments; and
 - the types of assessments conducted.
- **Stewardship and Restoration Planning and Permitting:** Policies related to how planning for stewardship and restoration in parks would be conducted and the types of permitting that would be done prior to stewardship and restoration activities including:
 - the development of park-specific stewardship and restoration plans, including public outreach and involvement as well as the expected plan lifespan;
 - the development of Forest Stewardship and Restoration Implementation Plans, including a 10-year strategic plan, 3-year tactical plan, with restoration and financial goals; and
 - the types of permitting that would be used for stewardship and restoration activities.
- **Stewardship and Restoration Implementation:** Policies related to stewardship and restoration activities and resource protection including:
 - the types of activities that would be used for forest restoration (including wildlife habitat), vegetation, road, and aquatic resources and
 - the types of protection that would be used for sensitive and/or culturally important resources including wildlife habitats, soils, aquatics, and plant species/communities.
- **Forest and Resource Monitoring and Evaluation:** Policies for how resources would be monitored and evaluated to determine how growth, development, and, possibly, stewardship and restoration activities are moving forests toward goals and objectives.

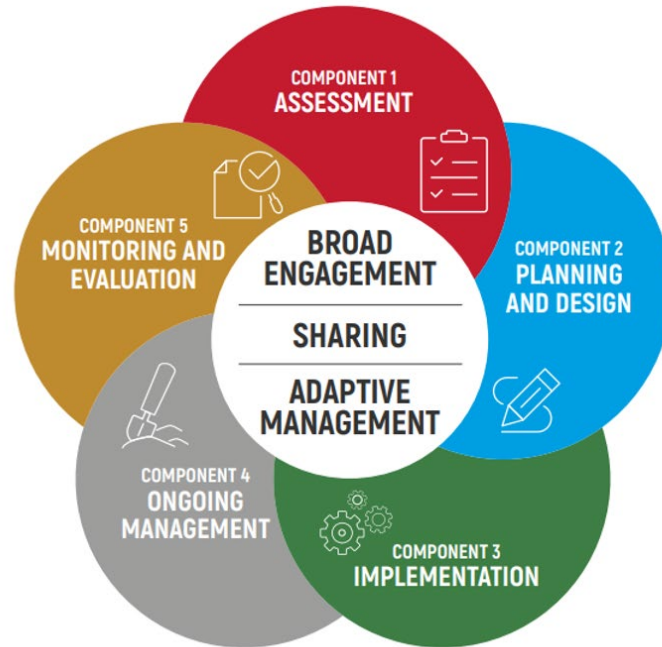


Figure 1: The conceptual framework for restoration that is guiding work by Kitsap County Parks. From SER: STANDARDS OF PRACTICE TO GUIDE ECOSYSTEM RESTORATION A contribution to the United Nations Decade on Ecosystem Restoration 2021–2030.

Policy Purpose

The Forest Stewardship and Restoration Policy guides forest stewardship, restoration, and related activities within Kitsap County Parks. Forest stewardship and restoration includes activities related to forest trees and vegetation, access roads that may be or have been used for forest management access, forest soils, wildlife habitats, and streams, wetlands, and other aquatic resources. This includes forest stewardship and restoration purpose and need, goals and objectives, forest and resource assessment activities, planning and assessment activities, permitting and implementation activities, and forest and resource monitoring activities.

This policy does not include recreation, trails and other recreation infrastructure development and maintenance, volunteers and their involvement in stewardship and restoration activities. These areas will be addressed in topic-specific policies.

Forest Stewardship and Restoration Purpose and Need

The purpose for forest stewardship and restoration activities by the Forest Stewardship and Restoration Program is to create forest conditions on Kitsap County Parks that:

- Have compositions and structures that facilitate the growth of large, vigorous³ trees that are resilient to insects, diseases, expected climate change, and potential wildfires,

³ “Vigorous” refers to tree growth.

- Provide high quality terrestrial, aquatic, and riparian habitats that have high ecological function and ecosystem services production,
- Maintain and enhance soil conditions and productivity.
- Allow opportunities for public and cultural foraging and gathering, and
- Are refugia for wildlife and humans in an increasingly developing and urbanizing environment.

Forest stewardship and restoration treatments are needed to create these conditions because:

- Forests on Kitsap County parks are primarily dominated by primarily small (10-15" average DBH) and medium (16-20" average DBH) with high to very high levels of inter-tree competition while lacking areas dominated by large (20-30" average DBH) and very large (>30" average DBH) trees⁴ (Figure 2). This is the legacy of the industrial forest management by the previous owners of the park lands.
- Tree growth and vigor are reduced in high and very high competition forests where most trees near or approaching their maximum diameter given the number of trees in the forest.
- Tree health is reduced in high and very high competition forests where trees are stressed and increasingly susceptible, and succumbing, to mortality from insects, diseases, and competition for limited resources.
- Ecosystem services, including high quality wildlife habitats, carbon sequestration, vegetation diversity, foraging and gathering opportunities, etc., are reduced in high and very high competition forests with slow-growing small to medium diameter trees, little, if any, functional standing dead and downed wood, dense tree canopies, and suppressed understory vegetation.
- Ecological function is reduced, especially in previously harvested areas along streams and wetlands, in high and very high competition forests that lack functional large woody debris and trees that would become functional large woody debris, understory vegetation is suppressed and sparse, and deciduous trees are lacking.

Where needed and appropriate⁵, Forest stewardship and restoration treatments would change forest conditions by:

- Removing trees to create additional room for larger trees and provide access to greater resources. This would include removing smaller trees to mimic competition-related mortality, groups of trees to mimic mortality from root diseases, and/or other treatments.
- Creating openness in the canopy and/or canopy gaps to allow increased light to reach the forest floor to increase growth of existing understory trees and vegetation and/or to establish a new cohort of trees and understory vegetation.

⁴ Donato *et al.* (2020) and D. Danato (personal communication, April 4, 2024) suggest that pre-contact forests in the western Cascade Range and Kitsap County were primarily dominated large and very large trees based on historical disturbance regimes.

⁵ All areas with treatment need may not be treated. This would include, but not limited to, areas excluded from treatment by applicable regulations or where environmental or societal concerns outweigh the need for treatment.

- Creating standing dead and downed wood where they are lacking to improve wildlife habitat and ecosystem function.
- Removing trees and creating openness or openings in the canopy would:
 - Increase tree growth, vigor, and resilience to insects, diseases, and expected climate change.
 - Improve overall forest health by reducing competition, stress, and impacts from insects, diseases, and expected climate change.
 - Improve ecosystem services, including carbon sequestration, wildlife habitat, species diversity, and foraging and gathering opportunities and ecosystem function through increased tree growth and understory vegetation production.

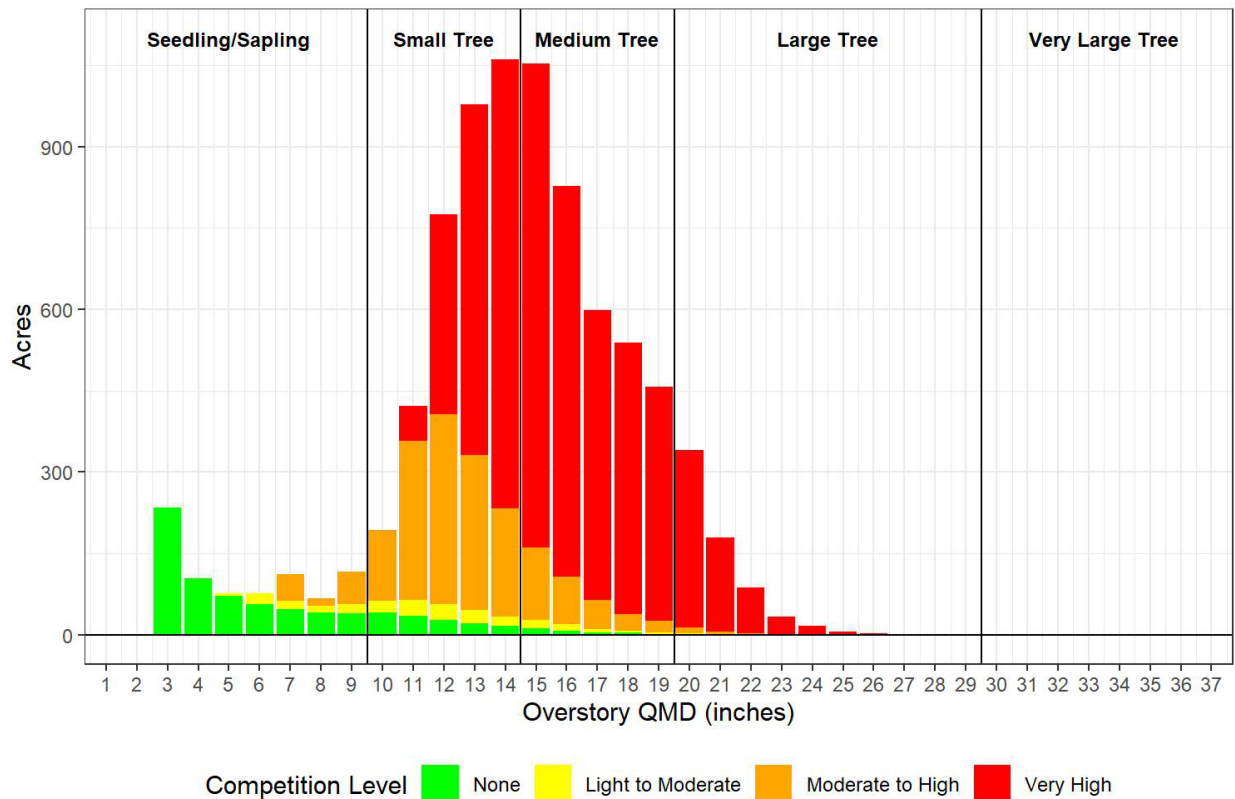


Figure 2: Acreages of parks by dominant tree sizes and competition levels. Dominant tree sizes are the average diameter of the largest 100 trees per acre. Competition levels are based on percentage of maximum stocking⁶ as <25%, 25-35%, 35-55%, and >55% for None, Light to Moderate, Moderate to High, and Very High. Data for tree sizes, competition levels and maximum stocking from RS FRIS and other data from the Washington Department of Natural Resources. Tree size classes, Seedling/Sapling, Small Tree, Medium Tree, Large Tree, and Very Large Tree based on O'Neil et al. (2001).

⁶ "Stocking" refers to the number of trees in an area with the maximum varying based on the sizes and species of trees.

Forest Stewardship and Restoration Goals and Objectives

Forest stewardship and restoration goals and objectives define what the forest stewardship and restoration activities endeavor to accomplish in Kitsap County Parks. Goals define overarching directions for the County's Integrated Forest Stewardship program. Objectives are the often quantitatively or qualitatively measurable elements used to assess forest conditions and tracking forest development progress toward the goals. Objectives are grouped into three components: 1) forest structure and composition; 2) aquatic and soil resources; and 3) social, biological, and financial sustainability.

Forest Structure and Composition

Goals:

Restore, maintain, and enhance forest structure (numbers and sizes of trees) and composition (species and species types) that are consistent with site-appropriate vegetation types and plant associations, such as Chappell (2006). Structure and composition improvements directly relate to improvements in wildlife habitat because they are linked.

Objectives:

- Increase vigor and tree growth to facilitate resistance and resilience to, and reduce mortality caused by, endemic expected climate change, forest insects, diseases, and other disturbance factors.
- Facilitate tree growth to speed the development of large diameter trees in younger forests. These will be future large trees, snags, and downed logs.
- Wherever possible, maintain and enhance existing large diameter trees.
- Where needed, encourage the establishment of additional cohorts of understory trees to increase forest structure and species diversity.
- Where needed, encourage the development of site-appropriate understory vegetation including wildlife forage and culturally important species.
- Where needed, restore species compositions and diversities consistent with site vegetation types and plant associations.
- Protect and enhance standing dead trees and downed logs where they exist.
- Create standing dead trees, downed logs, and other habitat structure where they are lacking at numbers that are consistent with site-specific vegetation types, plant associations, and structural stages.
- Allow native insects and diseases to operate at endemic levels to sustain natural ecological processes unless trees impacted by these insects and diseases create hazards for life, property, or infrastructure.

Aquatic and Soil Resources

Goals:

Protect, maintain, and enhance aquatic resources to ensure clean water, shade, and other ecological functions for fish and other species that use streams, lakes, shorelines, and wetlands. Protect, maintain, and enhance soil resources to ensure long-term soil health, nutrition, stability, and productivity.

Objectives:

- Protect, enhance, and, to the extent possible, restore riparian and wetland buffers, including understory, streamside, and wetland vegetation and trees within the buffers, to ensure that ecological functions, such as shade, large woody debris, litter fall, water filtration, etc. are protected and enhanced.
- Whenever possible mark the extent of wetlands and floodplains during the winter to ensure that the full extent of these areas is used when delineating wetland and riparian buffers.
- Wherever possible, minimize soil disturbance, compaction, and erosion that may result from forest stewardship and restoration and other activities.
- Maintain roads used for timber hauling, emergency services access, and other activities to minimize sediment delivery to streams and wetlands.
- Maintain culverts, cross-drains, and other water crossing structures to minimize sediment delivery to streams and wetlands and ensure fish can pass roads in fish-bearing streams.
- Hydrologically stabilize disused roads to minimize the potential for sediment delivery to streams and wetlands.

Social, Biological, and Financial Sustainability

Goals:

Ensure that forest stewardship and restoration activities are socially, biologically, and financially sustainable over the life of the Forest Stewardship and Restoration Program.

Objectives:

- Prioritize stewardship, restoration, maintenance, and enhancement over financial return while maximizing the financial return on harvested trees, which are valuable County assets.
- Ensure that forest stewardship and restoration activities maintain and enhance forest growth, development, and ecosystem services production over short- and/or long-term timelines following the activities.
- Ensure that forest stewardship and restoration activities are responsive to expected climate change to maintain and facilitate resilient forests in the future.
- Partner with local tribes to identify culturally important fish, wildlife, and plant species, opportunities to protect and enhance these species, and opportunities for cultural gathering events.
- Engage the public, volunteers, and other stakeholders, where appropriate, in aspects of assessments, planning, implementation, monitoring, and evaluation.

- Maintain Small Forest Landowner status under the Washington Forest Practices Rules by limiting harvest volume from forest stewardship and restoration activities to an average of no more than 2 million board feet (MMBF) per year across three-year periods.
- Generate sufficient revenue from stewardship and restoration activities to fund pure-cost forest stewardship and restoration activities and Forest Stewardship and Restoration Program staff.

Forest and Resource Assessment

Kitsap County Parks will use the best available science, data, technology, and practices to assess current forest, vegetation, forest road, aquatic, soil resource conditions, wildlife use, ecosystem services production, and departures from reference model or desired conditions.

Across Kitsap County parks, assessment units and forest stewardship and restoration areas will be delineated to help reduce complexity and make assessments tractable. Forest, vegetation, and other resource inventory data will be collected and compiled to describe current conditions both quantitatively and qualitatively. Reference conditions will be created to provide benchmarks for restoration and determining departures from these conditions. Assessment tools and techniques will be used to evaluate current conditions, describe, quantify, and value ecosystem services and potential environmental impacts of stewardship and restoration activities. Assessments will generally be performed on individual parks as a part of forest stewardship and restoration planning and monitoring. Elements of forest and resource assessment include but not limited to:

Assessment Unit and Stewardship and Restoration Area Delineation

Delineate areas within Kitsap County parks into assessment units and/or stewardship and restoration areas to facilitate assessment, planning, and implementation. These units and areas would have consistent forest structure and composition to reduce variability in planning and implementation protocols. Elements include but are not limited to:

- Use the best available data, information, and techniques in delineation.
- Update delineated units and areas as needed to account for changes related to forest stewardship and restoration activities, forest growth and development, forest disturbances, or other elements that change forest structures and compositions.

Forest and Resource Inventories

Use the best available data forest and resource inventory data to describe current forest and resource conditions. Forest and resource inventories quantify the conditions of forests, vegetation, and roads along with associated structures. These data provide the basis for assessments of forest and resource conditions. Where field collected data meeting quality standards are available, they will be used to characterize current forest conditions. In areas where field collected data are not available, the best publicly available data would be used. Publicly available data may include but are not limited to Washington Department of Natural Resources

(WADNR) Remotely Sensed Forest Resource Inventory System data⁷, USDA Forest Service (USFS) Forest Inventory and Analysis (FIA) data⁸, Washington Department of Fish and Wildlife (WDFW) fish passage data⁹, WADNR Heritage Program data⁴. Elements of forest and resources inventories include but are not limited to:

Forest Inventories

Use statistically valid and consistent sampling methods, with known statistical properties and pre-specified accuracy (confidence) levels, to collect forest inventory data. These methods will provide unbiased information forest conditions that are accurate with known precision. Accuracy and precision of the forest inventory will ensure that the data are representative of actual forest conditions and repeatable for monitoring purposes. Elements include but are not limited to:

- Use the best available tools, techniques, and technologies, with known statistical properties, for data collection and compilation.
- Collect sufficiently detailed information to support assessments and stewardship and restoration planning.
- When publicly available data are used to describe forest conditions, corroborate or validate those conditions with actual conditions in park forests.

Regeneration Surveys

Use statistically valid sampling and data compilation techniques to determine seedling stocking and survival – both planted and naturally seeded trees – in regeneration harvest areas. These areas are within the Pope Resources/Rayonier timber reserve Port Gamble timber and created openings in restoration areas. Elements include but are not limited to:

- Use the best available tools, techniques, and technologies, with known statistical properties, for data collection and compilation.
- Collect sufficiently detailed information to support assessments and stewardship and restoration planning.

Vegetation Inventories

Use the best available techniques, data, and technologies to collect vegetation data within Kitsap County parks. Data and information collected in this manner will provide the most accurate representation of the presence, composition, and extent of native and invasive species to guide forest stewardship and restoration actions. Vegetation classification helps identify plant communities that may be locally or globally rare, areas of high quality, and/or forest with old growth characteristics for additional protection consideration. Elements include but are not limited to:

⁷ Available at <https://geo.wa.gov/maps/wadnr::raster-all-rs-fris-rasters/about> (last accessed 5/28/2024)

⁸ Available at <https://www.fs.usda.gov/research/products/dataandtools/tools/fia-datamart> (last accessed 5/28/2024)

⁹ Available at <https://geodataservices.wdfw.wa.gov/hp/fishpassage/index.html> (last accessed 5/28/2024)

⁴ Available at <https://www.dnr.wa.gov/NHPdataexplorer> (last accessed 7/22/2024)

- Mapping and assessment of vegetation communities using the U.S. National Vegetation Classification (USNVC)¹⁰.
- Vegetation plots will be collected using the Peet plots (Peet et al 1998) to be consistent with USNVC methodologies.
- Identify areas with old growth characteristics using the methods outlined in VanPelt (2007)
- Methodologies and assessment tools may change as new best practices become available.

Road, Water Crossing, and Drainage Structure Inventories

Use the best available methods, techniques, and technologies to inventory the locations and conditions of roads – both those used for vehicular access and timber hauling and those that are being used as trails – and associated water crossings, culverts, cross-drains, and other drainage structures. Elements include but are not limited to:

- Collect and store spatially explicit road, water crossing and drainage structure data and information in electronic formats that are compatible with systems such as GPS (geographic position system) and GIS (geographic information systems)
- Collect sufficiently detailed information to support assessment, planning, and monitoring, which may include but not limited to:
 - Road surface type and condition
 - Current road use
 - Roadside vegetation conditions
 - Road erosion and drainage issues
 - Type, size, and condition of water crossing structures, culverts, cross-drains, other drainage structures, and/or
 - Other pertinent, resource-specific information as necessary.

Aquatic Resource Inventories

Use the best available data and techniques to describe and quantify the types and extents of streams, wetlands, and other aquatic resources within Kitsap County parks. Streams, wetlands, and other aquatic resources are important habitats for many fish and wildlife species, and provide clean water to areas within the parks, Kitsap County, Puget Sound and Hood Canal. These resources are also extensive, scattered throughout the County, and difficult to completely inventory. Elements of aquatic resource inventories include but are not limited to:

- Ensure the most extensive coverage of aquatic resources by using the best available data for resource location and type classification. This may include watercourse and waterbody

¹⁰ Available at <https://usnvc.org/> (last accessed 07/22/24)

data from the Washington Department of Natural Resources¹¹, critical areas data from Kitsap County¹², Wild Fish Conservancy survey data¹³, and/or other data.

- Improve the accuracy of aquatic resource inventory data by opportunistically locating and evaluating aquatic resources within forest stewardship and restoration areas. This may include but may not be limited to:
 - Confirming or updating the location, extent, and type of mapped aquatic resources then provide updates to the owners of the mapped data.
 - Delineating, mapping, and typing unmapped aquatic resources and providing the information to agencies that own and manage aquatic resource data.

Soil Surveys

Use the best available data for soils within Kitsap County parks. Soils play an important role in forests' ecological process including potential tree growth, vegetation composition, water availability, and hydrology. Potential adverse impact of restoration activities, such as erosion and compaction, are also related to soil properties and landform conditions, such as slope steepness or shape. Soil survey data sources include the USDA Natural Resources Conservation Service¹⁴ and Kitsap County GIS data¹⁵. Landform conditions data include the WADNR Westside Slope Stability Model layer¹⁶.

Wildlife Use

Use the best available science, data, techniques, and technologies to help determine what species or types of wildlife are using the forests on, or near, Kitsap County parks. The types of wildlife that are using, or could use, these forests will help guide wildlife habitat enhancement and development. This information will also help guide any operational limitations during restoration activities to minimize disturbances to sensitive species. Information sources for wildlife use include but are not limited to the Washington Department of Fish and Wildlife Priority Habitats and Species List¹⁷ and threatened and endangered species list¹⁸ as well as the Washingtons State Wildlife Action Plan¹⁹.

¹¹ Available online at <https://data-wadnr.opendata.arcgis.com/search?q=hydrography>. (Last accessed 5/31/2024)

¹² Available online at <https://kitsap-od-kitcowa.hub.arcgis.com/> (Last accessed 5/31/2024)

¹³ Available online at <https://wildfish.maps.arcgis.com/home/item.html?id=435c57ba568b4adba24b06030b0dd91b> (Last accessed 5/31/2024)

¹⁴ Available online at <https://websoilsurvey.nrcs.usda.gov/app/>. (Last accessed 6/3/2024)

¹⁵ Available online at https://kitsap-odkitcowa.hub.arcgis.com/datasets/3220cc4dbb03443fbce65a1b5813648b_0/explore (Last accessed 6/3/2024)

¹⁶ Available online at <https://data-wadnr.opendata.arcgis.com/maps/3a8ade37a63d45f89406e9cf788bfbe3/explore> (Last accessed 7/23/2024)

¹⁷ Available online at <https://wdfw.wa.gov/species-habitats/at-risk/phs/list> (last accessed 10/31/2024)

¹⁸ Available online at <https://wdfw.wa.gov/species-habitats/at-risk/listed> (last accessed 10/31/2024)

¹⁹ Available online at <https://wdfw.wa.gov/species-habitats/at-risk/swap> (last accessed 10/31/2024)

Reference Conditions

Use the best available science, data, and information to create reference conditions to guide forest stewardship and restoration assessments, planning, activities, and monitoring. Forests in Kitsap County are unique given their location within the Puget Sound Trough, threats from extensive development, and relative lack of US Forest Service ownership resulting in comparatively little forest stewardship and restoration research within the county. Elements include but are not limited to:

- Wherever possible prioritize studies and data from Kitsap County and similar forest ecosystems, such as other areas within the Puget Trough and areas within the eastern and northeastern portions of the Olympic Peninsula.
- Ensure that reference conditions models include measures and information that are related to, and comparable with, the data collected and compiled in forest, vegetation, and other resource inventories.
- Account for expected future climate conditions in reference conditions to facilitate resilient future forest conditions.

Assessments

Use the best available open, transparent, rigorous, and repeatable assessment tools and techniques to evaluate, describe, and value forest, vegetation, other resources, and ecosystem services and to make comparisons with reference model conditions and other desired conditions. Performing assessments in this way will help ensure public trust in the processes used in planning, evaluating, and monitoring forest and forest stewardship and restoration planning. Elements include but are not limited to:

- Wherever possible, use standardized, best available assessment models, tools, techniques, and protocols. Examples include but are not limited to:
 - The USFS Forest Vegetation Simulator (FVS) forest growth and yield model and associated extensions to virtually grow forest and apply tree-related forest stewardship and restoration actions.²⁰
 - The Fire and Fuels Extension for FVS (Rebain *et al.* 2010) to assess carbon sequestration, standing dead and downed wood, and wildfire hazards.
 - The National Volume Estimator Library to estimate tree and harvested log volumes, biomass, and sequestered carbon.²¹
 - Carbon estimates such as Hoover *et al.* (2023) carbon sequestration and cycling in different forest and product components.
 - Reference conditions for standing dead and downed wood using the DecAID Advisor (Mellen-McLean *et al.* 2017).

²⁰ FVS and associated documents are publicly available online at <https://www.fs.usda.gov/fvs/> (Last accessed 5/31/2024)

²¹ The National Volume Estimator Library and associated software and documentation are available online at <https://www.fs.usda.gov/forestmanagement/products/measurement/volume/nvel/index.php> (last accessed 8/19/2024)

- Document assessments and assumptions to ensure repeatability.

Stewardship and Restoration Planning and Permitting

Kitsap County Parks will maintain current plans, including a program-wide implementation plan and park-specific stewardship and restoration plans, and acquire the necessary permits from appropriate agencies prior to project implementation. Planning and permitting for the Forest Stewardship and Restoration Program falls broadly into three categories:

- **Forest Stewardship and Restoration Program Implementation Planning:** Program implementation plan compiles information from park plans and other sources into long-term (10+ years) and short-term (1-3 years) action plans to determine the extent of work that will be needed, estimates of revenues and costs, and expected effects of forest stewardship and restoration planning,
- **Park-specific Stewardship and Restoration Plans:** Park-specific plans to assess the conditions, determine treatment needs, prescribe stewardship and restoration actions, create a general schedule for actions, and evaluate expected impacts of the actions within the park.
- **Forest Stewardship and Restoration Activity Permitting:** Acquiring permits for forest stewardship and restoration activities through appropriate regulatory agencies will ensure that the actions comply with all applicable regulations to minimize adverse effects on resources and the environment.

Additional planning or permitting steps may be required as requirements and best management practices change.

Forest Stewardship and Restoration Program Implementation Planning

Kitsap County Parks Forest Stewardship and Restoration Program will perform implementation planning at the program level to ensure that stewardship and restoration needs across parks are met and that the program is socially, biologically, and economically sustainable. Planning will look across all parks that may need restoration using two different time horizons: 10 years for strategic planning; and 1-3 years for tactical planning. Ten-year strategic planning will show the sequence of projects that are likely to occur during this time. Information from the strategic plan would identify areas that are expected to have stewardship and restoration activities, expected labor needs, costs, and revenues associated with the activities, and expected effects of the activities. Planning over a 10-year horizon will also help ensure that the labor needs, costs, and revenues remain relatively consistent.

Tactical planning over a 1–3-year period²² highlights specific projects that would be permitted and implemented during this time. Planning and permitting these projects may include pre-activity resource inventory collection, performing project-specific financial analyses, and applying for all necessary project permits.

²² This planning horizon was chosen because it coincides with the life of a Washington Department of Natural Resources Forest Practices Application – a primary vehicle for forest stewardship and restoration activities.

Forest Stewardship and Restoration Implementation Planning would be updated annually to maintain a queue of projects and account for changes in markets, costs, budgets, and project completion and/or delays. Annual updates provide the opportunity to report what was accomplished in the preceding year and how it compared to what was planned. It is also an opportunity to update assumptions used in analyses to ensure that they are current and to add additional forest stewardship and restoration actions and projects to the 10-year strategic plan.

Park-Specific Stewardship and Restoration Planning

Kitsap County will perform park-specific stewardship and restoration planning ensures that stewardship and restorations needs, actions, and implementation timelines are determined before actions are implemented. Park-specific stewardship and restoration plans will integrate information that may include, but is not limited to:

- Historical information about the park,
- Information and data about current forest conditions and departures from desired conditions,
- Stewardship and restoration needs and actions to address the needs to move forests toward desired conditions,
- Expected short- and long-term effects of the stewardship and restoration actions.

Park-specific stewardship and restoration plans provide the basis for the stewardship and restoration that take place in each park. The process of creating these plans integrates forest, vegetation, and other resource inventory data and assessments to describe conditions within the park, differences from reference or desired conditions, and the actions needed to address these differences that would put the park on a trajectory to move closer to the reference and desired conditions. Outreach and collaboration with the public, tribes, volunteers, and other interested parties will help facilitate support and social license to ensure that plans would achieve their desired outcomes.

Planning takes place at a specific point in time with inventory data representing conditions at that time. Over time, as forest continue to develop and change, stewardship and restoration activities alter forest structure and composition. In addition, other resources, especially roads and invasive species, may change, and the wants and needs of the public may change. Plans must be updated regularly, typically every 10-years, to incorporate these changes. Elements of park stewardship and restoration planning may include, but are not limited to:

Park History Compilation

Use the best available historical information to provide context for the current conditions in the park to help understand how the conditions developed. Sources may include historical aerial photographs²³, past survey and harvest records, past planning documents, presence of stumps, skid trails, roads, culverts, etc., in the park.

²³ Historical aerial photography from the 1950s through the 1980s available from the US Geological Survey through Earth Explorer (<https://earthexplorer.usgs.gov/>, last accessed 5/31/2024) and from the 1990s to

Forest Stewardship and Restoration Needs Determination

Utilize the results from park assessments and the best available science and information determine the scope and scale of needs for restoration actions for each park. Explain why and when the actions are, or are not, needed.

Forest Stewardship and Restoration Actions Prescriptions, Specifications and Timelines

Prescribe and specify stewardship and restoration actions along with approximate timelines to address treatment needs for each assessment unit or stewardship and restoration area.

This would include the types of actions that are needed; what the actions would target for modification, removal, addition, or replacement; expected outcomes; and how those outcomes will move the forests towards reference or desired conditions. This might also include no actions for units or areas that do not have treatment needs or where there are other resource-specific or public concerns that outweigh the need for actions.

Forest Stewardship and Restoration Action Effects Evaluation

Evaluate the proposed activities and how they may change and affect conditions in the park over the short-term (up to 30 years). Where possible, use models or other tools that may provide objective short- and long-term estimates. If models are not available use the best available science tempered by professional experience and knowledge of Kitsap County forests. Results of the evaluation will demonstrate how the stewardship and restoration actions are expected to move the park closer to reference and desired conditions over the life of the plan and through a foreseeable future when further stewardship and restoration actions may be needed.

Draft Park Forest Stewardship and Restoration Plan

Compile information from park assessments and planning steps into a draft park forest stewardship and restoration plan. This will be the guiding document for forest stewardship and restoration activities for the 10-year life of the plan or until plan is updated. This plan document should include, at a minimum:

- A narrative about the park including its history, as appropriate, to provide context for the park plan.
- A summary of forest stewardship and restoration goals for the park.
- Descriptions of reference and desired conditions for the forest, vegetation, and other resources in the park.
- Descriptions of current conditions across the park.
- Statements of treatment needs across the park for each resource.
- Prescriptions, specifications, and maps for each stewardship and restoration action and descriptions of how the action helps meet goals and objectives.
- A general schedule for stewardship and restoration actions.

- Evaluations of the expected short- and long-term effects of stewardship and restoration actions and how they would move forests toward desired conditions and help meet park and program goals and objectives.

Outreach and Collaboration

Provide information and solicit comments about park stewardship and restoration plans through outreach and collaboration with the public, tribes, and other interested parties, as appropriate. Providing information about the park stewardship plans will help ensure that the public understands what types of stewardship and restoration activities are planned for the park along with expected impacts and benefits. Encourage input and collaboration by soliciting comments about the plans and using the comments, as needed, to refine plans. Public comments will help ensure that park plans provide expected benefits that align with program and park goals and objectives. Together this will help create the social license for stewardship and restoration activities in parks. Elements of public outreach and collaboration may include, but are not limited to:

- Ensure the public, tribes, and other interested parties understand the park stewardship and restoration plan actions and expected impacts through outreach and collaboration. This may include, by not limited to, direct communication, town hall meetings, field tours with groups in the parks, and other topic-oriented meetings.
- Facilitate outreach using a variety of media such as web sites, social media, signage, and print media.

Forest Stewardship and Restoration Plan Updates

Ensure that forest stewardship and restoration plans for Kitsap County Parks are representative of and consistent with current/emerging conditions. Updating and revising forest stewardship and restoration plans provides the opportunity to reassess conditions in the parks and re-engage the public. Assessing updated inventory data will help show whether conditions are developing as expected and whether additional actions are needed. Public outreach and comment solicitation may provide insights into new public wants and desires for their parks that may help refine the updated plan when they align with goals and objectives. A 10-year update interval is expected to be sufficient to account for changes in the forest and with public wants, needs, and perceptions.

Forest Stewardship and Restoration Activity Permitting

Ensure that resources are protected, and environmental impacts are minimized by acquiring the legally required permits for forest stewardship and restoration activities. When appropriate coordinate with tribes and agencies about planned stewardship and restoration activities prior to submitting permits to facilitate necessary permitting. Activities that remove trees or occur near or

within typed²⁴ streams or wetlands, in sensitive species habitat, or other critical areas may require permits from the Washington Department of Natural Resources²⁵, Washington Department of Fish and Wildlife²⁶, and/or Kitsap Department of Community Development. Where necessary use Washington State Environmental Policy Act (SEPA) checklists²⁷ to disclose potential environmental impacts.

Class IV-Special Forest Practices Applications²⁸, which requires a SEPA checklist, will be used for all activities that remove trees and/or maintain, improve, build, or remove forest roads for timber hauling. Kitsap County Timber Harvest permits may be used in limited situations where small areas of parks may be converted to non-forest uses, such as parking lots and other infrastructure to avoid the 6-year development moratorium²⁹.

Stewardship and Restoration Implementation

Use the most appropriate activity types and associated equipment to implement stewardship and restoration activities to meet activity goals and minimize adverse impacts. Forest stewardship and restoration activity implementation involves removing, adding or modifying resource elements, which may include trees, native vegetation, invasive species, roads, water crossing structures, etc., to achieve desired outcomes and help move conditions toward reference or desired conditions. Equipment, techniques, tools, materials and other aspects of implementation vary depending on the type of resource. Actions in forest and road resources often use heavy equipment to harvest trees or to maintain, improve, build or remove roads and water crossing structures. Actions in native vegetation and invasive species management may use equipment or people with hand tools to plant or remove vegetation depending on need. Resource protection measures will be used to avoid, minimize, or mitigate these potential impacts for all treatment types.

²⁴ “Typed” streams and wetlands are those that are classified under a system such as the Washington State Forest Practices Rules (WAC 222-16-030 Water typing system (<https://app.leg.wa.gov/WAC/default.aspx?cite=222-16-030>, last accessed 6/3/2024) , WAC 222-16-031 Interim water typing system (<https://app.leg.wa.gov/WAC/default.aspx?cite=222-16-031>, last accessed 6/3/2024), and WAC 222-16-035 Wetland typing system (<https://app.leg.wa.gov/WAC/default.aspx?cite=222-16-035>, last accessed 6/3/2024)

²⁵ See WAC 222-16-050 Classes of forest practices (<https://app.leg.wa.gov/WAC/default.aspx?cite=222-16-050>, last accessed 6/3/2024) for the types of forest stewardship and restoration activities that require WADNR permitting.

²⁶ See WAC 220-60 (<https://app.leg.wa.gov/wac/default.aspx?cite=220-660>, last accessed 6/3/2024) for information about projects in or near typed water that may require WDFW permitting

²⁷ See <https://ecology.wa.gov/regulations-permits/sepa/environmental-review/sepa-guidance> (last accessed 6/3/2024) for information about SEPA checklists

²⁸ See WAC 222-15-050 (1) (<https://app.leg.wa.gov/wac/default.aspx?cite=222-16-050>, last accessed 10/29.2024)

²⁹ See Kitsap County Code Chapter 18.16 Timber Harvest (<https://www.codepublishing.com/WA/KitsapCounty/html/Kitsap18/Kitsap1816.html>, last accessed 6/3/2024) for details.

Activity Types

Forest Resources

Use silvicultural treatments³⁰ that are responsive to the forest conditions and needs and employ appropriate equipment for the terrain where treatments are applied to move forests toward reference and desired conditions. Ensure consistency and avoid confusion about treatments and actions by using the terminology of Society of American Foresters Silviculture Instructors Sub-group (1994). Explicitly state objectives for treatments and actions in silvicultural prescriptions that specify how treatments and actions will be applied and what is expected from the treatments.

Silvicultural treatments and activities imitate natural processes and maintain site productivity by modifying stand structure – the shapes, sizes, and types of trees; stand composition – species of trees; stand density – number of trees; and ages of trees (Ashton & Kelty 2018) by removing and/or planting trees. Treatment types may include but are not limited to:

Thinning

Use thinning when the objective of stewardship and restoration activities is to increase the growth and vigor of the trees remaining after thinning and/or to facilitate the growth and development of understory trees and vegetation. Thinning would remove a portion of the trees in an area to redistribute resources to remaining trees and/or bring the number of trees in line with available resources, especially water, on a site. Species compositions may also be modified through thinning by targeting species for removal or retention to influence diversity and forest health.

Thinning removes trees that produce merchantable material that may be sold to local sawmills or other facilities to offsets cost and potentially return revenue to the County. This type of treatment may also be called ecologically based thinning (Franklin *et al.* 2018), restoration thinning (Dwyer *et al.* 2010), variable density thinning (VTD, Carey 2003, Ashton and Kelty 2018, Brodie and Harrington 2020), or commercial³¹ thinning (Ashton and Kelty 2018, Helms 1998, Palik *et al.* 2020, USDA 2014). Thinning would be used where competition between trees has reduced tree growth resulting in stressed trees that may be susceptible to insects, disease, and other mortality causes. The intent of thinning is to generally mimic ecological processes that result in tree mortality, such as competition, insects, and diseases, though trees may be removed rather than left on-site. Following thinning the remaining trees would have increased access to resources, including light, water, nutrients, and space, that would allow the trees to increase their growth, vigor, resilience to insects, disease, and other mortality causes. An important aspect of thinning is that regeneration, though it may happen spontaneously through seeding, is an expected result of thinning.

Thinning may also be used where there is an established cohort of smaller shade-tolerant trees or understory vegetation that would benefit from additional light. Growth of the trees in the shade

³⁰Silvicultural treatments are developed using principles of silviculture, an applied sub-discipline of forest ecology (Ashton and Kelty 2018), to address treatment needs.

³¹ "Commercial" generally refers to tree size – trees that are sufficiently large to yield a merchantable log. This is typically greater than 7-8 inches diameter at breast height (4.5 feet above the ground).

tolerant cohort may be limited by a dense overstory. Understory vegetation may be sparse and produce little, if any, fruit for wildlife forage or for human gathering. Thinning would provide additional light to the forest floor to facilitate the shade-tolerant tree and understory vegetation reestablishment, growth, and production.

Spatial variability within stands may be increased through thinning where conditions demonstrate the need. Tree spacing after treatment may vary across the stand where increased spatial variability is needed. This is like variable density thinning except open areas, referred to as “gaps”, may not be used. When gaps are used, they would be uneven-aged regeneration patches embedded in a matrix of thinning.

Young stand thinning will remove trees in young stands to reduce the number of trees and facilitate the growth of the remaining trees. This is also known as precommercial³² thinning (Ashton and Kelty 2018, Helms 1998, Palik et al. 2020) or stand improvement (USDA 2014). Trees removed in young stand thinning are generally too small to produce merchantable volume resulting in a treatment that produces no revenue to offset harvest costs. This treatment is an investment in these young stands to facilitate development toward reference and desired conditions.

Uneven-aged Regeneration Harvesting

Use uneven-aged regeneration harvesting methods (Ashton and Kelty 2018, USDA 2014, Palik et al. 2020) when the objective of stewardship and restoration actions is to increase species diversity, vertical canopy diversity, and horizontal spatial diversity through the establishment of a new cohort of trees. Using uneven-aged methods, gaps are created in the canopy to allow light to reach the forest floor to facilitate regeneration. Regeneration may happen through seeding from remaining trees or by planting trees. These canopy gaps also increase the spatial diversity in the forest to help reduce the potential for disease spread and provide habitat complexity for wildlife. Uneven-aged methods include group-selection with reserves, and single tree selection.

Group-selection with reserves removed most of the trees in an area to allow the establishment of new trees while leaving some trees (approximately 3-10 trees per acre) to provide habitat, seed sources, and/or other benefits. These areas may range from 1 – 3 acres (200 – 350 feet wide) in size depending on treatment objectives, the type of treatment used, and the expected regeneration species. This type of treatment may be used where trees may not respond well to thinning, such as areas with tall, skinny trees with small crowns that would be at risk of falling (windthrow) or breaking (wind snap) following thinning. Group-selection with reserves would be used in combination with thinning to increase spatial diversity.

Single-tree selection removes individual trees throughout a stand to create canopy gaps and spatial variability in the stand to facilitate the growth of remaining trees and to establish new trees within the stand. This type of treatment would be used where there are many healthy trees that would respond well to reduced stand densities but lack vertical canopy diversity and spatial variability.

³² “Precommercial” generally refers to tree size – trees that are too small to yield a merchantable log. This is typically under 7-8 inches diameter at breast height (4.5 feet above the ground).

Planting

Planting would be used to establish new trees following uneven-aged regeneration harvesting, when required under the Washington Forest Practices Rules³³, or when the objective is to establish species that would help move forests toward desired conditions. Trees would be planted during the winter when the trees are dormant with seedlings being sourced from nurseries that have seed sources that are compatible with Kitsap County.

Species whose current ranges do not overlap with Kitsap County, such as redwoods, giant sequoias, non-native oaks, etc. would not be planted as part of forest stewardship and restoration actions. However, southern genotypes of extant species or species from outside Kitsap County may be planted as part of limited species migration experiments and/or test plots in horticultural settings.

Wildlife Habitat Enhancement

Create dead wood structures, including standing dead and downed wood, to enhance wildlife habitat where they are non-existent, limited, or lacking. Dead wood is an important habitat feature for many wildlife species (Sullivan *et al.* 2021). Where standing dead and downed wood are lacking or limited, create standing dead trees (snags), leave logs on the ground, and/or construct log piles and/or habitat piles to enhance wildlife habitat. Elements of habitat enhancement may include but are not limited to:

- Use logs with little merchantable value, including defective trees and defective or small logs that would only be sold as pulp logs, to construct habitat enhancement features.
- Whenever possible, create habitat structures during thinning operations when equipment is onsite following best available science for structure configuration, size, and location.
- Ensure that overall standing dead and downed wood amounts are comparable with recommendations, such as the USDA Forest Service's DecAID Advisor system (Mellen-McLean *et al.* 2017)

Silvicultural Prescriptions

Use detailed silvicultural prescriptions to specify treatment types; trees targeted for removal and/or retention; and expected post-treatment conditions following treatments. Silvicultural prescriptions specify the suite of planned silvicultural treatments used to meet stand treatment needs and help move conditions toward reference or desired conditions (Helms 1998). The prescriptions may include one or more treatments including thinning, young stand thinning, uneven-aged regeneration, and/or planting to meet stated stand structure, composition and density goals and objectives for the stand. Expected conditions following the treatments and actions in the prescription would put the stand on a trajectory to develop toward desired conditions. In some cases, post-treatment conditions may move away from desired conditions in the short-term to better meet desired conditions in the long-term.

³³ See WAC 222-34 (<https://app.leg.wa.gov/WAC/default.aspx?cite=222-34-010>, last accessed 6/3/2024) for specifics on reforestation requirements.

Vegetation Resources

Use approved, appropriate, industry-standard, methods, materials and equipment to implement actions related to native, non-native, and invasive vegetation resources. Vegetation resource actions generally establish, enhance, remove, and/or modify understory vegetation through planting, cutting, pulling, pruning, trimming, or other methods. Actions generally apply to two vegetation types, native species that would be planted or enhanced and invasive species that are adversely affecting native species and vegetation communities. These actions may include but are not limited to:

- Development of restoration plans if native vegetation deviates from desired conditions defined, in part, by US National Vegetation Classification communities (USNVC 2024).
- Planting or seeding of native species as appropriate to achieve desired conditions and/or for cultural use by local tribes.
- Removal or treatment of invasive or non-native species using an integrated pest management approach utilizing the best available sciences and methods.

Road and Aquatic Resources

Use approved, appropriate, industry-standard methods, materials, and equipment to implement actions related to roads and aquatic resources within Kitsap County parks. These actions would be designed to minimize detrimental impacts from roads and their use, including sediment production and delivery, to aquatic resources and associated species. Actions may include but are not limited to:

- Road maintenance and betterment including grading, surfacing, brushing, and ditching. This may include converting trails on former roadbeds back to roads used for hauling or emergency vehicle access.
- Road decommissioning or abandonment including hydrologic stabilization.
- Road removal.
- Road conversion to trail.
- Culvert, cross-drain, and water crossing structure maintenance, removal, improvement, or replacement.

Resource Protection and Enhancement

Protect and enhance aquatic, wildlife, vegetation, and other resources by applying and adhering to resource-specific rules and/or site-specific protection and/or enhancement that may be needed. Elements of resource protection and enhancement include but are not limited to:

- Protect and enhance aquatic resources by applying and adhering to riparian area and wetland buffers following the Washington Forest Practices Rules, which include minimum buffer widths and activity restrictions. Where buffers are overly dense apply thinning treatments as allowed under the Washington Forest Practices Rules to facilitate tree growth and enhance riparian function.

- Locate and, where needed, buffer wildlife resources, especially large trees with structurally complex canopy habitat features, large snags (standing dead trees) and large downed wood to minimize impacts from treatment activities.
- Locate large and old trees, which are relatively rare within Kitsap County parks. These trees would be identified using the criteria from Van Pelt (2007) or other comparable criteria applicable to Kitsap County. Buffer large trees where they have little competition to minimize impacts from treatments. Enhance large and old trees within dense stands by removing competing trees within a pre-specified distance to increase available resources and resiliency to expected climate change, insects, and diseases.
- Protect sensitive, unique, and/or rare species, which may include species listed as species of concern, threatened, or endangered, and their habitats using species specific management practices to minimize impacts.

Forest and Resource Monitoring and Evaluation

Perform forest and resource monitoring and evaluation during and/or following treatments and actions to ensure objectives and performance standards were met and at regular intervals to ensure that forests and resources are developing toward reference or desired conditions. Monitoring methods and intervals would be resource specific and long enough to detect changes but short enough to inform changes to actions and treatments that may be needed.

Forest and resource monitoring and evaluation will involve data collection and assessments that are like those used in forest and resource assessments. It may include forest inventory; vegetation inventory; road, water crossing and/or drainage structure inventory; and/or aquatic resources inventory. All data will be evaluated relative to treatment and action objectives or reference or desired conditions and measurable performance standards. If results of monitoring, while treatments and actions are occurring, find that treatments and actions, or their implementation, are not meeting objectives the treatments, actions, and/or implementation process may be modified to better meet objectives. If periodic monitoring finds that conditions are not developing toward reference or desired conditions, stewardship and restoration plans may be updated with proposed modifications that move the forests or resources toward reference or desired conditions.

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