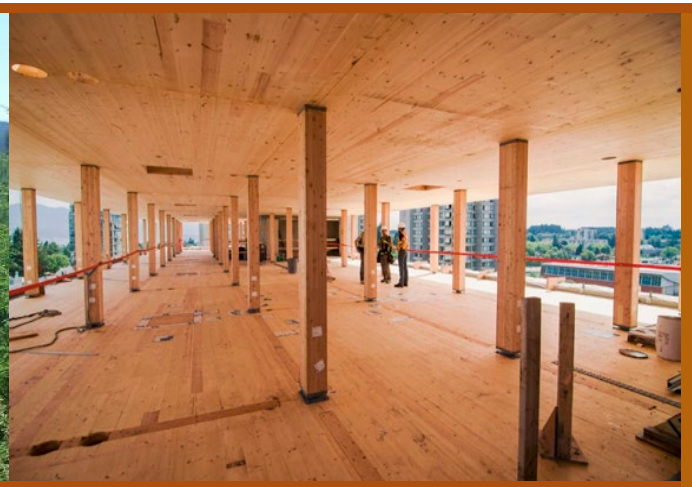
Carbon and Forest Management Work Group

Baseline Scenario





Meeting 3
January 10, 2023, 9 a.m. – 3 p.m.

Understanding DNR Land Classifications: GEM, Upland, Riparian, and Deferrals



General Ecological Management (GEM) Areas

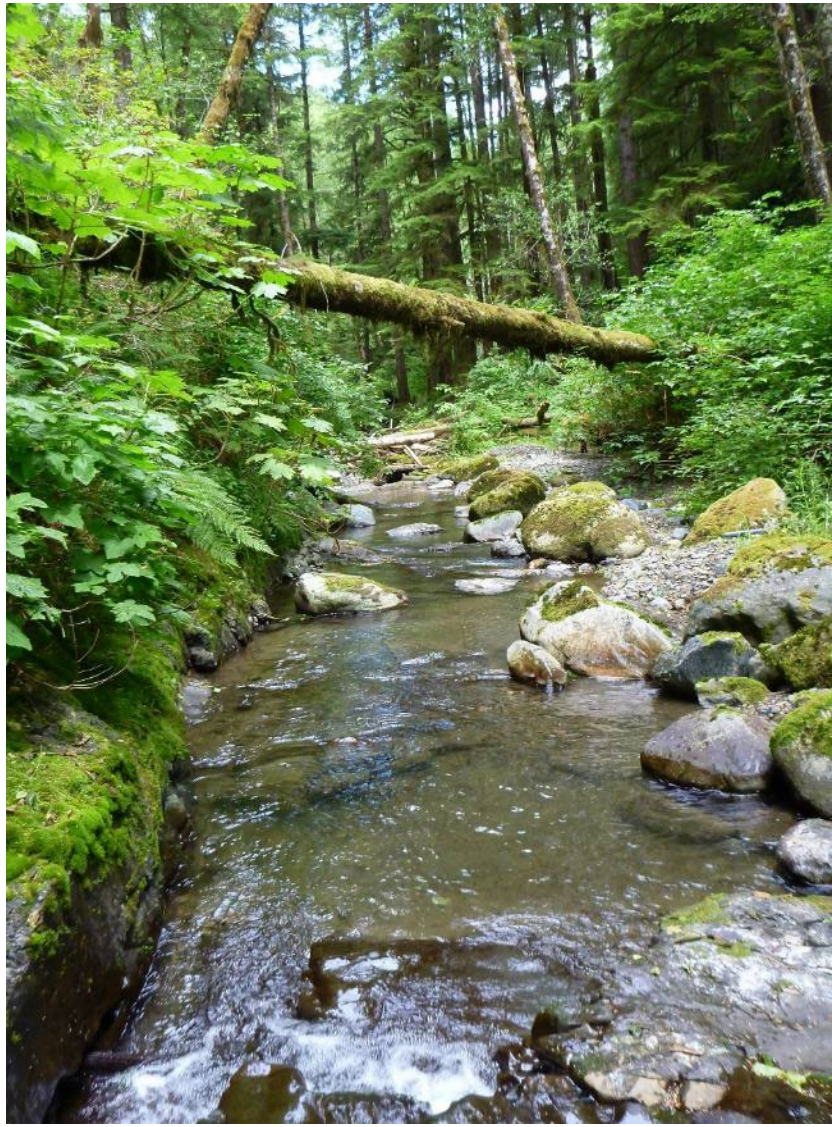
- Available for harvest subject to the requirements of the *State Trust Lands Habitat Conservation Plan* (HCP), *Policy for Sustainable Forests*, and all relevant laws.
- Primary revenue-generating areas.

Uplands Areas

- Have specific ecological objectives that limit (but do not preclude) harvest per the HCP, *Policy for Sustainable Forests*, and all relevant laws.
- Examples include areas being managed for northern spotted owl conservation or for hydrologic maturity, and special habitat areas managed for marbled murrelets.

Riparian Areas

- Designated through riparian and wetland habitat conservation strategy.
- Includes fish-bearing streams and wetlands plus protective buffers.
- Stream buffer width depends on stream and wetland type.
- Limited amount of thinning allowed in buffers.



Examples of Deferrals

- **Gene pool reserves**: Naturally regenerated, Douglas-fir stands with native genetic material, well-adapted to local conditions.
- **Old growth forest**: Forests stands 5 acres and larger in the most complex stages of stand development; generated prior to European Settlement (1850).
- **Marbled murrelet occupied sites and inner buffers:** Designated under the Marbled Murrelet Long-term Conservation Strategy.
- **Research areas**: Used for long-term ecological research.

The Harvest Cycle:

Stand Establishment and Management



Reforestation

Policy for Sustainable Forests: Maintain and improve forest health by actively managing species composition and stocking levels across forested landscapes.

- Usually plant more than one species.
- Natural regeneration of site-adapted species will further diversify the forest.

Reforestation

- Planting decisions are **site specific** (vegetation zone and plant association, soils, topography, climate, etc.).
- Harvested areas generally replanted within 1-2 years.
- DNR plants 300 or more seedlings per acre to establish a healthy, productive forest.

Stand Management

- DNR performs pre-commercial thinning (if needed) to transfer growth to the strongest trees. Cut trees are not merchantable and are left on site to enrich the soil.
- Vegetation management and other treatments are performed as needed to keep the stand growing well.

The Harvest Cycle:

Thinning and Stand Replacement



Management Pathways

Merchantable stands may be thinned, harvested, or left unmanaged.

Examples may include:

Harvest and replant	Stand replacement harvest	→	Replant	
Thin, harvest, replant	Commercial thinning	→	Stand replacement harvest	→ Replant
Thin and manage as habitat	Commercial thinning	→	Manage as habitat (short or long term)	→ Depends on HCP conservation strategy

No management (for example, deferred from harvest, inoperable, managed as habitat, other)

Stand Replacement Harvest

- Concentrated in GEM areas.
- Forests must be at least 30 years old.
- Minimum projected yield of 8 thousand board feet (MBF) per acre.
- Average rotation length 60 to 80 years.

Stand Replacement Harvest Type

DNR performs **variable retention** instead of clearcutting.

- Minimum of 8 leave trees per acre, with an emphasis on retaining large, structurally unique trees.
- Combined with retention for riparian areas, unstable slopes, and other areas, creates irregular spatial patterns on landscape.
- Retention helps provide continuity between forest generations, in structure, function, and biota.

Variable Retention Harvest Examples

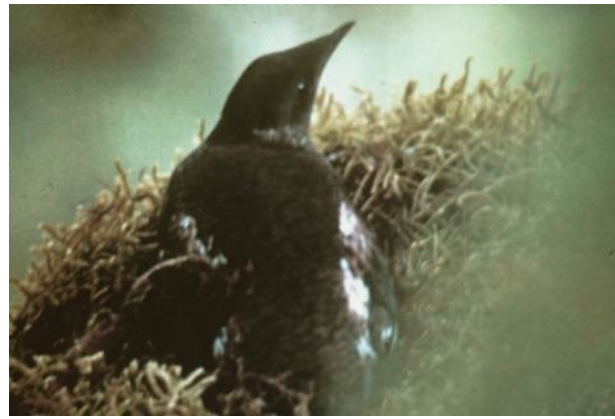
Commercial Thinning

- Cut trees are merchantable; thinning generates revenue for trust beneficiaries.
- Can be light or moderate, depending on objectives.



Commercial Thinning: Light

- Often done in areas managed as habitat for northern spotted owls, marbled murrelets, or other protected species, with objective to improve habitat conditions.
- May remove up to 30 percent of stand's basal area (basal area is a measure of stand density).
- Forests usually between 30 to 70 years old.
- Minimum projected yield of at least 6 MBF per acre.



Marbled murrelet
Photo courtesy National Park Service

Commercial Thinning: Moderate

- Can be in GEM, riparian, and some uplands areas (outside northern spotted owl or marbled murrelet habitat or marbled murrelet special habitat areas).
- May remove up to 45 percent of stand's basal area.
- Forest usually between 30 and 100 years old.
- Minimum projected yield of at least 8 MBF per acre.



Common Commercial Thinning Types

Variable density

- Some areas thinned more heavily than others.
- May create gaps in the canopy to encourage development of a second canopy layer.

Intermediate thinning

- Trees removed in a relatively uniform pattern.
- Gives remaining trees a similar amount of growing space.

Variable Density Thinning Gap

Intermediate Thinning

Summary



Baseline Scenario in Review

- Land base classified as GEM, upland, riparian, or deferred from harvest.
- Variable retention harvest done mostly in GEM areas.
- Thinning can be intermediate or variable density.
  - Light thinning often done in areas managed as habitat.
  - Moderate thinning can be done in GEM, riparian, and some upland areas.
- On the westside, approximately 6 to 16 percent of DNR harvests are commercial thinning; thinning more common on the eastside (7 to 23 percent).
- Harvested areas are replanted and managed as needed to keep forest healthy and productive.