Carbon and Forest Management Work Group

Questions and Comments From the January 10, 2024 Meeting

Land Classification and Carbon

Question: What percentage of DNR's ownership is currently in each of the land classifications (GEM, Upland, Riparian and Deferred from Harvest)?

> **Answer:** Statewide, DNR manages approximately 2.2 million acres of forested state trust lands. DNR has three major land classes: upland (approximately 31 percent of land base), riparian (approximately 24 percent of land base) and general ecological management (GEM) (approximately 45 percent of land base).
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> Roughly 24 percent of the land in all three of these categories combined is deferred from harvest on a short- or long-term basis. However, deferrals only tell part of the story. Within the riparian and upland land classifications, thinning and stand replacement harvests is highly restricted in areas that are not deferred from harvest. These areas are managed under DNR's *State Trust Lands Habitat Conservation Plan* (HCP). Per the HCP conservation strategies that apply to these areas, DNR must meet and maintain specific ecological objectives, such as riparian function and habitat for threatened species, in these areas.
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> DNR can only perform the full range of harvest activities in GEM areas, which comprise only 45 percent of the land base.
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> These percentages represent a current snapshot of state trust lands. Acres in different land classifications can change over time. For example, DNR has an active land transaction program that can buy, sell, exchange, or transfer land to meet a range of management objectives. DNR also may adopt a new policy or strategy that affects whether certain types of wildlife habitat are deferred from harvest or classified as uplands. Some deferrals may change over time as well, as explained later in this document. Any of these changes will affect the balance of lands within these four land classifications.

Question: What are growth rates, carbon sequestration rates, carbon stocks, and carbon flux in each of the land use classifications?

Answer: DNR does not have data that is readily available to answer this question. The carbon contractor may be able to answer some of this question, but this level of detail is likely beyond the scope of this project.

Deferrals

Question: How long are forests deferred?

Answer: Most deferrals are long-term, meaning DNR will not harvest them under current policies and laws. Examples include gene pool reserves; marbled murrelet occupied sites and inner buffers; steep and/or unstable areas; special habitat features such as caves, cliffs, and balds; and many others.

A few areas are deferred on a temporary basis. For example, a site currently being used for ecological research may become available for harvest once the research has been concluded. Also, some wildlife habitat may be deferred temporarily pending a specific management decision.

Improved Seed

Question: Does DNR seed orchard develop improved seed, if so, what generation of improvement?

Answer: DNR does produce improved seed, and DNR's orchard is second-generation. Below is some background to provide more information for those who are less familiar with seed orchards.

What is improved seed?

DNR primarily obtains seed in two ways. One is by collecting cones in the woods, while the other is by growing the cones in seed orchards, which are blocks of trees planted specifically for seed production. Seed orchards are typically composed of trees that have performed well in field testing across a wide range of environments. Seeds from these orchards are considered "improved" because the seeds from these trees should perform better, on average, than seed collected from untested trees in the woods.

What does second-generation mean?

Orchards that are created either by grafting copies of trees from the woods, or grown using seed collected from those same trees, are typically referred to as first-generation orchards. Once those first-generation orchards begin flowering, it is common to make crosses among those trees to create a new group of seedlings for testing. Once that testing is complete, the best among that group are grafted into new orchards, which are typically

referred to as second-generation orchards. In practice, most organizations have orchards of multiple generations and testing status, depending upon species and geographic area, so there is not usually a single answer to the question about generation. DNR's program includes orchards of both generations, as well as orchards composed of untested trees, and orchards with a mix of generations.

Thinning and Silvicultural Treatments

Question: What percent of DNR lands are pre-commercially thinned?

Answer: Pre-commercial thinning is a silvicultural decision made by foresters based on stand conditions. In fiscal years 2014 through 2023, DNR completed roughly 200,000 acres of pre-commercial thinning, which is about 14 percent of the harvestable land base (eastern and western Washington combined).

Question: What percent of DNR lands are commercially thinned?

Answer: In fiscal years 2014 through 2023, DNR completed approximately 47,000 acres of commercial thinnings and an additional 12,000 acres of uneven-aged management.[1] Combined, these acres comprise about 4 percent of the harvestable land base (eastern and western Washington combined).

Question: Is DNR silvicultural funding sufficient for DNR to realize potential or maintaining forest health, fire resiliency, increasing growth/sequestration, etc.?

Answer: After a stand-replacement harvest, DNR quickly reforests the harvested area with well-adapted seedlings. As the forest grows, DNR makes strategic investments to ensure the seedlings develop into a stand of large, healthy, and resilient trees.

DNR managed lands in eastern and western Washington have different funding models, each of which impacts DNR's capacity to conduct silvicultural treatments.

- **Eastern Washington**: DNR's major funding source for silviculture in eastern Washington is the Forest Health Revolving Account (FHRA). With FHRA, DNR can re-invest revenue from timber sales into forest management activities that benefit the trusts.[2] DNR combines FRHA with funding from other sources (such as grants or legislative appropriations) to conduct essentially all the silviculture work that is needed to effectively manage forests for various objectives.
- **Western Washington**: In western Washington, the primary funding source for silviculture is DNR's standard management accounts. These accounts are funded with approximately 28 to 31 percent of the revenue from each timber sale, depending on the

[1] Uneven aged management is the harvest of selected trees or group of trees.
[2] If the fund balance exceeds $20 million, any funding in excess of $20 million must be distributed to the trusts.

type of state trust land being harvested. About 25 percent of the funds in these accounts is used for silviculture, such as reforestation and young stand management. This funding level is carried forward from one year to the next despite changes in the timber market. As recently as the 2019-21 biennium, these management funds were the sole funding source for silviculture on western Washington state trust lands. Because of increasing costs, these management funds only cover about 60 percent of DNR's silvicultural needs. Fortunately, new funding sources have become available in recent years to fill this gap, and DNR is currently able to fund all the silviculture treatments that are needed.

Question: Do DNR's commercial thinnings provide positive revenues? Are thinnings constrained to those that generate positive revenues?

Answer: DNR conducts commercial thinnings (in other words, thinnings that produce harvest material that can be sold to purchasers) for both revenue and non-revenue objectives. Not all commercial thinnings conducted on state trust lands generate positive revenues and commercial thinnings are not necessarily constrained to those that produce revenue. In eastern Washington, the Forest Health Revolving Account (RCW 79.64.130) has helped DNR conduct commercial thinnings to address forest health issues that otherwise may not be financially viable.

Question: Are lack of markets or value for small diameter trees a limiting factor in conducting thinning?

Answer: Depending on location, distance to markets and/or a lack of markets can limit purchasers of small diameter products and in turn, limit the financial viability of conducting thinning treatments on state trust lands.

Question: Does DNR consider other silvicultural treatments (fertilization, veg management, site prep, etc.) and fire resiliency treatments that can assist sequestration? If so, are economics limiting factors in conducting such treatments?

Answer: DNR's silvicultural program reforests harvested areas and manages the young trees until they are free-to-grow to maturity.[3] DNR's management practices align with the industry standards set by other large forest landowners in the region. Silvicultural treatments that DNR implements include chemical site preparation, hand-planting vigorous seedlings, chemical conifer release (using herbicide to remove competing plants or treat noxious weeds), and hand cutting, which includes pre-commercial thinning and removal of hardwoods. In more fire-prone areas such as eastern Washington, DNR conducts additional treatments such as piling and burning of harvest slash and other fuel-reduction work.

[3] Free-to-grow means that the planted trees are tall enough not to be out-competed by other plants.

As discussed previously, funding can be a limiting factor, particularly in western Washington. However, current funding levels enable DNR to conduct all necessary silvicultural activities. In the 2023-25 biennium, the silviculture program plans to conduct 164,000 acres of silviculture treatments including 43,000 acres of planting, 32,000 acres of site preparation, 52,000 acres of vegetation management, and 37,000 acres of pre-commercial thinning across all state trust lands in Washington. Additionally, DNR staff will conduct 160,000 acres of silviculture surveys to assess the survival, growth, and health of young managed forests.

Question: Are there recommendations that would assist DNR in improving sequestration on DNR forest lands?

Answer: The work group will be exploring this topic over the next several months.

Rotation Age

Question: Can you clarify the land base on which you calculate your current rotation age? Is it averaging the lands you don't harvest much on for spotted owls and your GEM lands, or is it the lands on which DNR primarily harvests for revenue?

Answer: Average rotation age is determined by the age of regeneration harvest in GEM and upland areas. In the last work group meeting, DNR provided a broad range (60 to 80 years) for the average rotation age because stand age at time of harvest can vary. The average regeneration year is reported in DNR's Annual Report.

DNR does not have a set rotation age, meaning DNR foresters do not select stands for harvest based solely on age. Instead, foresters consider numerous factors, including timber volume, roads, logging costs, ecological objectives, and other factors. In addition, foresters must work within the context of the sustainable harvest level. The sustainable harvest level is the volume of timber to be scheduled for sale during a planning decade according to applicable laws and Department policies (RCW 79.10.300)(5).

Modeling

Question: Will the contractors use the DNR Forest Estate Model as a starting point?

Answer: DNR will be providing the contractors with growth and yield data that was utilized during the 2019 sustainable harvest calculation. However, DNR will not be providing the contractor with its forest estate model for this project. At the February 14 work group meeting, both contractors will be discussing the types of models they will be utilizing to complete their respective work.

Question: Do we have a good idea of what models ESSA will be using for this work?

> **Answer:** ESSA will discuss the models being considered for this project at the February work group meeting.

Specific Carbon Modeling Questions

Question: DNR received a number of questions that are specific to the modeling methodology. For example:

- Does the modeler have the capability to run precommercial thins?
- How is the complexity of climate scenarios being incorporated in our predictions?
- What metrics will be used to measure carbon flux? Over what period?
- Will each of the land base classes be measured separately?
- Will the land base classes be evaluated by an ecosystem/ecotome or geophysical partition?
- Will we be able to take into account fire risk?

> **Answer:** Detailed methodology questions can be addressed in the March work group meeting, when ESSA and Evergreen Economics give their presentations about methodology.

Revenue

Question: So where does the revenue aspect fit into these models? ("generating predictable beneficiary revenue; maintaining timber supplies that support local industry; and addressing economic needs in rural counties" from the proviso).

> **Answer:** The carbon model will be looking only at carbon storage and sequestration. The wood basket contractor will conduct an economic analysis that will help inform how the different management scenarios impact timber supplies, jobs, and revenue.