JACK LAKE INFO SESSION

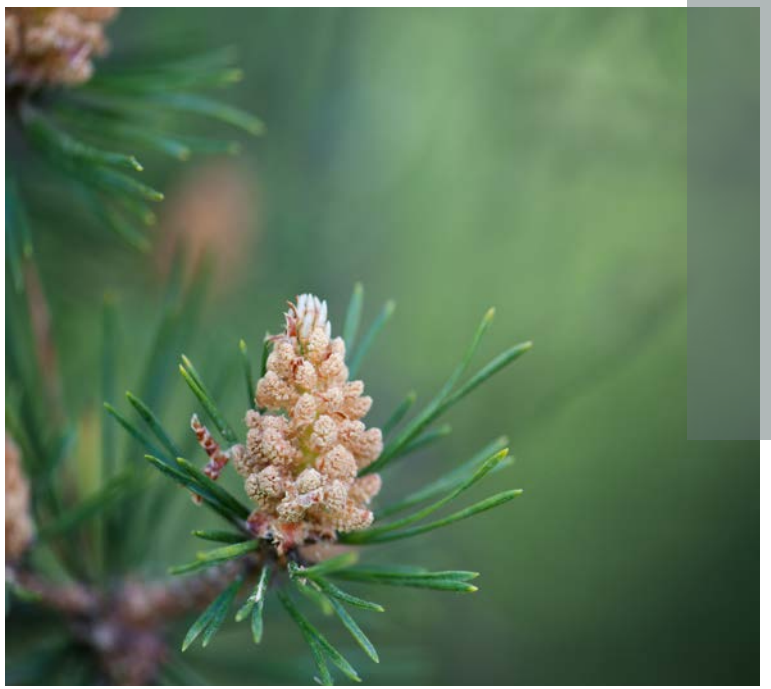
Saturday November 12th

BANCROFT MINDEN FOREST

Julie Edwards, RPF – Communications Forester

AGENDA

- Forestry in Ontario
- Bancroft Minden Forest Company
- Bancroft Minden forest breakdown
- Regulating the industry
- Managing the forest with silviculture
- Renewing the forest
- An overview of salvage and Jack Lake area
- Our team
- Accessing Forestry Information



Ontario is divided into several management zones for the purposes of administration and management programs

NORTHERN BOREAL (FAR NORTH)

is essentially all land north of the AOU and is largely inaccessible with some isolated communities scattered across the landscape

AREA OF THE UNDERTAKING

The Ministry of Natural Resources and Forestry has approvals under the *Environmental Assessment Act* to conduct forest management on Crown lands. The planning area parks are part of Ontario's Living Legacy and was coupled with the AOU as part of a planning program in the late 1990s designed to expand parks and protected areas within the managed forest

GREAT LAKES

is a summary of the lakes themselves, and the islands that occur within them (ie. Manitoulin)

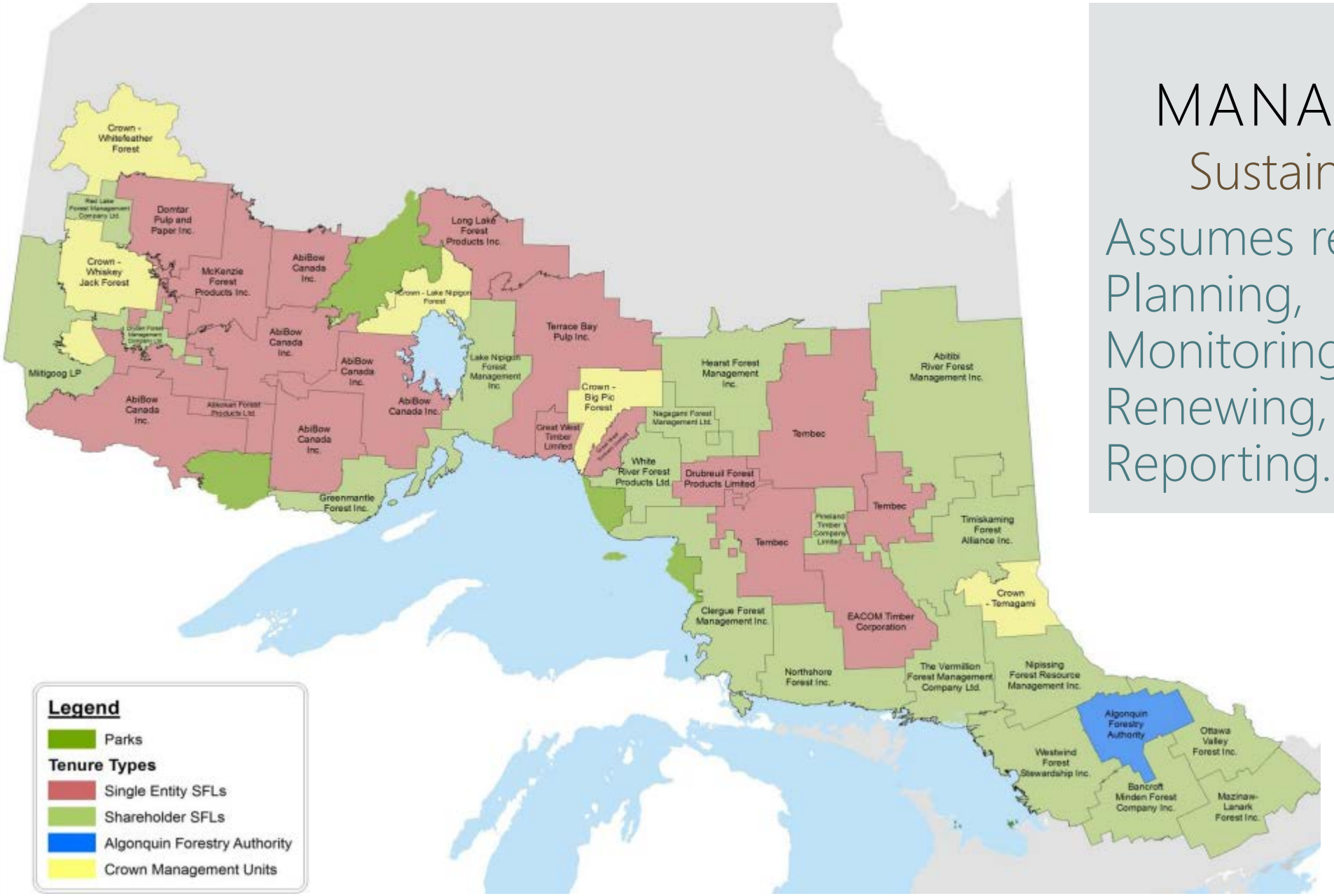
SOUTHERN ONTARIO

is where most of the population in the province lives, and is dominated by private land.

ONTARIO MANAGEMENT UNITS

Sustainable Forest Licenses

Assumes responsibility for:
Planning,
Monitoring,
Renewing,
Reporting.



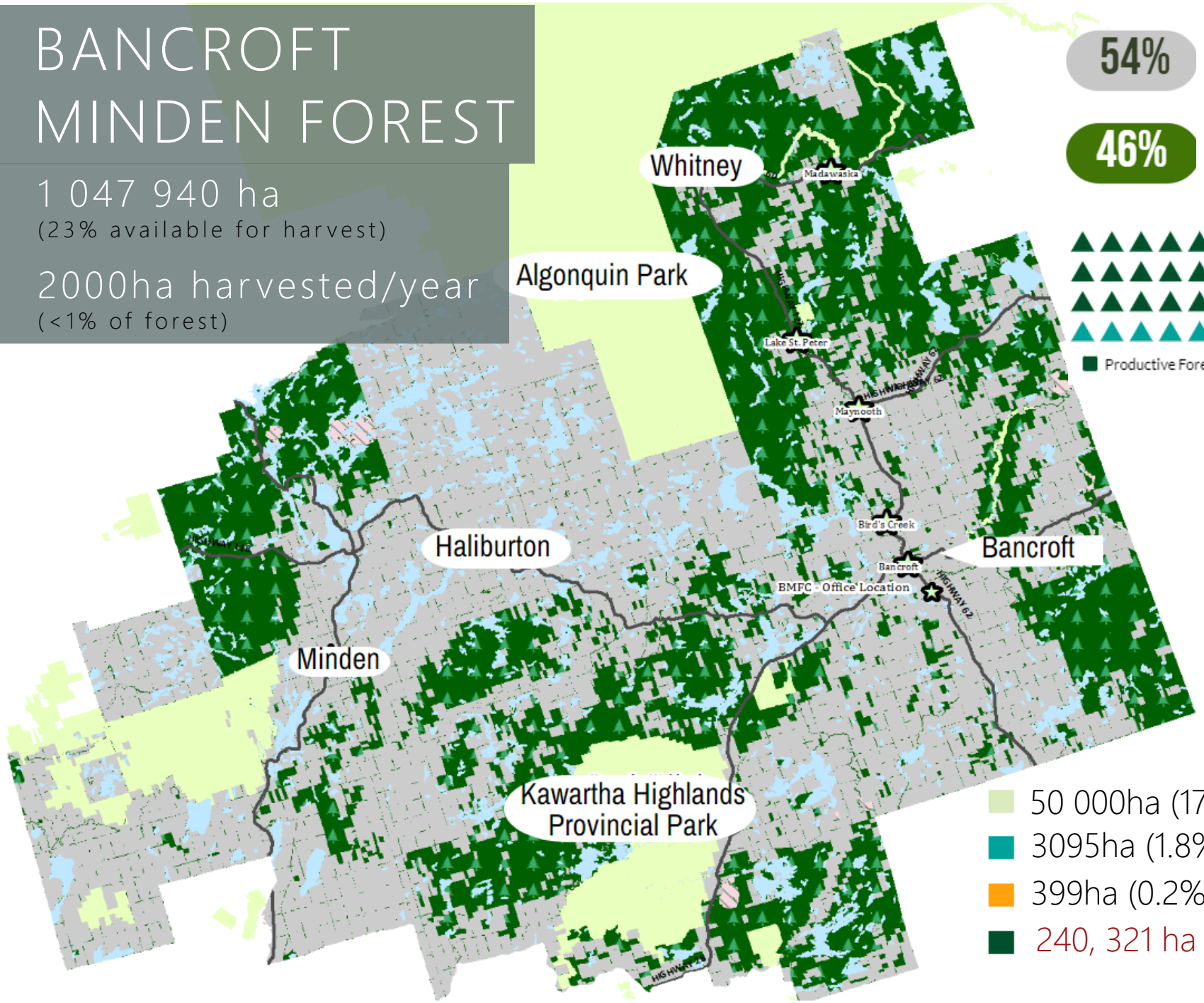
BANCROFT MINDEN FOREST CO

- Private organization owned by the forest industry of the area to conduct forest management activities on Crown (public) land
- Staffed and incorporated in response to the Ontario government's plan to transfer more forest management responsibility to the forest industry
- Shareholders include 9 sawmills, 13 independent logging companies, and one pulp mill
- Shareholders are responsible for harvest and access operations, marketing of forest products, and ensuring their operations are carried out in accordance with applicable legislation and standards

BANCROFT MINDEN FOREST

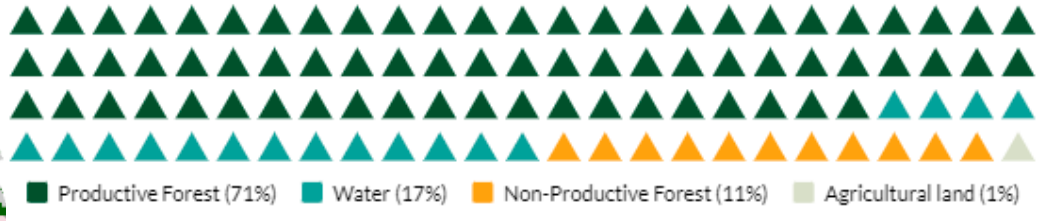
1 047 940 ha
(23% available for harvest)

2000ha harvested/year
(<1% of forest)



54% Private land (586 846ha)

46% Crown land (461,094ha)



312 000 ha Productive Crown Land

- 50 000ha (17%) is in Parks & Conservation Areas
- 3095ha (1.8%) is below regeneration age
- 399ha (0.2%) is protection forest due to inaccessibility
- 240, 321 ha available for timber production

RESPONSIBILITIES OF A LICENSEE

PLANNING

- Forest Management Plan must be approved prior to any forestry activities (MNRF, LCC, Indigenous)
- Annual Work Schedule details where annual operations are planned
- Forest Operations Prescriptions details site-specific management for each harvest block

Conduct field work and write prescriptions for each operation that outline in detail what will take place.

MONITORING

- Compliance Inspections
- Silviculture Effectiveness (SEM, FTG, Establishment surveys, post-cut assessment, tree marking audit, tending assessment)
- Roads/pits/water crossings monitored on appropriate timelines

Ensure all our operations comply with the FMP & other legislated requirements.

RENEWING

NATURAL

- Tree marking
- Commercial thinning
- Tending

ARTIFICIAL

- Site preparation
- Tree planting
- Follow up tending

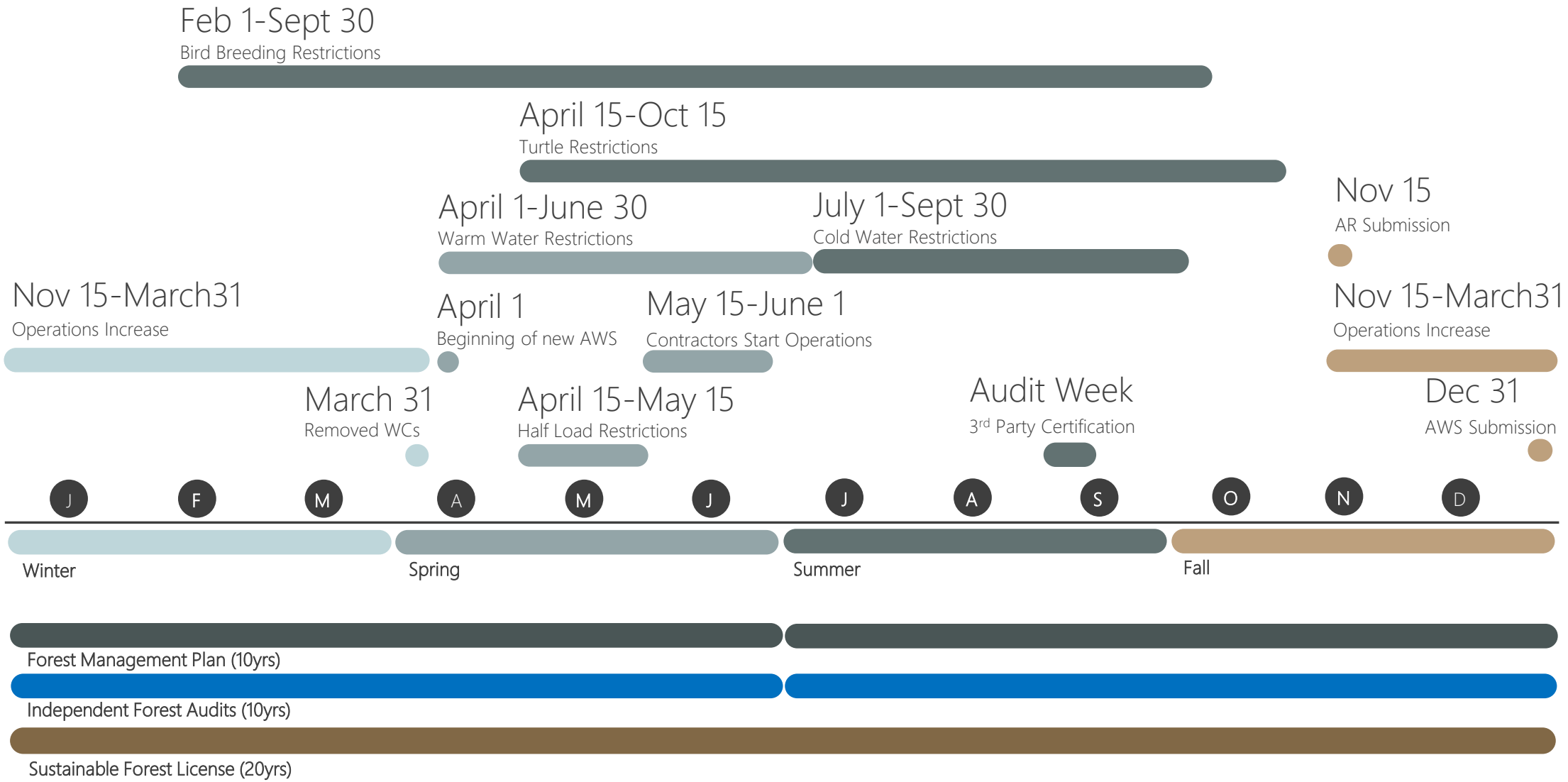
All harvest areas are regenerated to standards described in the approved FMP to ensure the future of the forest.

REPORTING

- Annual reports summarize harvest, renewal, tending, SEM, road construction and maintenance.
- Factors affecting FMP implementation (Natural disturbances, markets, labour disruptions)
- Instances of non-compliance and remedies applied

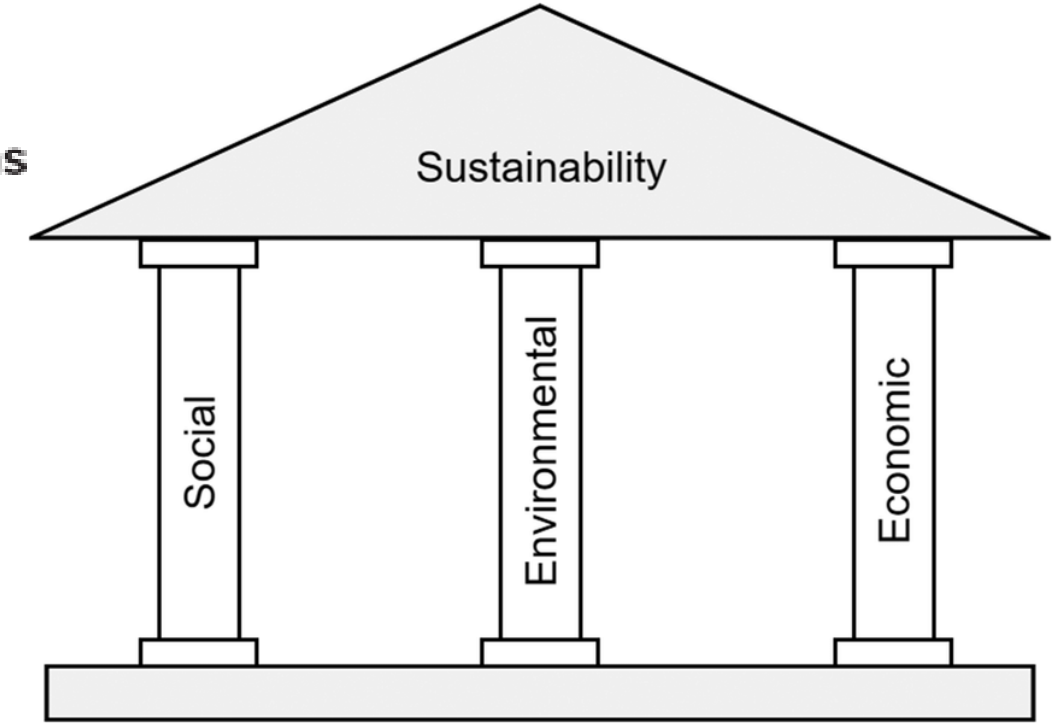
Prepare annual reports for approval by the MNRF, which describe our progress to achieving goals in our FMP.

Bancroft Minden Forest Regulatory Timelines



ADAPTIVE MANAGEMENT

Enhances the functionality of the forest to a changing environment



WHEN WILL CANADA HARVEST ITS LAST TREE?

NEVER

Canada has:

348 million hectares of forest

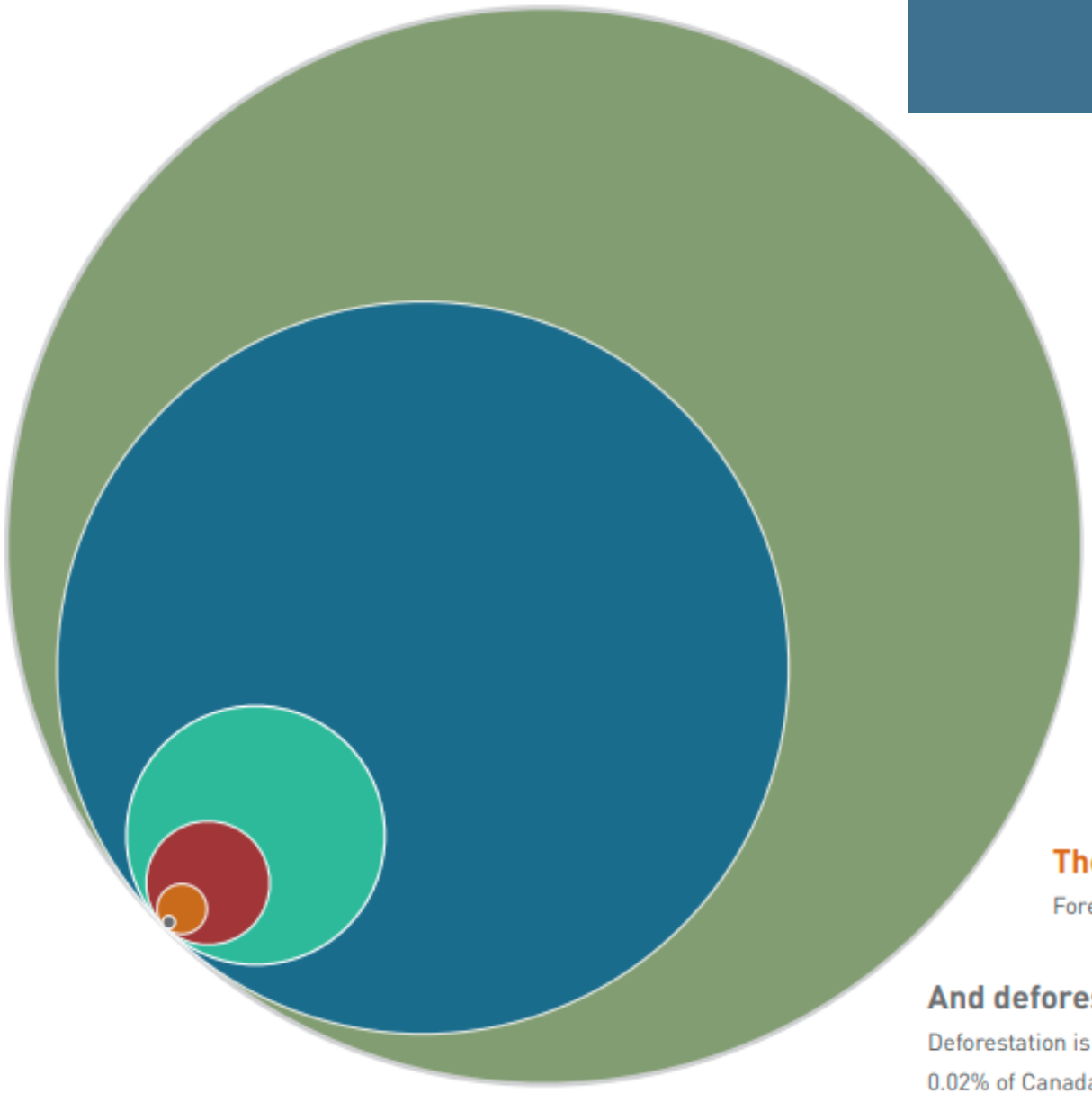
161 million hectares of forest **independently certified as sustainably managed** (2014)

20.1 million hectares of forest **damaged by insects** (2013)

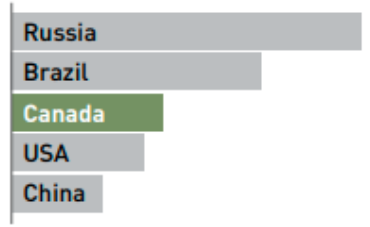
4.6 million hectares of forest **burned in forest fires** (2014)

0.74 million hectares of forest **harvested** (2013)

0.05 million hectares of forest **deforested** (2013)



Canada has the world's third-largest forest area.



And 43% of the world's certified forests.

Certification provides third-party assurance that a forest company is operating within recognized standards of sustainable forest management.

Each year, fires and insects affect a lot of Canada's forests.

Fires, insects, diseases and other natural disturbances have occurred in Canada's forests for millennia, shaping the diversity of plants and animals.

In fact, most of Canada's forests have regrown from seedlings in the last 200 years.

The impact of harvesting is much smaller.

Forests harvested on Canada's public land must be successfully regenerated.

And deforestation is even smaller.

Deforestation is the clearing of forests to make way for new, non-forest land uses.

0.02% of Canada's forests are deforested each year.

FOREST SUCCESSION

HARVEST

- Emulated disturbance
- Fire, wind, insects, disease
- Reset on ecosystem

1-5 YEARS

- Pioneer species
- Grasses, shrubs, perennials
- Harsh environment

6-25 YEARS

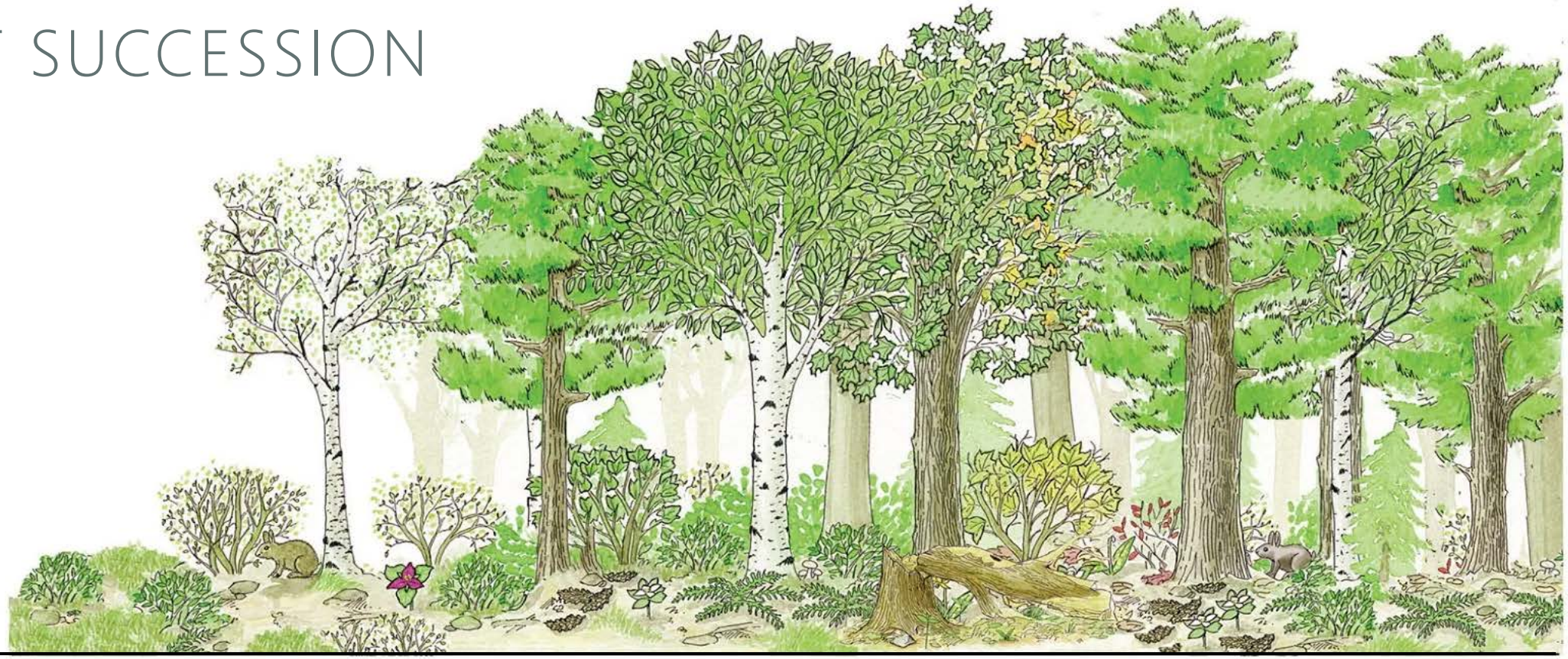
- Intolerant species
- Begin to change ecosystem with more shade & moisture

26-50 YEARS

- Mid-tolerant & tolerant species move in
- Creates mixed forest

51-300 YEARS

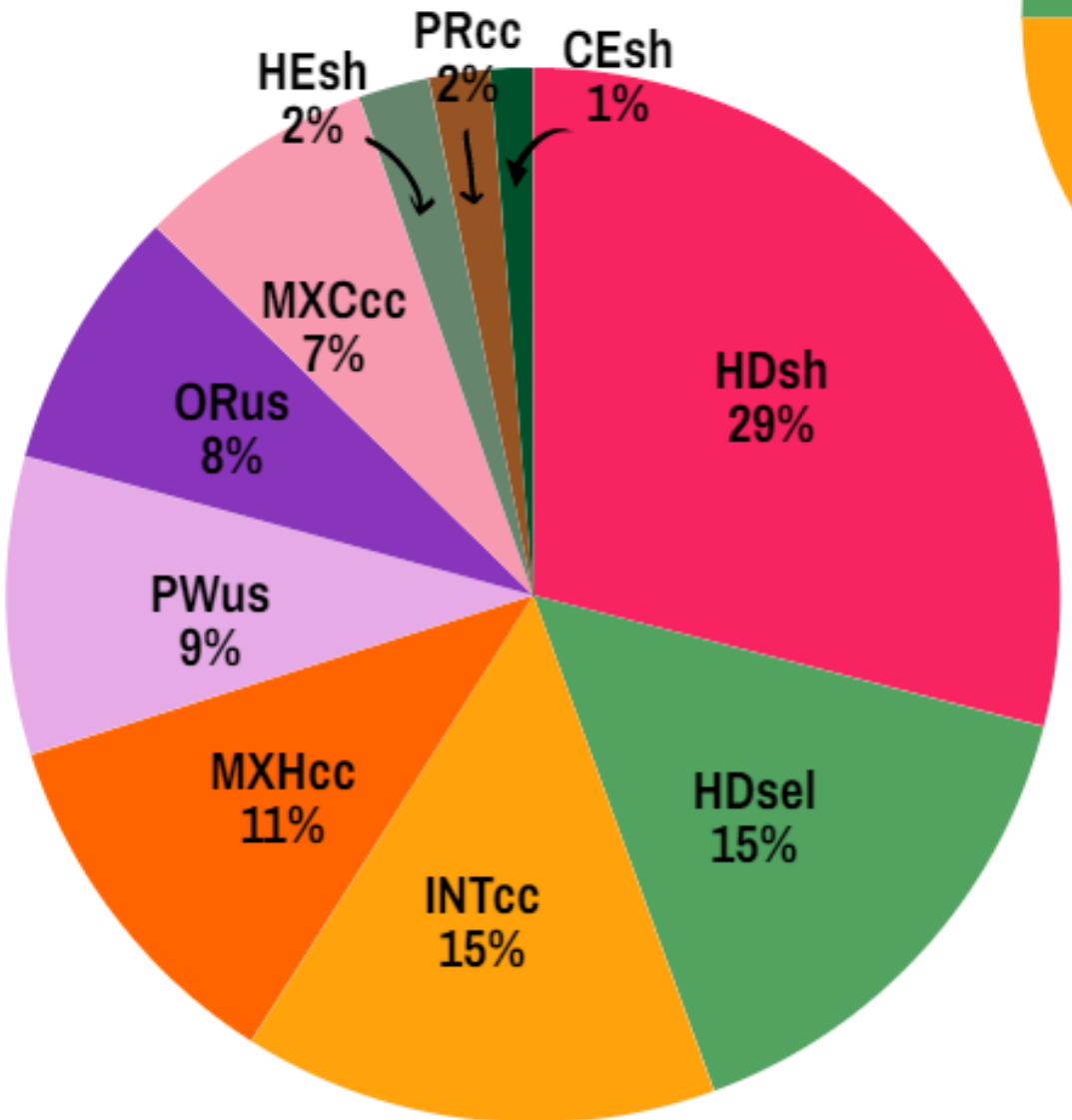
- Shade tolerant species
- Succession slows
- Old-growth forest

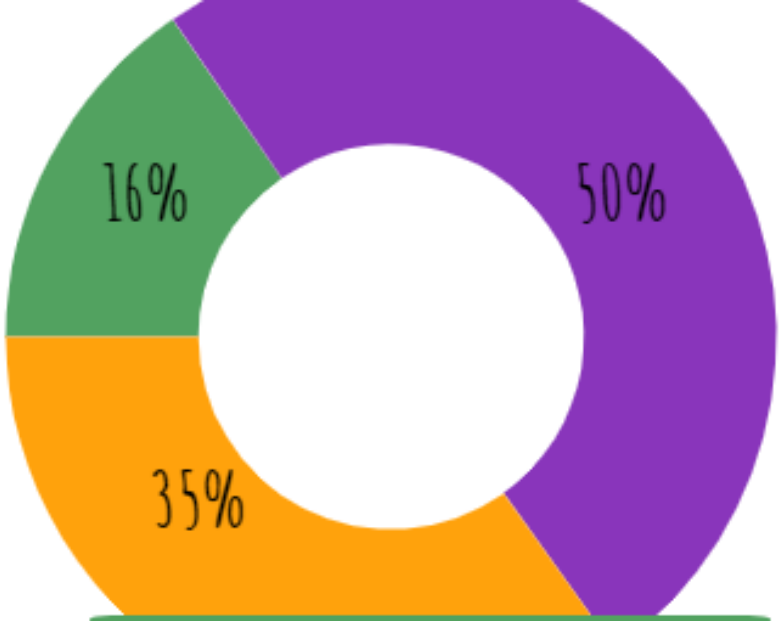


Disturbance	Plants Stage	Shrub Stage	Young Forest	Mature Forest	Climax Forest
Reset	First 5 years	6-25 years	26 - 50 years	51 - 150 years	150 - 300 years

FOREST UNITS

2021-2031 PLAN





1) SELECTION HDsel

2) SHELTERWOOD

34% IRREGULAR

HDsh HEsh CEsh

16% UNIFORM

PWus ORus

2) CLEARCUT

PRcc INTcc

MXCcc MXHcc

SILVICULTURE

Silviculture is defined as the art and science of managing forest communities.

Depends on:

- Matching the treatment to the requirements of the trees themselves
- Integrating ecosystem response to natural disturbance

How we maintain and enhance multiple objectives simultaneously

SELECTION SYSTEM

Natural Disturbance Emulation

Mimics small canopy openings from trees dying from:

Storms Disease Insects Old age

Where it works

Uneven-aged forests with shade tolerant species.
E.g. sugar maple, hemlock, beech

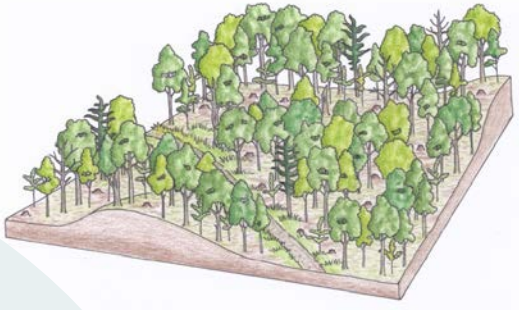
How it works

Concentrates on the removal of:

- Single trees or small groups of trees at 10-25 year intervals
- Defective or diseased trees
- Trees interfering with the growth of others with better structure and health

Regeneration occurs naturally

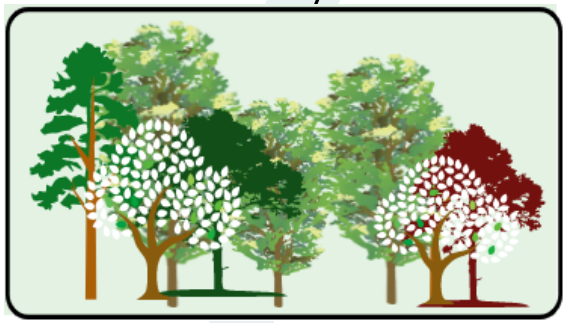
Mature Forest



First Cut

Over-mature & poor quality trees are marked (up to 30% of total) and cut

20-30yrs



The forest is ready for a third cut with the removal of another 30% of trees.

Second Cut

Up to 30% of the mature trees are cut, focusing on removal of poor-quality trees

20-30yrs

The remaining trees have thrived & the next generation is well established

SHELTERWOOD SYSTEM

Natural Disturbance Emulation

Mimics fire, an important component of white & red pine forests

- Low level fires are frequent (60yrs)
- Lethal fires every 150-300yrs

Where it works

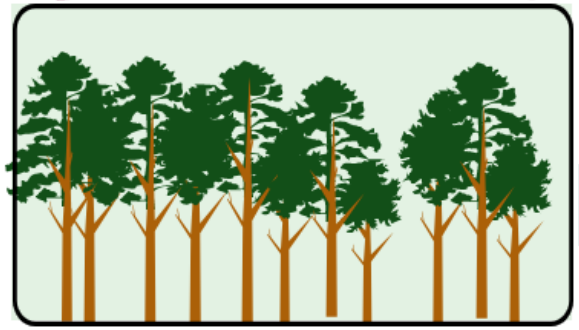
Even-aged forests with mid-shade tolerant species.
Eg. white pine and red oak

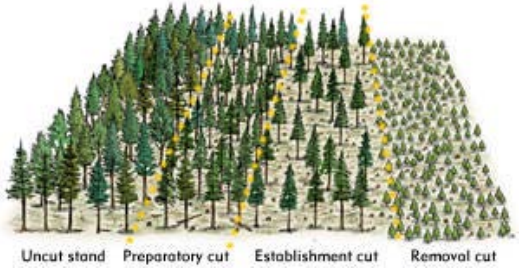
How it works

Trees are removed in a series of partial cuts at 10-20 year intervals that slowly removes the canopy.

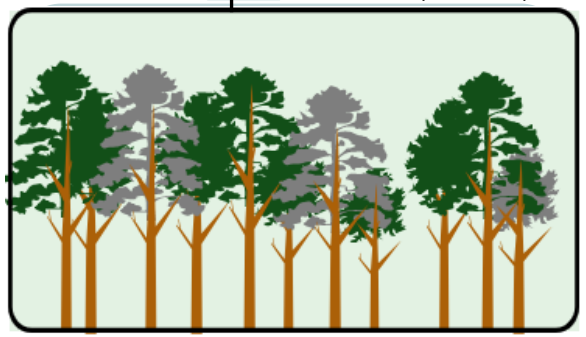
Regeneration occurs naturally under a protective canopy & can be assisted by planting or seeding.

Mature Forest





Prep Cut (1st cut)



Trees are 60-80 yrs old and diseased or competing species like birch & poplar cut

1st Removal (2nd cut)

Trees are 80-100yrs, opens canopy to 50% cover with best seed-bearing trees

Seed Cut

When seedlings begin to populate, about 1/2 remaining crown trees are removed to allow for more light for their development.

Final Removal

Most of the remaining mature trees are removed to release the young trees that will replace them

CLEARCUT SYSTEM

Natural Disturbance Emulation

Mimics lethal fires or weather events that are as common as 150-300 years

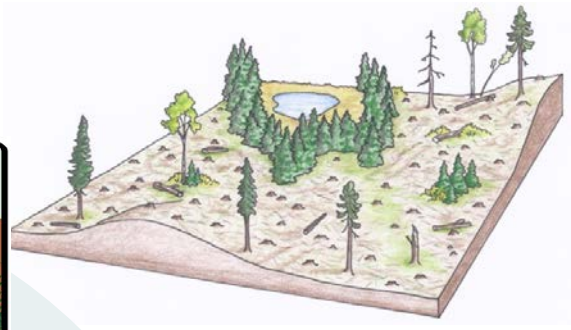
Where it works

Even-aged forests with shade intolerant species (e.g. white birch and poplar) or species reliant on fire to regenerate (e.g. jack pine)

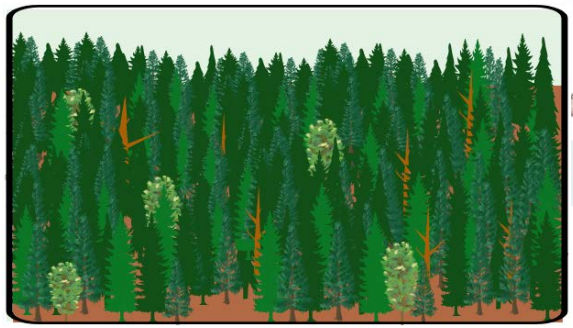
How it works

Most trees in an area are removed to allow the full light conditions necessary for shade-intolerant trees to regenerate.

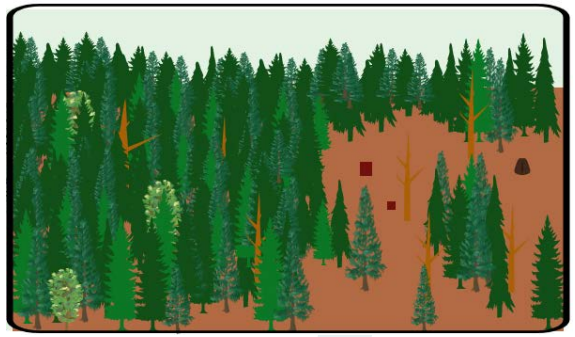
Trees are either regenerated naturally or are manually planted or seeded.



Mature Forest



Clear Cut



Most of the trees in a selected area are removed, with many of the trees left behind having qualities to promote wildlife habitat

60-80 years

The trees on the original clearcut sites are old enough to be harvested again

Regeneration

More clearcuts are preformed as the previously cut areas are planted or naturally regenerate

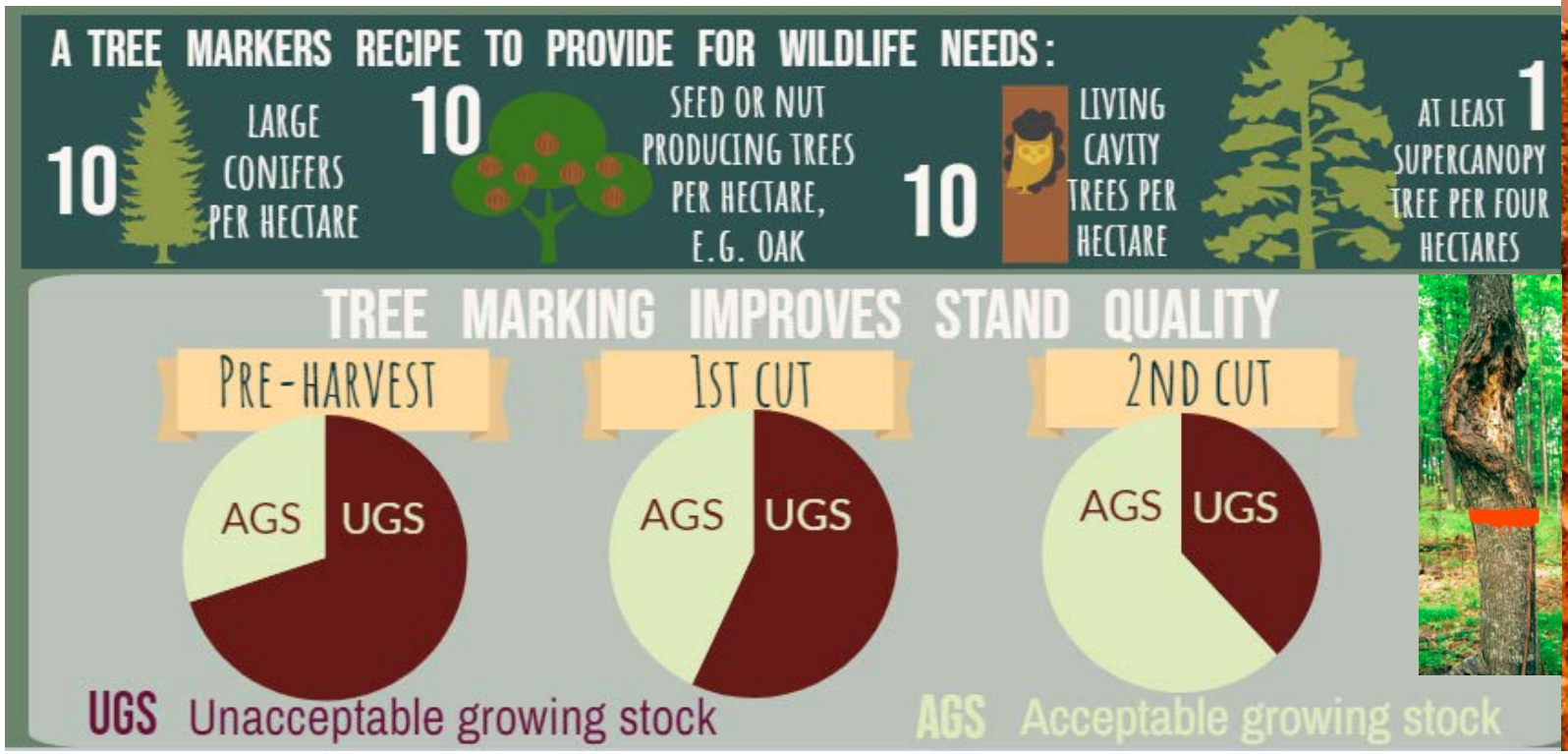
FOREST OPERATIONS PRESCRIPTION

The baseline data for all our renewal information

- Cruise plots established to determine forest unit, determine overstory composition with size classes, pre-harvest basal area by species, and their quality.
- Prescribe silvicultural system, assign SGR, and identify predominant advanced regeneration present.
- Instructions for layout, tree marking and treatment of areas of concern and identification of operational concerns are documented and described. Newly identified values are also mapped and protected.
- Document is stamped by a Registered Professional Forester

TREE MARKING

- Practiced in both partial harvest systems: selection and shelterwood
- Before any harvesting is done, a forester will develop tree marking direction and a certified tree marker will mark trees to retain for wildlife value and trees to remove based on healthy and quality



HARVESTED

FOREST RENEWAL

SILVICULTURE GROUND RULES (SGR) – Information on what treatments can be applied to achieve the desired result on different sites.

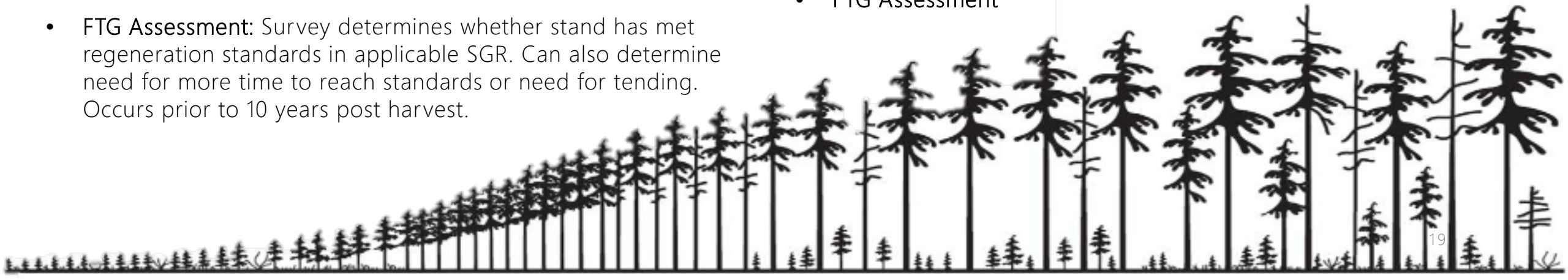
FREE TO GROW (FTG) – Estimated condition that will evolve into the desired future forest condition

Natural Regeneration

- 94% of the forest is regenerated naturally
- Tree Marking Audit: confirm adherence to SGR direction, potential AGS improvement, overstory stocking and species composition.
- Post Harvest Compliance Inspection: Confirms conditions described in Tree Marking Audit based on effects of logging.
- Tending Assessment: Ocular survey to assess establishment of crop species and whether competition present is impeding crop species growth at a level that requires tending. Also assesses the need for fill planting. Occurs multiple times post harvest.
- FTG Assessment: Survey determines whether stand has met regeneration standards in applicable SGR. Can also determine need for more time to reach standards or need for tending. Occurs prior to 10 years post harvest.

Artificial Regeneration

- 6% of the regeneration is assisted by planting (Red and White pine)
- Planting Quality Assessment: Audits spacing, planted depth, microsite, and lean during the planting contract and survey intensity is increased when planting quality problems are observed.
- Survival Assessment: plots established 1-2 years later, within the planted area. Stems/Ha, level of competition, insect/disease presence and need for tending/refill planting is determined.
- Tending Assessment
- FTG Assessment



IMPLEMENTING THE SGR

EXAMPLE

Hardwood Shelterwood

⬇

Mixed Hardwood

- Managing the stand for maples, poplar and mid-tolerants (Or & By)
- **Regeneration standards** are applied where the objective is to establish new regeneration.
- **Management standards** are applied in scenarios where harvesting practices release existing or retain a residual canopy that is sufficiently stocked to generate a stand description

SGR Code	HDI-MXH	Silvicultural System	Shelterwood

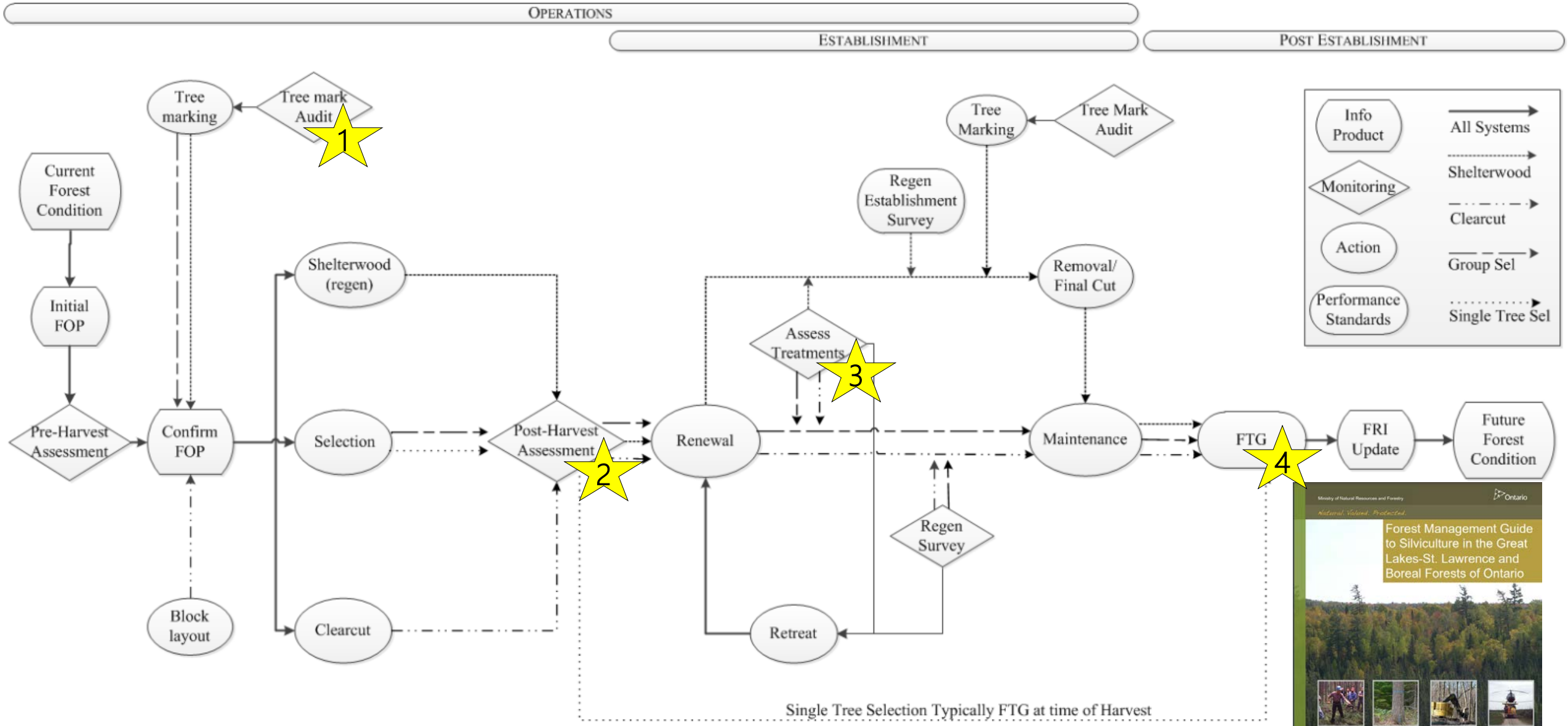
Current Condition		Future Condition		Silviculture Monitoring
Forest Unit	**Ecosite(s)***	**Forest Unit**	**Stand Characteristics**	**Management Standards**
Hardwood Shelterwood (HDsh)	Moist, Coarse: Mixedwood or Dry to Fresh Mixedwood or Dry to Fresh, Coarse: Maple Hardwood. **Ecosite:** G076 (12%), G059 (30%), G058 (41%), Other (17%)	Mixed Hardwood Clearcut (MXHcc)	**Average Species Composition:** Po30 Ms30 Oh20 Mh10 Bf10 **Average Stocking:** 0.70 **Average Site Class:** 1.5	**Timing of surveys & Assessment Method:** Pre-harvest to document BA by species, size class, AGS/UGS; Pre-harvest Tree Marking Audit to confirm adherence to direction & potential AGS improvement; Post harvest compliance to confirm conditions described in Tree Marking Audit based on effects of logging. Methodology described in Supp. Doc. G. **Managed Species** : Po, Ms, Mh, By, Or, Cb **Operational Residual BA target** : refer to forest operations prescription
Additional Information		**Development Information**		**Regeneration Standards**
Applied in irregular multi-aged stands with a mixture of tolerant, mid-and intolerant hardwoods and/or stands with a high component of UGS on sites suitable to establish or release intolerant hardwood.	**Present Yield Description:** **Average Species Composition:** Mh33 Ms16 Oh14 Po7 By5 Be5 He5 Or3 Bw3 Sw3 Bf2 Ce2 Pw2 **Average Stocking:** 0.62 **Average Site Class:** 1.3	**nDR Yield Curve Builder** **Silviculture stratum:** MXHcc_Extensive **NMV Target (peak):** 154.4 m^3/ha at 95 years. **NMV Target (Min. Operable):** 133.6 m^3/ha at 65 years		**Managed Species :** Po, Ms, Mh **Acceptable Species:** Sw, Bw, Px, Sx, Aw, Bd, By, Or **Minimum Height:** Hardwood = 2.0m; Conifer = 1.0m **Target Site Occupancy (managed spp):** 1225 well spaced stems/ha **Establishment Year:** Assess ≤ 10 years post-harvest **Assessment Method:** Methodology described in Supp. Doc. G.

	Silvicultural Treatments				
	Harvest Method	**Logging Method**	**Site Preparation**	**Regeneration**	**Tending**
Most Common Treatment Package	Uniform Shelterwood	Tree Length	None	Natural	Felling of unmerchantable and/or merchantable trees for stand improvement
Acceptable Alternative Treatments	Irregular Shelterwood Commercial Thin	Log Length Full Tree	Mechanical; Chemical (ground); Intentional soil disturbance through skid trail layout	Seeding; Scarification; Supplemental plant	Chemical or Mechanical application to control undesirable stems

* Ecosites listed include those with an area greater than or equal to 5% of the total Forest Unit Area. Percentages were rounded to nearest whole number

MONITORING RENEWAL

SILVICULTURE EFFECTIVENESS MONITORING (SEM) – is a formalized program used to determine if management activities are producing the desired results and why.



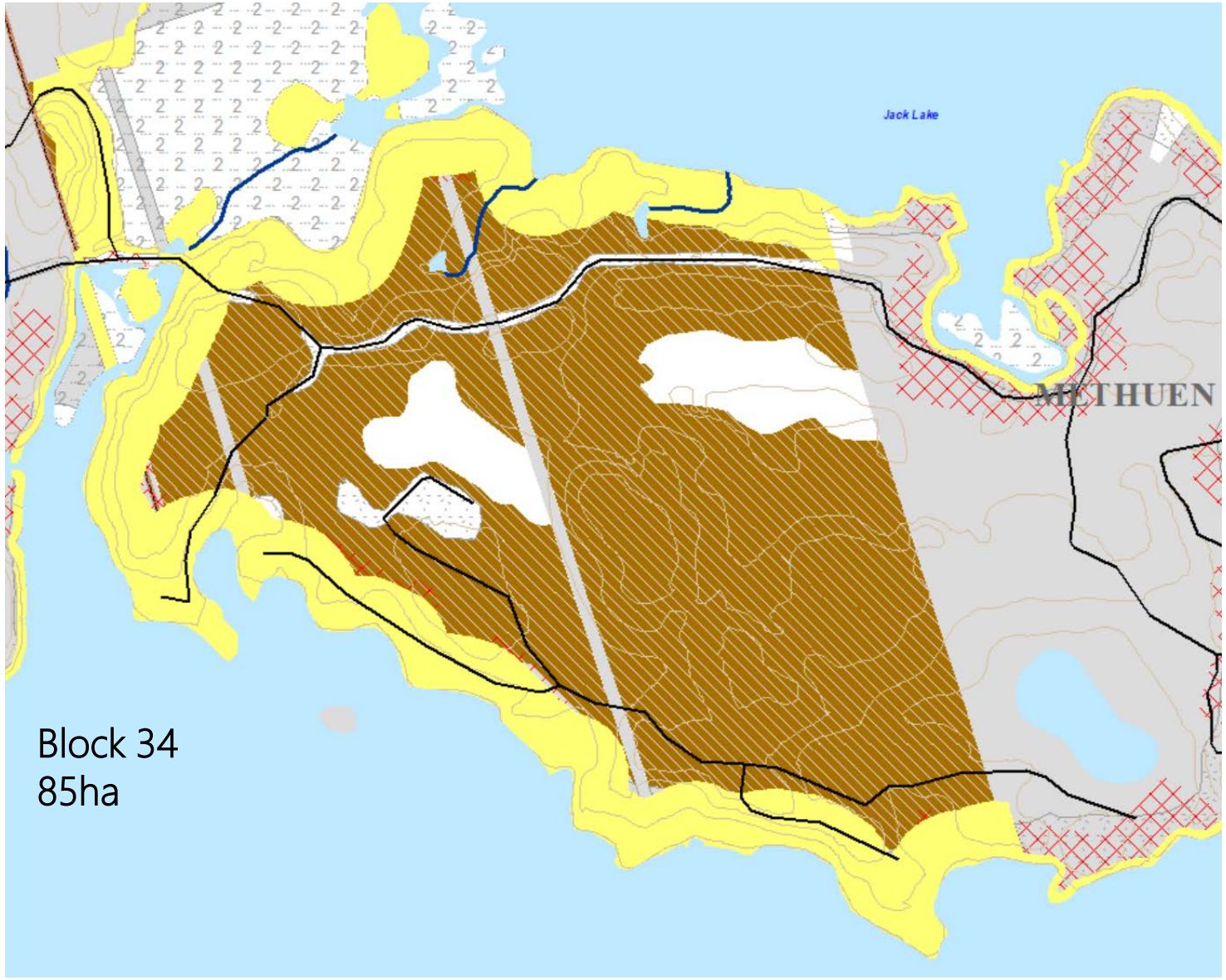
HOW DOES SALVAGE DIFFER?

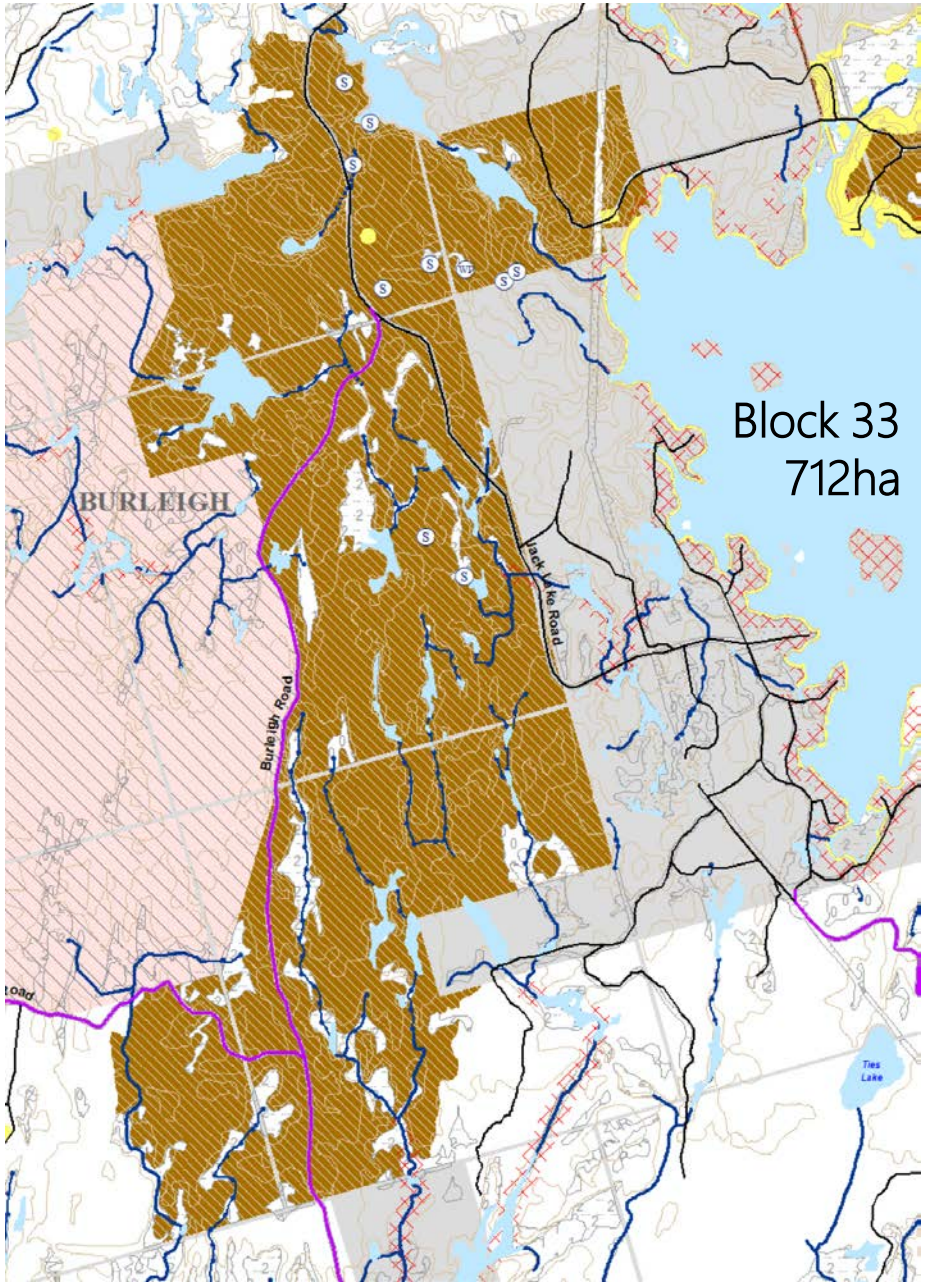
THE PROCESS REMAINS THE SAME, BUT THE HARVEST DIFFERS

- Only trees impacted by the disturbance have been harvested
- Areas not blown down that remain standing can impact regeneration of the salvaged stand, resulting in different seed sources
- More of an irregular and uneven aged harvest system
- Gap dynamics due to the pattern of the wind event
- Ability to manage by individual trees is no longer viable

SFL HAS TAKEN RESPONISIBILITY AS SOON AS THEY'VE DECIDED TO HARVEST THE AREA

SALVAGE HARVEST AREAS





JACK LAKE AREA

CURRENT RENEWAL PLANS DO NOT INCLUDE PLANTING

Threats from nature

- If beech regeneration becomes thick there will be a need for tending treatments to reduce their growth as they will become infected with beech bark disease
- Increased deer population from the game preserve could eat regeneration

Non-crop species

- Seeding in from areas that were not harvested, results in species that would have otherwise been removed
- Planting species that contradict the SGR for the harvest area will result in alternate forest composition and no silviculture success

Plants Stage	Shrub Stage	Young Forest	Mature Forest	Climax Forest
First 5 years	6-25 years	26 - 50 years	51 - 150 years	150 - 300 years

OUR TEAM

SVETLANA ZERAN
General Manager

KELSEY HACK
Office/Data Manager

TYLER HINZE
Senior Technician

AUSTIN CANNON
Operations Technician

MINDY CASSELMAN
Silviculture Technician

JULIE EDWARDS
Communications Forester

RESOURCES

Natural Resources Information Portal

The Natural Resource Information Portal is a website maintained by the government to allow public access to draft and approved forest management plans, approved Annual Work Schedules, Annual Reports and associated information prepared for Crown forests in all management units in Ontario. https://nrip.mnr.gov.on.ca/s/?language=en_US

BMFC Bancroft Minden Forest Company

Bancroft Minden Forest Company has a comprehensive website designed to help stakeholders understand more about our business and the practice of sustainable forestry on the license. https://bmfci.ca/

FSmith Consulting

Fraser Smith is a Registered Professional Forester that can be contracted to help with all aspects of forest management for your private land, based out of Peterborough https://www.fsmithconsulting.ca/

York River Forestry Services

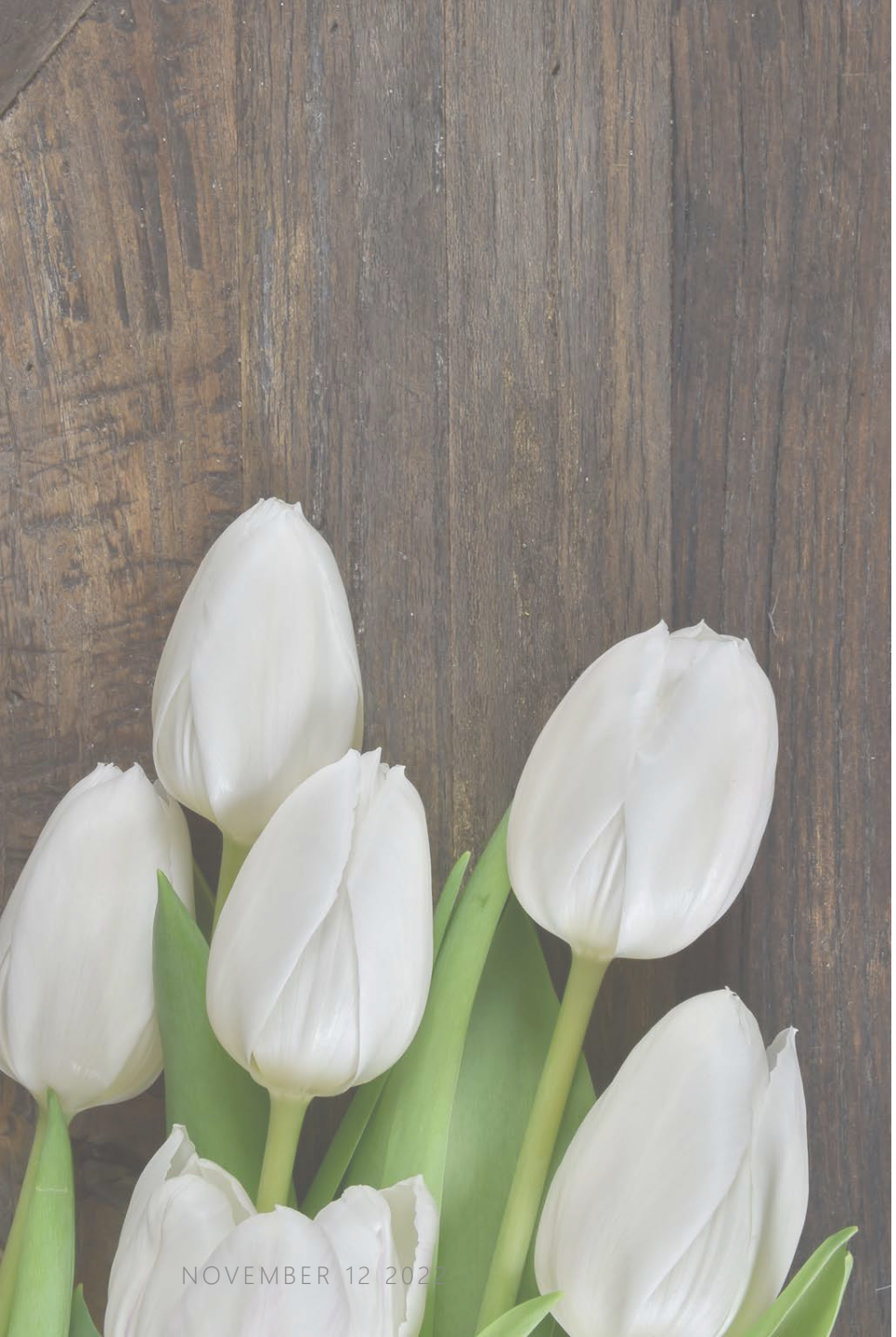
Alex Marcantonio is a Registered Professional Forester that can be contracted to help with all aspects of forest management for your private land, based out of Bancroft https://yorkriverforestry.ca/

Forests Ontario

Forests Ontario 50 Million Tree Program allows private landowners the opportunity to plant areas effected by storm damage. Minimum requirement of 500 trees (0.5 acres). https://forestsontario.ca/en

DOMINANT SPECIES IN JACK LAKE SALVAGE

	Sugar Maple (Mh)	Hemlock (He)	Red Oak (Or)	White Ash (Aw)	Beech (Be)	Yellow Birch (By)
Longevity	300-400	400-500	125-250	250-300	100-200	300+
Age Structure	multi-aged	even/multi-aged	even/multi-aged	even/multi-aged	multi-aged	even/multi-aged
Vegetative Reproduction	sprouts-common	N/A	sprouts-very common	sprouts-common	root suckers	sprouts-common
Time of Seed Dispersal	Sept-Oct	Oct-Jan	Sept-Nov	Sept-Dec	Sept-Nov	Sept-Oct
Preferred Seedbed	undisturbed litter	moist mineral soil, rotten logs, stumps	moist mineral soil	mineral soil, humus, leaf litter	mineral soil. leaf litter	undisturbed litter
Best Light for Germination	partial shade	partial shade	requires light (30% of maximum intensity)	partial shade	partial shade	partial shade
Shade Tolerance	tolerant	tolerant	mid-tolerant	mid-tolerant	tolerant	tolerant
Response to Release	good	good	good	good	moderate	good
Susceptibility to Rot/Stain	high	low	moderate/low	low	high	high
Wind Firmness	good	moderate/poor	good	good	good	good



THANK YOU

Julie Edwards, RPF

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www.bmfci.ca

BMFC
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