Attachment A

Motion 16740

Analysis of Mature Forests in King County, Report 1

September 13, 2024

King County

I. Contents

List of Tables and Figures

II. Executive Summary

This report provides an analysis of the extent and ownership of mature forests in King County. It begins with an evaluation of how mature forests are defined and how changes in forest structure can be used as indicators of stand development.[1] Since mature forests represent a stage in forest stand development, structural characteristics of forests are better indicators than stand age. Mature forest is the stage that precedes old growth, when structural characteristics that are lacking in earlier stages are present and some structural characteristics of old-growth forests are emerging. The classification outlined by Van Pelt (2007) describes two phases, Maturation I and Maturation II, that together represent mature forest in conifer-dominated forests in Western Washington.[2] These stages mark the transition from dense young forests, where low light availability leads to a reduction in understory or midstory vegetation and tree trunks below the canopy that are devoid of foliage. During the mature forest stage, forests develop more open, complex structures and a diverse understory with regeneration of shade-tolerant trees. This classification framework was used in combination with geospatial data related to forest structural characteristics to identify areas of mature forest in King County.

A total of almost 153,000 acres of mature forest were identified in King County. Over half of the mature forests are on federal land, almost 20 percent are on city-owned land (primarily in the City of Seattle's Cedar River Municipal Watershed), 12 percent are privately owned, 11 percent are on land managed by the Washington State Department of Natural Resources (DNR), 3 percent are County-owned, and less than 2 percent are either Tribally owned or owned by a state agency other than DNR. Forests within 50 feet of streams cannot be harvested according to Forest Practices rules, but most other forestland can have some level of harvest activities, so most mature forests in King County are considered legally harvestable.[3] This analysis uses a broad definition of timber harvesting, including final harvests, such as clearcuts and variable retention harvests, as well as intermediate harvests, such as thinning, and should be considered an upper bound on what could be harvested in King County.

Harvestable mature forest includes approximately 4,500 acres managed by the King County Department of Natural Resources and Parks (DNRP) Parks Division (King County Parks) and 11,300 acres managed as trust lands by DNR. Approximately 4,400 acres of harvestable mature forest managed by DNR is on State Forest Trust Lands for which King County is the trust beneficiary.

Reconveyance is a tool in state law that allows for State Forest Trust Lands to be transferred back to counties for park purposes.[4] As such, this tool would be applicable to any of the 4,400 acres of mature forest in that trust category. Mature forest managed by DNR for any other trust is not eligible for reconveyance but could be acquired by King County through one of three other transfer mechanisms: Direct Transfer, Land Exchange, or Trust Land Transfer. Where transfer of lands has been deemed desirable, Trust Land Transfer is recommended as the means of transfer in most cases where it is applicable.

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[1] Forest structure refers to the physical features of a forest stand and their spatial arrangement.
[2] Van Pelt, R. 2007. Identifying Mature and Old Forests in Western Washington. Washington State Department of Natural Resources, Olympia, WA. 104 p.
[3] https://www.dnr.wa.gov/publications/bc_rules_title222wac.pdf
[4] https://app.leg.wa.gov/rcw/default.aspx?cite=79.22.040

The report for K.C.C. Motion 16436 provided a recommendation that 10 parcels be acquired from DNR by King County.[5] These were identified by the DNRP after evaluating the benefits of current management by DNR versus other potential types of management that could be carried out by the County, with a focus on identifying parcels where a conservation or recreation gain could be achieved by transferring ownership. The factors identified as important on this set of parcels include proximity to existing King County Parks, potential for habitat and water quality benefits, habitat connectivity, presence of mature or riparian forest, and potential for revenue generation under current DNR ownership. The analysis for this report highlighted where mature forest was present on those parcels, totaling 44 acres of mature forest across 337 acres recommended for transfer.

While some areas of the County were identified where additional analysis would be valuable, no additional parcels were added to the list of recommendations after mapping mature forests. In these cases, additional information and fieldwork would be required to assess potential gains and determine whether they justify the added cost to King County of managing the land.

This analysis provides a clear view of the distribution and ownership of mature forests in King County. In addition, it provides a map that puts those forests into a broader context by also mapping younger and older-than-mature forests. This type of mapping had not been conducted across the county previously and provides a valuable base of information for future decision-making about management of these forests. In particular, it provides additional information for King County DNRP that can help guide decisions and support collaborative management between King County and DNR.

III. Background

Department Overview

The Department of Natural Resources and Parks (DNRP) supports sustainable and livable communities and a clean and healthy natural environment. Its mission is also to foster environmental stewardship and strengthen communities by providing regional parks, protecting the region's water, air, working lands, and natural habitats, and reducing, safely disposing of, and creating resources from wastewater and solid waste.

The Water and Land Resources Division (WLRD) has a biennial budget of approximately $485 million. WLRD provides stormwater management services for unincorporated areas, supports three watershed-based salmon recovery forums, acquires and manages open space, restores habitat-forming processes on streams and major river systems, monitors water quality, controls noxious weeds, and provides economic and technical support for forestry and agriculture. As the primary service provider to the King County Flood Control District, WLRD reduces flood hazards to people, property, and infrastructure; inspects and maintains more than 500 river facilities; and partners in floodplain restoration. Additionally, WLRD operates the County's Environmental Lab and Science sections, which provide environmental monitoring, data analysis, and management and modeling services to partners, jurisdictions, and residents throughout the region. The King County Hazardous Waste Management Program — a collaborative effort with King County and its municipalities — is also part of WLRD.

[5] https://aqua.kingcounty.gov/council/clerk/OldOrdsMotions/Motion%2016437.pdf

Historical Context

The expansive forests in Western Washington are known for their high productivity, which results from the mild, wet climate.[6] Before the arrival of Europeans, "vast areas…were covered with old-growth conifer forests, primarily dominated by long-lived Douglas-fir and western hemlock, capable of attaining massive sizes."[7] One of the salient features of forests in the region is that productivity remains high, even in mature forests. As noted by Franklin et al. (2017), "…at 100 years Douglas-fir trees have achieved only about two-thirds of their eventual height."[8]

By the mid-1850s, extensive forest clearing for cities and agriculture had begun and harvest for wood products became widespread by the late 1800s.[9] Harvest levels accelerated across forest ownerships after World War II, as the growing housing market created greater demand for lumber.[10] Initially, the return of forest cover on harvested sites depended on natural regeneration, primarily of Douglas-fir and western hemlock. By the 1930s, replanting after harvest became common practice, eventually leading to widespread cover of Douglas-fir plantations.[11]

Currently, mature and old-growth forests make up just over 30 percent of the forested landscape west of the Cascades in Washington. The majority of mature and old-growth forests across the region are on public lands, with those under federal ownership having the highest proportion of forest cover in the older forest stages. This low coverage of older forests and the predominance of young to middle-age forests and plantations across the region has led to increased interest in conservation of existing older forests and forest management practices that accelerate restoration of older forest conditions.[12]

Current Context

Old-growth forests have been a focus of scientific and management attention since the 1970s and 1980s, and definitions and characteristics have continued to be refined over subsequent decades. Attention to mature forests, which are generally older stands that have not yet attained old-growth conditions, has been much more recent, and the term is still in the process of being defined and operationalized for application to different regions. For Western Washington, DNR produced an inventory of old-growth forests on DNR-managed state lands in 2005 (Franklin et al. 2005; Riepe et al. 2005).[13] This was followed by a guide for identifying older forests, which included both mature and old-

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[6] Franklin, JF and DC Donato. 2020. Variable retention harvesting in the Douglas-fir region. *Ecological Processes* 9(8): 1-10.

[7] Puettmann, KJ, A Ares, JI Burton, EK Dodson. 2016. Forest restoration using variable density thinning: Lessons from Douglas-Fir stands in western Oregon. *Forests* 7(310): 1-14.

[8] Franklin, JF, TA Spies, FJ Swanson. 2017. Setting the stage: Vegetation ecology and dynamics. In: People, Forests, and Change: Lessons from the Pacific Northwest. DH Olson and B Van Horne (Eds). Washington DC: Island Press, p.25.

[9] Franklin et al., 2017.

[10] Franklin and Donato, 2020.

[11] Puettmann et al., 2016.

[12] Donato, DC, JS Halofsky, MJ Reilly. 2020. Corralling a black swan: natural range of variation in a forest landscape driven by rare, extreme events. *Ecological Applications* 30(1): 1-15.

[13] Franklin, J.F., Spies, T., and Van Pelt, R. 2005. Definition and Inventory of Old Growth Forests on DNR-Managed State Lands, Section 1. Washington State Department of Natural Resources, Olympia, WA. 44 p.; Riepe, T., Hull, S., and Obermeyer, W. 2005. Definition and Inventory of Old Growth Forests on DNR-Managed State Lands, Section 2. Washington State Department of Natural Resources, Olympia, WA. 15 p.

growth forests and remains the authoritative guide for field identification of these forests in Western Washington (Van Pelt 2007).[14]

A nationwide effort to better define and identify mature forests began in response to Executive Order 14072 (Section 2b) in 2022.[15] This resulted in a U.S. Forest Service (USFS) publication on the definition, identification, and inventory of mature and old-growth forests across the country.[16] The authors noted that, although the USFS adopted a broad definition of old-growth forests in the late 1980s and, more recently, the discussion of older forests includes mature forest as the stage before old growth, the terms have not been consistently defined.

Providing a clear and consistent definition for mature forests is complicated by the fact that forests exist within a continuum of successional development rather than in discrete classes. The process of forest succession begins following large disturbance events, such as high-severity fire, large windstorms, or timber harvest, when a new stand of trees begins development among the legacy trees that remain following the disturbance.[17] In the absence of other large disturbances, these forests develop from young to mature to old growth over hundreds of years, with mature forests representing a transition between young and old forests.[18]

Changes in forest structure are important indicators of stand development. USFS describes mature forest as the stage of forest development immediately before old growth, when the forest moves beyond self-thinning and the understory starts to reinitiate.[19] In this stage, structural characteristics that are lacking in earlier stages are present, while other structural characteristics of old-growth forests are emerging. Some of these structural characteristics include:

- Abundance of large trees
- Diversity of tree sizes
- Above-ground biomass accumulation
- Horizontal canopy openings or patchiness
- Vertical canopy layers
- Presence of standing or downed dead trees[20]

Because mature forests represent a stage along a continuum of forest stand development, these structural characteristics are better indicators than stand age. The wide variety of climate, elevation, soils, and other environmental conditions influence the time it takes to reach the mature forest stage, which can vary widely among forest stands. Even on sites that share similar soils and other environmental conditions, these characteristics can develop at different rates.[21] Nonetheless, in this

[14] Van Pelt, 2007.
[15] https://www.federalregister.gov/documents/2022/04/27/2022-09138/strengthening-the-nations-forests-communities-and-local-economies
[16] U.S. Forest Service (USFS). 2023. Mature and Old-Growth Forests: Definition, Identification, and Initial Inventory on Lands Managed by the Forest Service and Bureau of Land Management. U.S. Department of Agriculture, Washington, DC. 63 p.
[17] Van Pelt, 2007.
[18] Franklin et al., 2005.
[19] Self-thinning refers to tree mortality that occurs as competition for light and other resources thins out the shorter, less vigorous trees.
[20] USFS, 2023.
[21] Franklin et al., 2005.

region, the mature forest stage commonly begins around 80 to 120 years, and it can take an additional 100 years before old-growth characteristics become dominant.[22]

Report Methodology

DNRP contracted with Resilient Forestry (RF) to define and map mature forests across the county. RF created a working definition of mature forest that was largely based on Van Pelt (2007) for conifer-dominated forests in King County. DNRP reviewed and suggested modifications to the draft definition. Since mature forests represent a stage in forest stand development, structural characteristics of forests are better indicators than stand age. RF collected data sources for the mapping and created a classification model to identify the presence of mature forest blocks based on geospatial data related to the structural characteristics of mature forests, such as tree height, canopy layers, and the spatial arrangement of trees. Through this process, RF identified distinctive groups of forest structural patterns and categorized forests into three groups: younger-than-mature; mature; and older-than-mature. The older-than-mature category should not be understood as equivalent to old growth, since mapping old growth was not the focus of this study, and that category likely includes acreage that does not meet the definition of old growth. Quality control of this classification was done using plot data from the Remote Sensing Forest Resource Inventory System (RS-FRIS) dataset from DNR.

Analysis of the extent of mature forests included forested regions greater than five continuous acres that were outside King County Urban Growth Area boundaries, since areas under five acres and urban areas are unlikely to have ecologically functional mature forests. It also excluded high-elevation forests that do not follow the typical forest development pathway and are unlikely to follow the Van Pelt sequence. The elevation cutoff was set at 1,250 meters (4,101 feet), the elevation between the lower end of the mountain-hemlock-dominated forest type and the higher end of the silver fir/western hemlock/Douglas-fir forest type, which does follow the Van Pelt stages. Forests with greater than 50 percent deciduous cover were also excluded since they often follow complex development pathways that differ from Van Pelt and would require a separate model. RF used a property ownership geographic information systems (GIS) layer to identify the extent of mature forests under federal, state (separated into DNR and other departments), county, city, Tribal, and private ownership.

RF also analyzed which mature forests are legally available for timber harvest. The group defined "timber harvesting" as the cutting, removal, and sale of timber in a way that would require a Forest Practices Application under RCW 76.090.050.[23] By this definition, timber harvesting includes final harvests, such as clearcuts and variable retention harvests, as well as intermediate harvests, such as thinning. Thinning is considered a timber harvest under this definition, whether it is intended to promote growth of residual standing trees or to achieve ecological outcomes (in which case the sale of logs is often a secondary objective to forest management goals). As such, forest stand treatments practiced by forestland owners managing for ecological values and ecosystem services, such as the City of Seattle within the Cedar River Municipal Watershed, are classified as timber harvesting under this definition.

RF defined "subject to timber harvesting" as lands where no state or county law or regulation prohibits timber harvesting, as defined above. While there are state and county rules related to timber harvest intensity, methods, and procedures, there is not a prohibition against timber harvest in most cases. The

[22] Franklin et al., 2017.

[23] https://app.leg.wa.gov/RCW/default.aspx?cite=76.09.050

exception is the prohibition on timber harvest within the bankfull width of fish-bearing streams (Type S or F) or in the core riparian zone around the stream banks, which constitutes a 50-foot buffer in Western Washington.[24] Logistical challenges, operational feasibility, and other economic factors may be barriers to harvesting in some places, but because it is not prohibited by code or statute they are included in the analysis. This is a broad definition, which should be considered an upper bound on what could be harvested in King County, and the maps should not be interpreted as indicative of any plans to harvest timber since individual landowners work with site-specific management plans to achieve multiple objectives based on feasibility at those sites.

National Forests were not included in the analysis of mature forests subject to timber harvesting because they are managed under a complex set of federal laws, regulations, policies, and practices that made it difficult to map availability of these lands for timber harvest using a standard that would parallel other ownerships. However, the 1994 Northwest Forest Plan has limited the harvest of mature forest on Mount Baker-Snoqualmie National Forest and remaining timber harvests are conducted to enhance and restore forest and ecosystem health.[25] The analysis also did not include analysis of federal regulations, such as Habitat Conservation Plans, for industrial timber or other forest landowners.

DNRP identified parcels for potential acquisition by King County as part of a previous report for K.C.C. Motion 16436 by consulting with King County Parks Open Space staff and WLRD Basin Stewards, both of whom have expertise in specific geographies within the county. DNRP reassessed these recommendations with the addition of the mature forest data layer.

IV. Report Requirements

A. Definition of Mature Forests (A.1)

Mature forest is the stage that precedes old growth, when structural characteristics that are lacking in earlier stages are present and some structural characteristics of old-growth forests are emerging. The mature forest stage generally begins when a forest stand moves beyond self-thinning, starts to diversify in height and structure, and/or the understory begins to reinitiate.[26] However, any definition of mature forest needs to be tailored to specific forest types and conditions, in order to identify it on the landscape.

For Western Washington, Van Pelt includes two stages of forest development that can be grouped together to encompass the mature forest stage.[27] The first is Maturation I, which includes forests that originated after large disturbance events following European settlement and is characterized by trees at 60 to 70 percent of their ultimate height. At this stage, growth slows and the upper canopy layer becomes less dense than in the previous stand development stage due to mortality and breakage of some trees. This allows more light to reach the forest floor, which supports the growth of shade-tolerant plants and trees, such as western hemlock, and allows for some recovery of the understory. The second stage is Maturation II, which includes forests that originated following large disturbance events prior to European settlement and is characterized by trees that have reached 80 to 90 percent of their ultimate

[24] https://www.dnr.wa.gov/publications/bc_rules_title222wac.pdf
[25] https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprd3843201.pdf
[26] USFS, 2023.
[27] Van Pelt, 2007.

height. The understory fully returns with abundant regeneration of shade-tolerant trees. Low levels of woody debris are present, since wood from prior disturbances has decayed and new large debris has not formed yet. In response to increased light, trees begin to grow lower branches and foliage on the previously bare trunks. These two stages mark the transition from dense young forests — where low light availability leads to a reduction in understory or midstory vegetation and tree trunks below the canopy are devoid of foliage — to old growth.[28]

For this analysis, mature forest includes forests exhibiting conditions described in Van Pelt's Maturation I and II phases and those that were mapped together as a single development stage. This classification framework was used in combination with geospatial data related to forest structural characteristics to identify areas of mature forest in the county.

B. Extent and Ownership of Mature Forests Subject to Timber Harvest (A.2, A.3, A.4)

A total of 152,870 acres of mature forest was identified in King County (Table 1; Appendix B, Map 1). Over half (51 percent) of the mature forests are on federal land; almost 20 percent are on city-owned land, primarily within the City of Seattle's Cedar River Municipal Watershed; 12 percent are privately owned; 11 percent are on DNR-managed land; 3 percent are County-owned; and less than 2 percent are either Tribally owned or owned by a state agency other than DNR (Table 1; Appendix B, Map 2).

Most mature forest in King County is considered harvestable based on the broad definitions provided above which includes final harvests, such as clearcuts and variable retention harvests, as well as intermediate harvests such as thinning. As noted above, National Forests were not included in the analysis of mature forests subject to timber harvest due to the complexity of rules and regulations that make them difficult to assess by the same standard as other ownerships. Across all other ownerships, the analysis indicated that 72,311 acres of mature forest in King County could be legally harvested (Table 1; Appendix B, Map 3). This should be considered an upper bound on what could be harvested in King County, with many individual management plans and guidelines directing how different owners manage these forests in practice.

Table 1. Extent and ownership of mature forest in King County. Extent of legally harvestable mature forest excluded federal lands and classified all mature forests as harvestable except those within 50-foot buffer areas of streams.

Ownership	Acres of Mature Forest	Percent of Total Mature Forest	Acres of Legally Harvestable Mature Forest
Federal	78,521	51.4%	Not Evaluated
State-DNR	17,034	11.1%	16,534
State-Other	1,991	1.3%	1,970
County	4,627	3.0%	4,546
City	30,230	19.8%	29,588
Tribal	1,915	1.3%	1,824
Private	18,552	12.1%	17,849
Total	**152,870**	**100%**	**72,311**

[28] Van Pelt, 2007.

Harvestable mature forest includes 4,546 acres (or 15 percent) of the forestland managed by DNRP's Parks and Recreation Division (Parks), since less than 100 acres of mature forest managed by Parks is within the 50-foot stream buffer. Harvesting is permitted across this ownership, so it was included in the legally harvestable total. However, harvests are primarily focused on enhancing ecological conditions of the forests, including managing towards forests with greater structural and species diversity that are more resilient to climate change. Recent and potential Parks harvests are guided by a 2020 assessment of high-priority forested areas in need of active management to improve forest health and climate resilience.[29] While many of these harvests take place in younger-than-mature forests, there also can be ecologically motivated reasons to cut mature trees. These include reducing tree stress and mortality in dense conditions, preemptive thinning to prepare a forest for hotter and drier summers under climate change, mitigating disease such as root rot, and creating openings to allow planting diverse species in otherwise homogenous stands.

DNR manages 16,534 acres that were classified as legally harvestable. However, this includes 5,245 acres in Natural Area Preserves (NAP) and Natural Resources Conservation Areas (NRCA), which are managed for protection of native ecosystems, and allowable timber harvest is limited to activities such as ecological thinning that enhance species or structural diversity.[30] The remaining 11,289 acres represent harvestable mature forest managed by DNR as trust lands in King County. These lands are managed for a variety of different trusts, including 4,373 acres of State Forest Trust Lands for which King County is the trust beneficiary (Appendix B, Map 4).

C. Identification of Tribal Governments to be Consulted (A.5)

Because indigenous Tribes have a vested interest in how county forests are managed, King County seeks to consult with Tribes about timber harvests and significant changes in forest management on county land. The analysis for this report indicates that King County manages approximately 4,500 acres of mature forest that could be harvested. Currently, King County consults with Tribes before timber harvests on all types of forests, regardless of the stage of forest development. A State Environmental Policy Act (SEPA) environmental review is done as part of the Forest Practices Application (FPA) to apply for a harvest permit from DNR. During the SEPA process, King County notifies tribes with interests in the harvest area. In addition, cultural resources review is conducted by the King County Historic Preservation Program (HPP) prior to permitting, through which known cultural resources within or adjacent to a project area are identified and steps are outlined to reduce risk of damage to cultural resources. HPP identifies potentially affected Tribes, and they are consulted to identify possible concerns they may have about cultural resources in the project area. These two types of Tribal notification should be continued for all harvests, including any harvests that include areas of mature forest.

A transfer of land from DNR to King County could lead to a change in forest management once the land is under King County ownership. In these cases, King County should consult with Tribes in areas where they have cultural heritage, family legacy, Treaty rights, or the presence of or proximity to reservation land or other Tribally owned land. When evaluating potential land transfers, King County should consider all of these factors, as well as the transfer method being considered, in planning consultation.

[29] King County, 2020, https://kingcounty.gov/legacy/services/environment/climate/actions-strategies/strategic-climate-action-plan.aspx.

[30] DNR, 1992. Natural Resources Conservation Areas Statewide Management Plan. DNR Division of Land Conservation. Olympia, WA, 33 pp.

With some transfer methods, such as Trust Land Transfer, Tribal consultation is led by DNR as part of the existing process. With other transfer methods, consultation should be led by the County.

D. Eligibility of Mature Forest for Reconveyance or Other Transfer (A.10)

The report for K.C.C. Motion 16436 outlined in detail the process for reconveyance and other mechanisms to transfer land from DNR to King County. As noted in that report, since 1969, state law has allowed for State Forest Trust Lands to be reconveyed by counties for park purposes. Reconveyance begins with a county determining that State Forest Trust Lands acquired by the state from that county under RCW 79.22.040 are needed by the county for public park use.[31] An application must be submitted by the county in the form of a resolution or order from a county legislative body that includes an outline of public recreation needs that is consistent with State Outdoor Recreation Plans. It also requires documentation of compliance with the SEPA.[32] DNR evaluates the proposal and presents it to the Board of Natural Resources. If the application is approved, the land is deeded to the county.[33] After reconveyance, the timber resources continue to be managed by DNR "to the extent that this is consistent with park purposes" and is approved by the county.[34]

Reconveyance applies only to State Forest Trust Lands, so it would be applicable to any of the 4,373 acres of mature forest in that trust category. Mature forest managed by DNR for any other trust is not eligible for reconveyance but could be acquired by King County through one of the other three transfer mechanisms: Direct Transfer, Land Exchange, or Trust Land Transfer. In the report for K.C.C. Motion 16436, Trust Land Transfer was recommended in most cases where it is applicable.

E. Candidates for Trust Land Transfer or Natural Climate Solutions Program (A.11)

The report for K.C.C. Motion 16436 provided a recommendation that 10 parcels be acquired by King County from DNR. These were identified by DNRP after evaluating the benefits of current management by DNR versus other potential types of management that could be carried out by the County, with a focus on identifying parcels with which a conservation or recreation gain could be achieved by transferring ownership. Trust Land Transfer, which is the recommended method of transfer for the priority parcels identified, is applicable to all DNR trust land categories.

This analysis indicated that those 10 parcels include 44.2 acres of mature forest across a total of 337 acres. The factors identified as important for these parcels include proximity to existing King County Parks, potential for habitat and water quality benefits, habitat connectivity, presence of mature or riparian forest, and potential for revenue generation under current DNR ownership. This analysis provided additional insight about where mature forest was present on those parcels.

While some areas of the county were identified where additional analysis would be valuable, no additional parcels were added to the list of recommendations after mapping mature forest. In these

[31] https://app.leg.wa.gov/rcw/default.aspx?cite=79.22.040
[32] DNR. 2012. Reconveyance of Forest Land to a County for Public Park Purposes. DNR Procedure PR15-007-011, 5 July 2012; https://app.leg.wa.gov/rcw/default.aspx?cite=79.22.040
[33] DNR (Washington State Department of Natural Resources). 2017. Reconveyance of State Forest Transfer Lands. Presentation to the Board of Natural Resources, 4 April 2017.
[34] RCW 79.22.310: Timber resource management. (wa.gov)

cases, additional information and fieldwork would be required to assess potential gains and determine whether they justify the added cost to King County of managing the land. Furthermore, the report for K.C.C. Motion 16436 recommended strategies to increase collaborative management between DNR and King County. These approaches should be implemented and evaluated, in order to understand whether they can provide the desired conservation gains before additional land transfers are considered. One of those strategies is for King County DNRP and state DNR to explore the potential for a joint forest carbon project. For example, during DNRP's review, some of the State Forest Transfer Land parcels near Preston were identified as ones that could be evaluated for their potential to be managed for both carbon storage and timber production, along with added recreational benefits. Since King County is the beneficiary on those parcels, the area may be well-suited for piloting management changes that prioritize both carbon and timber. A better understanding of whether and how King County and DNR could collaborate to generate carbon revenue from deferred harvest of parcels and timber revenue from thinning in this area would require additional analysis over the coming year.

Another existing avenue for protection of mature forest is the State's Natural Climate Solutions (NCS) program. The State Legislature provided funds to transfer up to 2,000 acres of structurally complex, carbon-dense forests out of trust status, where they would potentially be harvested to generate revenue for trust beneficiaries and place them into conservation status. These forests would continue to be managed by DNR but would no longer be harvested. The state funding will be used for replacement lands and cannot be used to replace timber revenue from any harvest that would have occurred on the parcels. Candidates for the NCS program must be proposed by DNR, followed by concurrence from the county in which the parcels are located. DNR made a first set of recommendations based on available funding in December 2023, including 292 acres in King County, and received concurrence from the King County Council in February 2024.

Any future round of NCS funding would require that a similar budget proviso be passed allocating funds from the Natural Climate Solutions Account. King County could suggest parcels to DNR for inclusion, using the analysis in this report as a guide. However, DNR already focuses on identifying mature forests based on Van Pelt's Maturation I and II stages, along with other criteria, such as proximity to existing habitat and DNR Natural Areas and potential to improve connectivity.

V. Conclusion

In King County, there are more than 150,000 acres of mature forests, which represent the transition from dense, young forests to forests with more open, complex structures and diverse understories. Approximately 70 percent of those forests are federally owned or owned by the City of Seattle as part of the Cedar River Municipal Watershed. DNR and King County manage 11 percent and 3 percent of the mature forest in the county, respectively, including just over 15,000 acres of County land and DNR trust lands that are legally harvestable.

This analysis provides a clear view of the distribution and ownership of mature forests in King County. In addition, it provides a map that puts those forests in their broader context by also mapping younger and older-than-mature forests. This type of mapping had not been conducted across the county previously and provides a valuable base of information for future decision-making about forest management. It provides additional information to King County Parks that can help guide decisions and a supplementary source of information to support collaborative management between King County and DNR.

This work relates to the True North value: "We are responsible stewards." This value asks DNRP to "protect and contribute to the things that make this region special." The forests in the county are undeniably one of the features that makes this region special, and DNRP has a responsibility to steward them in ways that support ecological and cultural values. Specifically, the Clean Water Healthy Habitat initiative includes a goal of no net loss of forest cover in any King County watershed, while the Strategic Climate Action Plan notes that an overarching management objective on County-owned forestlands is "to retain or restore a trajectory towards a late seral, mature forested condition."[35] The information compiled for this report will support science-based decision-making and stewardship, with potential to help advance these goals.

[35] King County, 2020, p.166.

VI. Appendices

1200 King County Courthouse
516 Third Avenue
Seattle, WA 98104

KING COUNTY

Signature Report

Motion 16437

Proposed No. 2023-0316.2 **Sponsors** Upthegrove

A MOTION requesting the executive to identify and analyze mature forests in King County, and to transmit two reports.

WHEREAS, forests provide multiple benefits on both the local and global scale, and

WHEREAS, the Intergovernmental Panel on Climate Change has stated that forest management activities play a key role in the mitigation of climate change, and the Washington state Legislature has found that forests are one of the most effective resources that can absorb carbon dioxide from the atmosphere, and

WHEREAS, King County's 2020 Strategic Climate Action Plan states that there are substantial carbon and climate benefits to maintaining, protecting, restoring, and expanding the more than 811,000 acres of forest land in King County, and that recent studies combining carbon sequestration potential and risk of loss due to wildfire, insects, and disease rank the coastal and Cascade forests of Oregon and Washington among the highest priority for protection, and

WHEREAS, in 2021, the executive developed a 30-Year Forest Plan, which lays out priorities and goals associated with King County's forests, as well as strategies for achieving those over the next thirty years, and

WHEREAS, in addition to greenhouse gas mitigation benefits, the 30-Year Forest Plan states that King County's forests provide benefits to human health, salmon habitat, and water quality and quantity, in addition to the economic benefits of timber, and

WHEREAS, "mature forests" are forests that were logged in the first half of the twentieth century or earlier, that naturally regenerated rather than being replanted, and that retain biological, structural, functional, or genetic legacies of natural and old-growth forests, and

WHEREAS, mature forests, on their way to becoming old-growth habitats, embody the species diversity, genetic richness, and intricate structural complexity of their natural predecessors, and

WHEREAS, these older forests store more carbon in standing wood, downed woody debris and in the soil compared to younger ecosystems, and the conversion to younger plantation forests results in an immediate release of carbon when logged, as well as a reduction in the overall carbon store because of the current shorter harvest rotation age, and

WHEREAS, the significant historical logging impact on Western Washington's old-growth forests necessitates the preservation of the remaining, unprotected mature forests for safeguarding the essential biological, genetic, and ecological heritage that once characterized the Pacific Northwest's forests, as well as retaining all the benefits mature forests provide, and

WHEREAS, twenty-one counties, including King County, deeded roughly 546,000 acres of forest lands to the state during the 1920s and 1930s and, in exchange, the state committed to managing the properties as trust lands and giving most of the

revenue from timber sales and other revenue-producing activities back to the county and junior taxing districts, and

WHEREAS, the state has managed the state forest trust lands within King County to balance economic, environmental, and recreational interests for nearly one hundred years, and

WHEREAS, The Washington Supreme Court affirmed in *Conservation Northwest, et al. v. Commissioner of Public Lands, et al.* that… there are "myriad ways DNR could choose to generate revenue from the state and forest board lands or otherwise put them to use for the benefit of the enumerated beneficiaries," and

WHEREAS, King County has benefited from the state's responsible stewardship of state forest trust lands, which have provided a valuable source of revenue and economic support for the county and its people but, in light of the climate emergency and other benefits that forests provide, some of the state forest trust lands in King County may better serve the community if owned and managed by the county and protected from future timber harvesting;

NOW, THEREFORE, BE IT MOVED by the Council of King County:

A. The council requests that the department of natural resources and parks undertake a study on mature forests in King County. The study should include, but not be limited to, the following:

1. A definition of mature forests using the Washington state Department of Natural Resources definition of Maturation I classification in Guide to Identifying Mature & Old-Growth Forests, Van Pelt 2007, or in any updated definition based on best available forest ecology science;

2. An analysis of the total acreage and ownership of mature forests that are subject to timber harvesting;

3. A map showing the location of mature forests that are subject to timber harvesting;

4. An analysis of which mature forests are both subject to timber harvesting and either:

a. owned by King County; or

b. managed by the state as any type of state forest trust lands;

5. Identification of tribal governments that, as comanagers of the mature forests, shall be consulted when considering county applications for the Trust Land Transfer program and the Natural Climate Solutions program or when considering reconveyance of state forest trust lands or substantial changes in management plans for county-owned forest lands;

6. An analysis of the revenue impacts to the trust beneficiaries, including King County, if timber harvesting were to be discontinued on the lands identified in section A.4. of this motion. The analysis should take into account opportunities to generate revenue from sale of carbon credits and through selective harvesting for forest health;

7. An analysis of the greenhouse gas impacts if timber harvesting were to be discontinued on the lands identified in section A.4. of this motion. For parcels where site-specific information is available, the analysis should make use of that information in analyzing greenhouse gas impacts. Where no such information exists, the department should estimate based on the best available information;

8. Based on the greenhouse gas impacts identified in through the analysis in section A.7. of this motion, a calculation, using the United States Environmental Protection Agency methodology for calculating the social cost of carbon, of the socialized financial costs if timber harvesting were to be discontinued on the lands identified in section A.4. of this motion;

9. An analysis of how preservation of the forests identified in section A.4. of this motion would contribute to achievement of the greenhouse gas reduction targets identified in the county's Strategic Climate Action Plan;

10. For any mature forests that are managed by the state as state forest trust lands, an analysis of whether those lands are eligible for reconveyance or another type of transfer to county ownership; and

11. Identification of parcels that would be strong candidates for state funding through the Trust Land Transfer program or the Natural Climate Solutions program to mitigate fiscal impacts of preserving the parcels.

B. The executive should electronically file two reports. The first report should contain the information in section A.1. through 5. of this motion and section A.10. and 11. of this motion, and the second report should contain the information in section A.6. through 9. of this motion. The executive should electronically file the first report and a proposed motion acknowledging receipt of the report no later than June 30, 2024, with the clerk of the council, who shall retain an electronic copy and provide an electronic copy to all councilmembers, the council chief of staff, and the lead staff for transportation, economy and environment committee or its successor. The executive should electronically file the second report and a proposed motion acknowledging receipt

of the report no later than September 30, 2024, with the clerk of the council, who shall retain an electronic copy and provide an electronic copy to all councilmembers, the council chief of staff, and the lead staff for transportation, economy and environment committee or its successor.

Motion 16437 was introduced on 9/12/2023 and passed by the Metropolitan King County Council on 10/3/2023, by the following vote:

Yes: 9 - Balducci, Dembowski, Dunn, Kohl-Welles, Perry, McDermott, Upthegrove, von Reichbauer and Zahilay

KING COUNTY COUNCIL
KING COUNTY, WASHINGTON

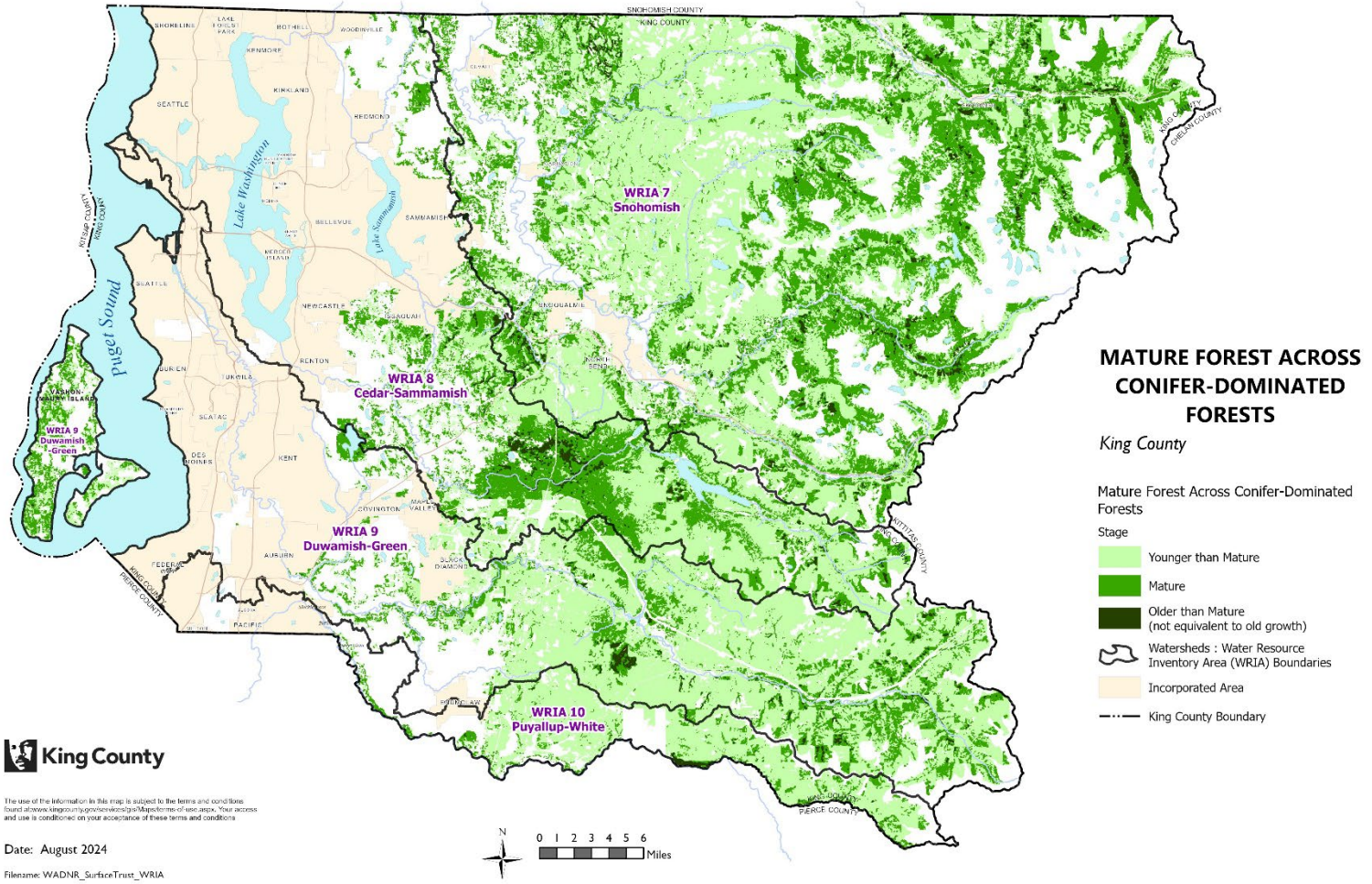
DocuSigned by:
E76CE01F07B14EF...
Dave Upthegrove, Chair

ATTEST:

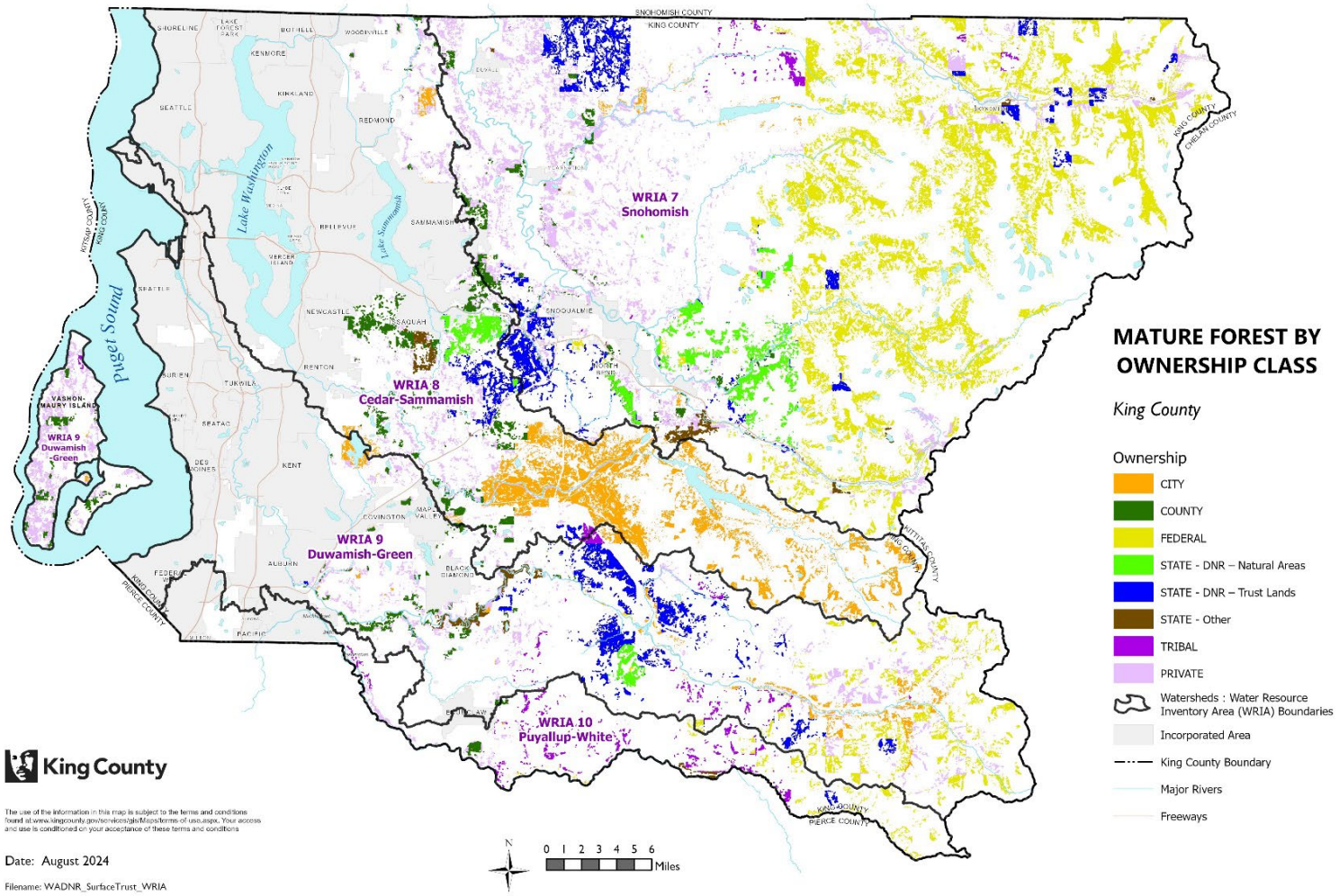
DocuSigned by:
8DE1BB375AD3422...
Melani Hay, Clerk of the Council

Attachments: None

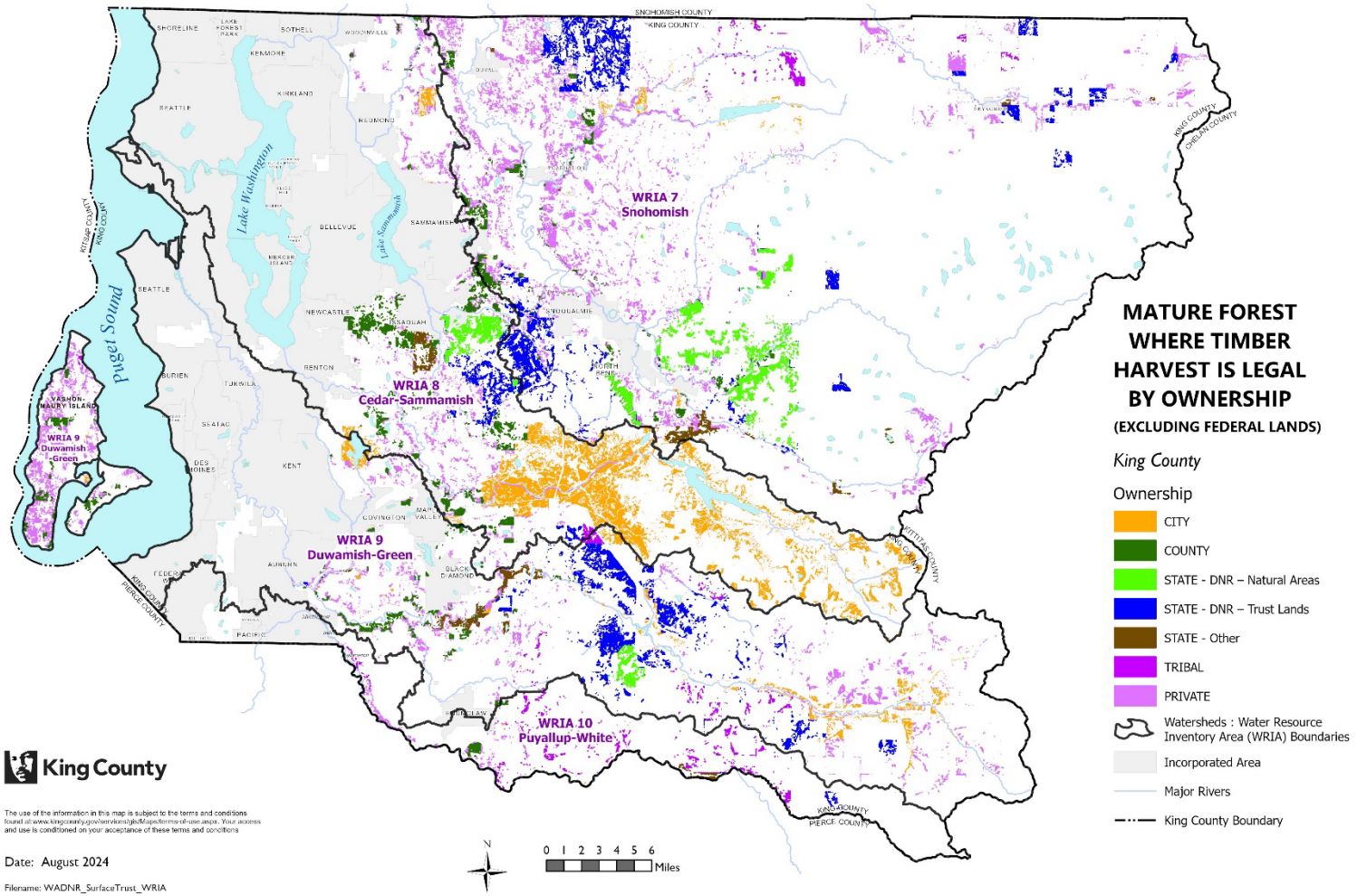
Map 1. Distribution of mature forests across King County. Younger than Mature and Older than Mature categories are provided for context, but the Older than Mature category should not be understood as equivalent to old growth, since mapping old growth was not the focus of this study and it likely includes acreage that does not meet the definition of old growth.



Map 2. Distribution of mature forest by ownership across King County.



Map 3. Distribution of mature forests that are subject to timber harvest, excluding federal lands. Timber harvesting is understood as the cutting, removal, and sale of timber in a way that would require a Forest Practices Application, including final harvests, such as clearcuts and variable retention harvests, as well as intermediate harvests, such as thinning. “Subject to timber harvesting” includes lands where no state or county law or regulation prohibits timber harvesting.



Map 4. Map of mature forests on King County Parks and DNR Forest Trust Lands where timber harvest is legal.