

Common Silvicultural Practices in the Boreal Hardwood Transition

Greg Edge
Forest Ecologist / Silviculturist
Wisconsin Department of Natural Resources
Gregory.Edge@wi.gov



Definition of Silviculture:

The practice of controlling forest composition, structure, and growth to maintain and enhance the forest's utility for any purpose.



Definition of Silvicultural System:

A planned program of vegetation treatment during the entire life of a stand.

- Typically named after the stand age class structure and the regeneration method (e.g., even-aged uniform shelterwood system)
- Three components: tending, harvesting, and regeneration



INTERMEDIATE TREATMENT

Silvicultural treatment occurring after the establishment of regeneration and prior to final harvest.

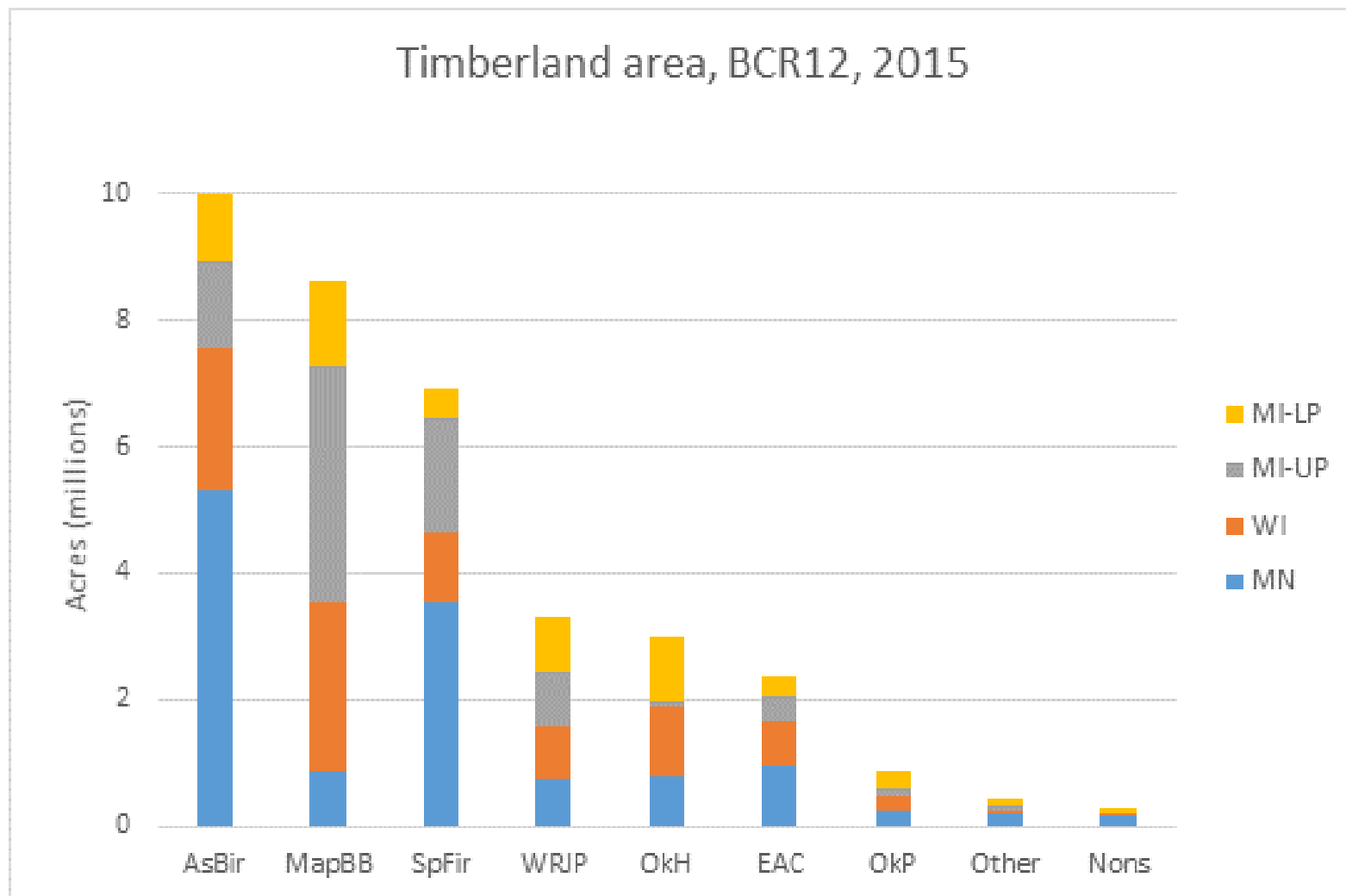
- sometimes called tending or timber stand improvement
- designed to improve composition, structure, growth, health, quality, and production
- commercial or non-commercial

NATURAL REGENERATION METHODS

Method by which a stand of trees is established by natural reproduction.

- based on mode of origin and arrangement of cuttings in time & space
- examples – simple coppice, uniform shelterwood

Forest Type Groups of BCR-12



Aspen (aspen/birch group)

Intermediate Treatments:

- thinning uncommon

Regeneration Methods:

- even-aged systems
- simple coppice
- coppice with standards (or reserves)
- natural conversion

simple coppice



SEP 9 2005

**coppice
w/standards**



**coppice w/
aggregate retention**



Birch (aspen/birch group)

Intermediate Treatments:

- thinning uncommon, risk of root damage

Regeneration Methods:

- even-aged systems
- shelterwood
- seed tree
- clearcut (w/standards, strip)
- scarification (mechanical, Rx fire)

**seed tree
w/scarification**



Northern Hardwoods (maple/beech/birch group)

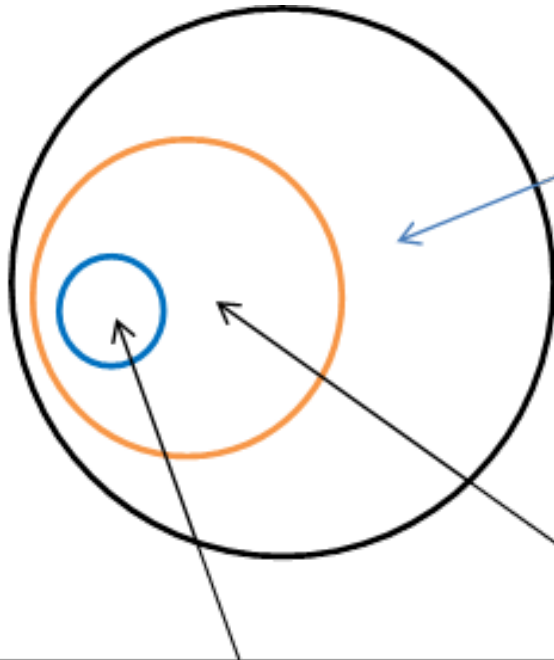
Intermediate Treatments:

- thinning common
- thinning combined with regeneration in uneven-aged systems

Regeneration Methods:

- even-aged & uneven-aged systems
- single tree selection
- group selection
- shelterwood
- overstory removal
- multi-cohort

How does WDNR define a gap, group, or patch?



Patch: .5 – 2.0 acres

Although stands are considered uneven-aged, the relatively large openings are fairly exposed and function as small even-aged patches.

Gap: <.1 acres

Each regeneration opening (canopy gap) covers an area equivalent to the crown spread of a one to several large trees

Group: .1 – .5 acres

The smallest canopy openings are 0.1 acres, equivalent to a 75 foot diameter circular opening. The largest canopy openings are 0.5 acres, equivalent to a 167 foot diameter circular opening, which is approximately 2X tree height

single tree selection



group selection



multi-cohort



Spruce/Fir

Intermediate Treatments:

- thinning common

Regeneration Methods:

- mostly even-aged, sometimes uneven-aged systems
- shelterwood
- clearcut (uniform, strip)
- overstory removal
- seed tree
- less common - single tree & group selection
- artificial - direct seeding

strip clearcut



White/Red/Jack Pine Group

Intermediate Treatments:

- thinning common in white and red pine

Regeneration Methods:

- mostly even-aged, sometimes uneven-aged systems
- **white pine** – shelterwood, seed tree, overstory removal, some group/patch selection
- **red pine** – shelterwood, overstory removal, artificial regeneration (most common)
- **jack pine** – clearcut, seed tree
- scarification (mechanical, Rx fire)

shelterwood



overstory removal
(potential)



artificial regeneration





seed tree w/ Rx fire



Oak/Hickory Group

Intermediate Treatments:

- thinning common

Regeneration Methods:

- even-aged systems
- shelterwood
- coppice
- overstory removal
- patch selection
- scarification (mechanical, Rx fire)



Coppice w/reserves



Bottomland/Swamp Hardwoods (elm/ash/cottonwood group)

Intermediate Treatments:

- thinning common, combined with regeneration in uneven-aged systems

Regeneration Methods:

- even-aged & uneven-aged systems
- shelterwood
- seed tree
- coppice
- overstory removal
- group & patch selection
- hydrology issues critical

intermediate thinning



strip shelterwood





Questions?

