Turtles and Trees – Challenges in balancing silvicultural objectives in the GLSL Forest

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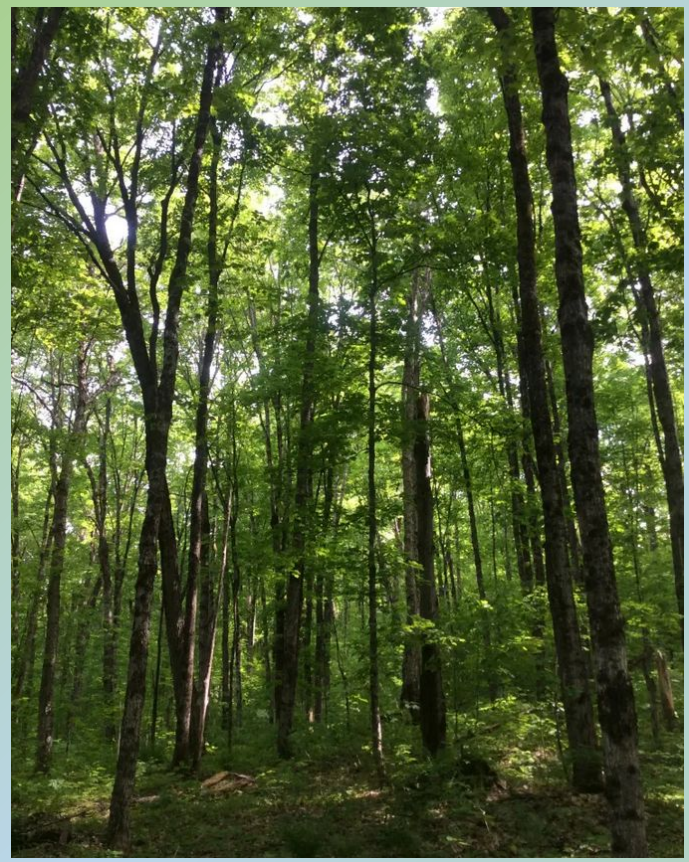
Disclaimer: This is NOT a discussion pitting species at risk and values protection vs forestry.

Westwind Forest Stewardship Inc.
French-Severn Forest

- Central Ontario – Georgian Bay to Algonquin Park
- FSC certified since 2002
- Not-for-profit company
- Community-based Board of Directors
- ~362,000 ha of Crown productive forests
- ~23 % forested areas formal protection
- 20+ logging contractors, several mills, contract silvicultural workers. 5 staff.
- 8 First Nations communities within or adjacent, Metis, 8 First Nation communities with traditional use

Main forest types: sugar maple dominated tolerant hardwoods and white pine forests

- Partial cutting accounts for 88% of planned harvest treatments, 95% actual.
- Pine silviculture most affected by Area of Concern restrictions including Species At risk
- Hwds mainly harvest restrictions



French-Severn is not alone

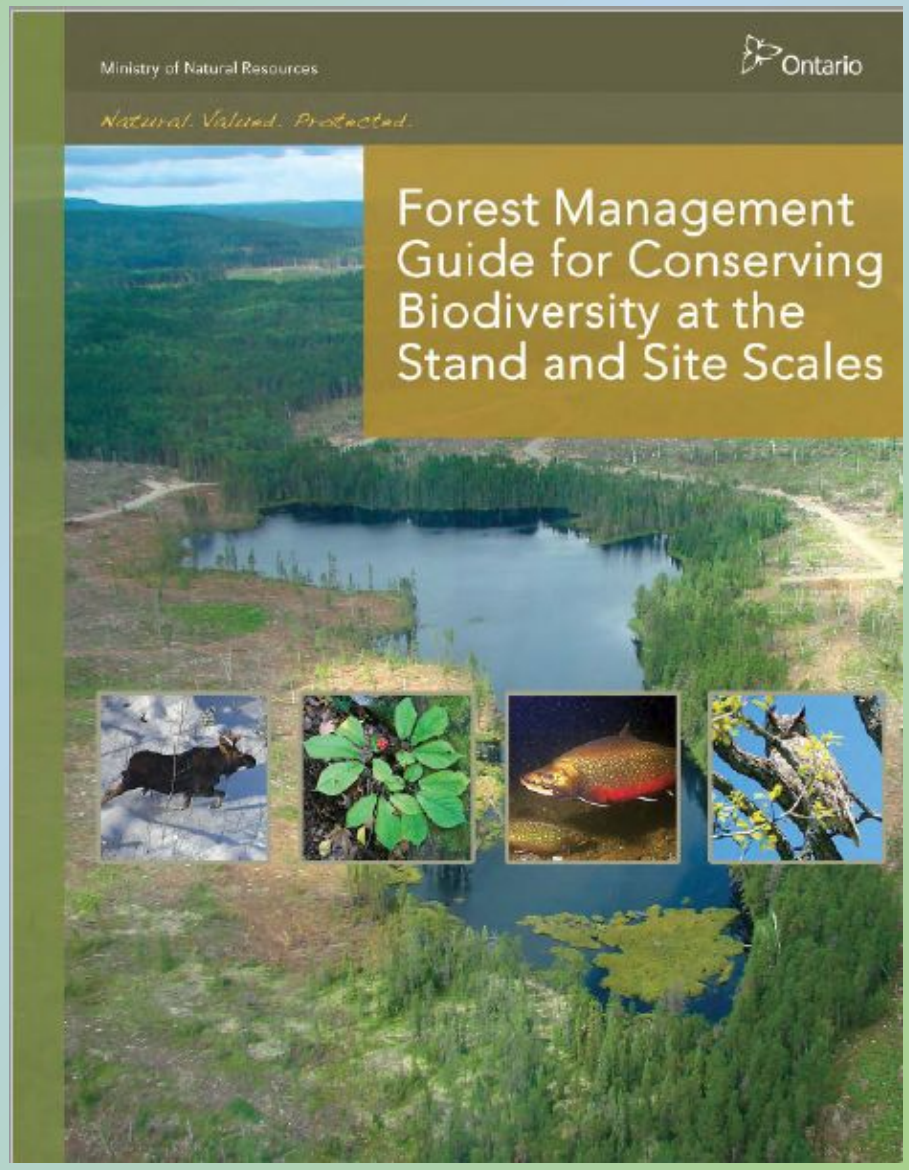
- Algonquin Forest Authority – “silviculture success is poorer and costs are greater with loss of flexibility to use treatments”
- “white and red pine require greatest amount of intensive silviculture but have most restrictions.”
- Renewal restrictions often counter-intuitive –i.e. hampered to create preferred habitat.
- “Cumulative impacts significant”
- Bancroft-Minden higher cost, less effective options with contractor capacity issues. 15% of landbase is in a SAR modified area – 27% for white pine.
- Bancroft-Minden, Ottawa Valley, Mazinaw-Lanark at least 546 American ginseng where no harvesting allowed.

Silviculture is more than just site preparation, planting and tending

- Traditional site preparation, planting and tending is routinely done in white pine shelterwood stands.
- Shelterwood establish release mid-tolerant regeneration – white pine but also yellow birch, red oak, black cherry (mast trees)
- Selection silviculture reduces infectious disease, improves quality, provides release of all ages of trees.
- Past investments – tree marking, stand improvement, SIP, Planting, Tending
- Forest restoration work

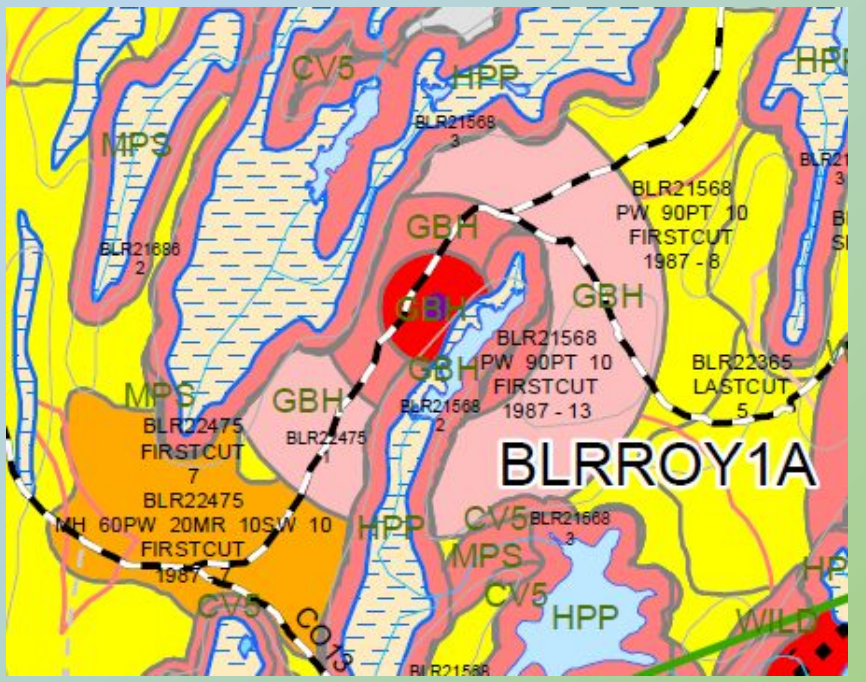
Stand & Site Guide

- Main policy in Ontario since 2010
- Fine filter approach although can be at large scales
- Not just species at risk
- Currently in revision discussions
- Ability to implement silviculture is secondary to non-timber values
- Silviculture guide indicates – “the direction in other guides may require the practitioner to make a choice between no harvesting, re-evaluating the future forest objective, or choosing a low probability treatment, method or system”
- By law, forest managers must carry out renewal and maintenance activities on harvested areas to provide for the sustainability of Crown forests in Ontario. All areas harvested are required to be regenerated..
- Many values NOT known at time of planning but close to or during operations.



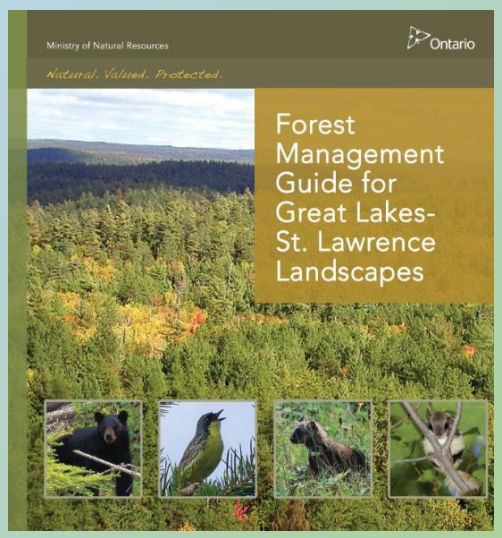
Definition: Area of Concern AOC

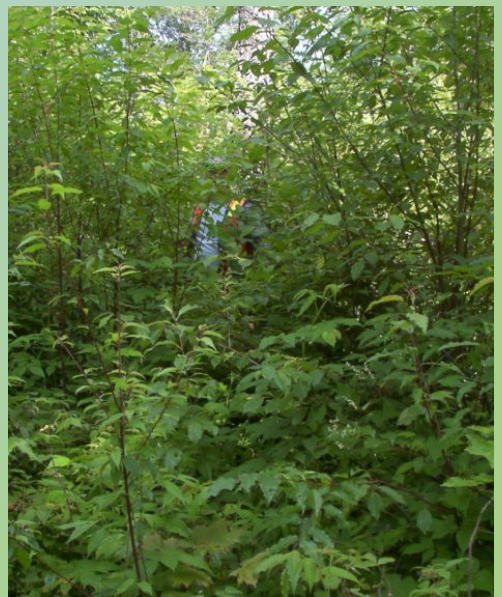
- A geographic area associated with an identified natural resource feature, land use or value that may be affected by forestry management activities.
- Stick nests, species at risk suitable habitat, aquatic features areas, recreational and social areas, cultural values, research areas.
- AOC prescriptions may include required
  - Reserves and modified management zones
  - Timing Restrictions
  - Minimum forest cover requirements
  - Restrictions on roads, landings, aggregate pits and associated activities
  - Other



Implications of inadequate silviculture

- Meet objectives at landscape and stand level
- Predicted future forest conditions premised on adequate and successful silvicultural treatments – social, economic AND environmental objectives.
- Sustainable Forest Licensee obligations – renewal standards in FMPs with tools, timing and conditions.





Some treatments allowed but not at appropriate times – sample of 78 value types

- Main values that affect our silvicultural timing opportunities
- Sometimes overlapping or in same block
- Some treatments allowed – e.g. aerial spray vs ground-based spray like Air Blast Sprayer or mechanical site preparation
- Cumulative impacts are difficult to quantify but significant

- Social values

Portage/Canoe routes/water access points avoid July 1 to Labor Day

Value associated timing restrictions that can affect implementation of silvicultural activities. (2019-2029 French-Severn FMP)

	Great Blue Heron Colony (300m)	Red-shouldered Hawk (200m)	Northern Goshawk (200m)	Bropad-winged, Coopers (100m)	Osprey (150m)	Red-tailed hawk (100m)	Massassauga (100m)	Blandings Turtle (150m)	Whip-poor-will (variable)
All year									
February-early									
February - late									
March-early									
March-late	x	x	x			x			
April-early	x	x	x	x	x	x			
April-late	x	x	x	x	x	x	x		
May-early	x	x	x	x	x	x	x	x	
May-late	x	x	x	x	x	x	x	x	x
June-early	x	x	x	x	x	x		x	x
June-late	x	x	x	x	x	x		x	x
July-early	x	x	x	x	x	x		x	x
July-late				x	x			y	x
August-early					x			y	x
August-late								y	x
September-early							x	x	x
September-late							x	x	
October-early									
October-late									

x=timing restriction, y=past timing restriction

Disturbance definitions

Potential impact	Examples
High	Harvest operation Large tree plant (≥5 people) if visible Mechanical site preparation Road construction
Moderate	Ground (airblast) herbicide application Large tree plant if not visible Small tree plant if visible Small crew using brushsaws
Low	Aerial application of herbicides Boundary/tree marking Hauling Routine road maintenance (e.g., grading)

Species	Timing restriction (m)		
	High Impact Operations[1]	Moderate Impact Operations	Low Impact Operations
Barred owl	200 m	100 m	50 m
Broad-winged hawk, Cooper's hawk, great horned owl, long-eared owl red-tailed hawk	100 m	50 m	25 m
Common raven, merlin, sharp-shinned hawk	50 m	25 m	10 m

Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales (2010)

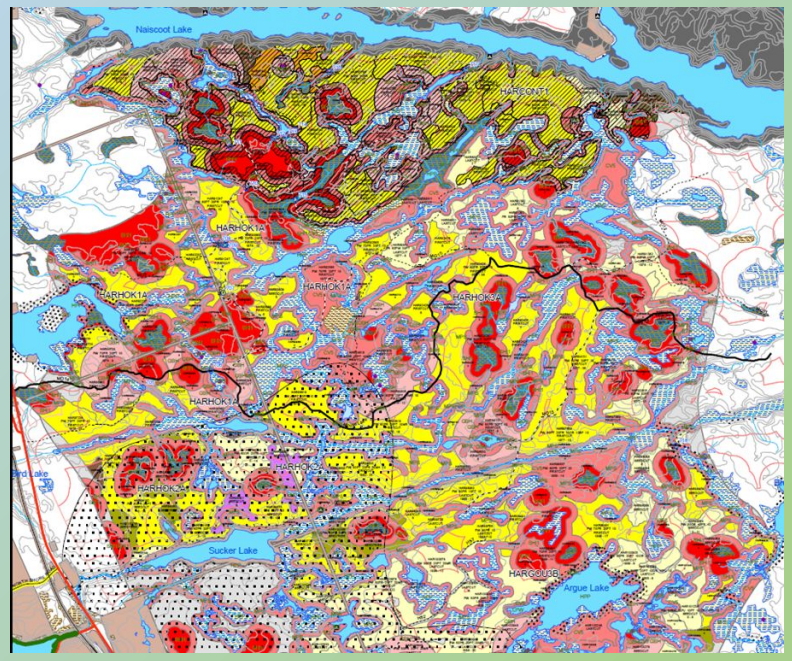
Residual Forest requirements

- Large number of area of concern prescriptions have residual or mature forest requirements – if textbook selection -> feasible –if not?
- Is there enough light for species being managed?

- Stick nests – hawks, herons
- Deer emphasis areas
- Ponds, streams, lakes, rivers
- 50-70% crown closure often the prescribed residual forest requirement

Some examples – Blandings (Turtle) SAR

- Main stated threat – physical damage from equipment/roads.
- For 5 years no mechanical site preparation, ground spray, harvesting until mid-October. 6 week window now outside 30m early July.
- Aerial spray and planting acceptable



Red-shouldered hawk – symbol of mature torlerant hardwoods?

- High residual forest requirement – textbook selection?
- Large AOC, often small hardwood blocks (300-400 m)
- Larger tree retention
- Timing restrictions – spring to mid-summer
- Little option for black cherry, red oak management (or yellow birch)

Great Blue Heron Colony - hundreds

- 300 m no high impact activities March 15 to July 31
- 150m retain 60% crown closure – midtolerant species challenge

Massassauga (rattlesnake)

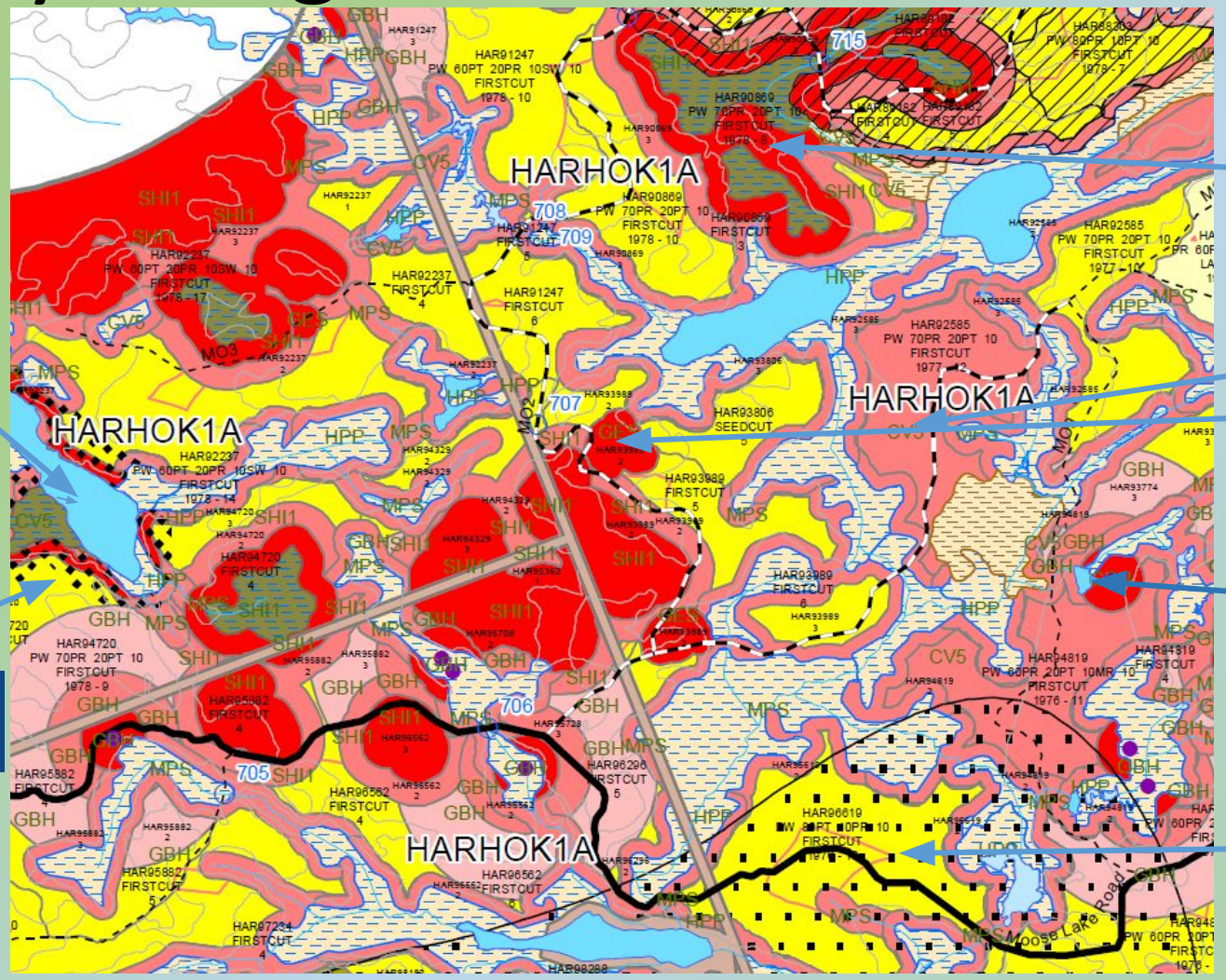
- Hibernaculum
- No harvest, renewal and tending
  September 1 to October 1

  April 15 to June 1
- Not significant issue by itself

Deer Emphasis Area (Wintering)

- Critical thermal cover requirements – 60% in white pine.
- Herbicide restrictions.
- Competing objective to also increase browse while creating future conifer cover

Cumulative impacts – common concern but rarely recognized



Ontario

Forest Management Guide for Cultural Heritage Values

Approaches and cons

- Larger planting stock – cost, adequacy
- Aerial herbicide – opposition, water buffers,
- No mechanical site preparation – little natural regeneration, competition
- Winter or late fall mechanical site preparation – productivity, effectiveness
- Natural regeneration – most common already, planting needed
- Group openings or strips in deer yards
- Strategic efforts for mid-tolerants – ignores past, other objectives not met (mast)
- Don’t harvest – e.g. shelterwood discontinued release doesn’t happen selection benefits not realized

AERIAL FOREST MANAGEMENT