



# Forest Management & Timber Harvest

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Wolf River Forestry, LLC  
Shawano, WI



# Topics

- ❖ Assessing forest and stand condition.
- ❖ Determining silvicultural systems.
- ❖ Making harvest tree selections.
- ❖ Establishing a management treatment & commercial timber harvest.

Not all timber cutting is forest management.

It is often extractive mining without regard for the forest, due to lack of knowledge or ethics.

At best, 38% of NIPF lands have a forest management plan.

Less than 22% of the timber harvests that occur on NIPF lands are conducted with the assistance of a professional forester.

# Management Planning

State of Wisconsin  
Department of Natural Resources

**FOREST STEWARDSHIP MANAGEMENT PLAN** Form 2400-111 Rev. 3-92  
Page 1 of 1



Name(s) and Address of Landowner(s):

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County: Marquette Town Name: Shields  
Town: 16N; Range 10E; Section: 11  
Total Plan Acreage: 228

*Attached maps show the location of stewardship forest lands.*

The purpose of the Forest Stewardship Program is to encourage the growth of future commercial crops through sound forestry practices which recognize the objectives of individual property owners for aesthetics, wildlife habitat, erosion control, protection of endangered or threatened plants and animals, compatible recreational activities, economic returns, etc. By state law, "forestry" means managing forest lands and their related resources, including trees and other plants, animals, soil, water and air. To guide the Department in developing a management plan to help fulfill this stewardship objective, a statement of the owner's forest management objectives is required in the plan. The following statement has been provided either by the landowner or developed with the help of the Department. By signing this plan, the landowner(s) agree to comply with it.

**Landowner Objectives for Management of the Enrolled Lands:**

- Managing their lands to assist in maintaining the water quality in Comstock Lake.
- Enhancing the forest and non-forest cover type diversity over the property.
- Converting old agricultural fields to forests or other native plant communities over time.
- Addressing oak wilt disease issues.
- Maintaining the vigor and health of all native plant communities on their property.

The following pages include descriptions of related vegetative or physical areas called "stands." Recommended forestry practices are listed. Landowners are encouraged to actively complete the practices recommended. The plan may be revised with consent of both the landowner and the Department.

"Forest Stewardship" means managing the forest environment for all of its resources. Good forest stewardship begins with YOU, the owner. YOU can realize your forest land as a source of personal enjoyment, invest in your forest as a source of potential income and leave a legacy for future generations. This management plan is a first step toward meeting your objectives for your land.

Cutting timber without a plan for the forest is not forest management.

A plan:

- ❖ Clarifies owner objectives
- ❖ Evaluates forest condition
- ❖ Documents desired future condition

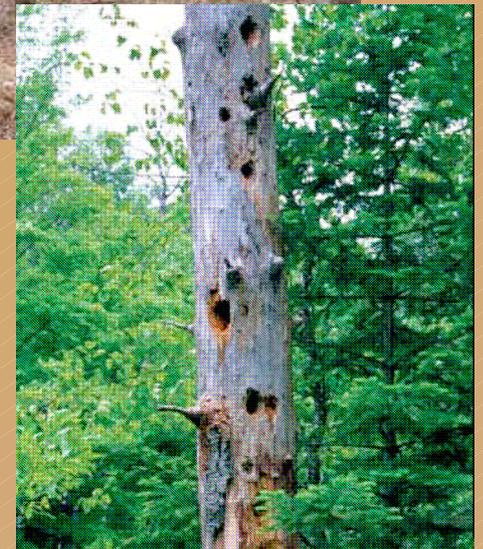
# Management Planning

ALWAYS MANAGE THE  
FOREST AS A WHOLE

Forestry is not just about the  
timber.

AS IMPORTANT,  
PROTECTING NON-  
TIMBER RESOURCES &  
BIODIVERSITY

The decisions we make today will affect forests  
for decades. That just means we need think first  
and plan long term.



# Stand History or Site Quality

Why does the forest look like it does? If the trees are poor quality, is it due to past impacts (site history) or the site?



# Stand History or Site Quality

If the trees are poor quality, is it due to the site or past impacts?

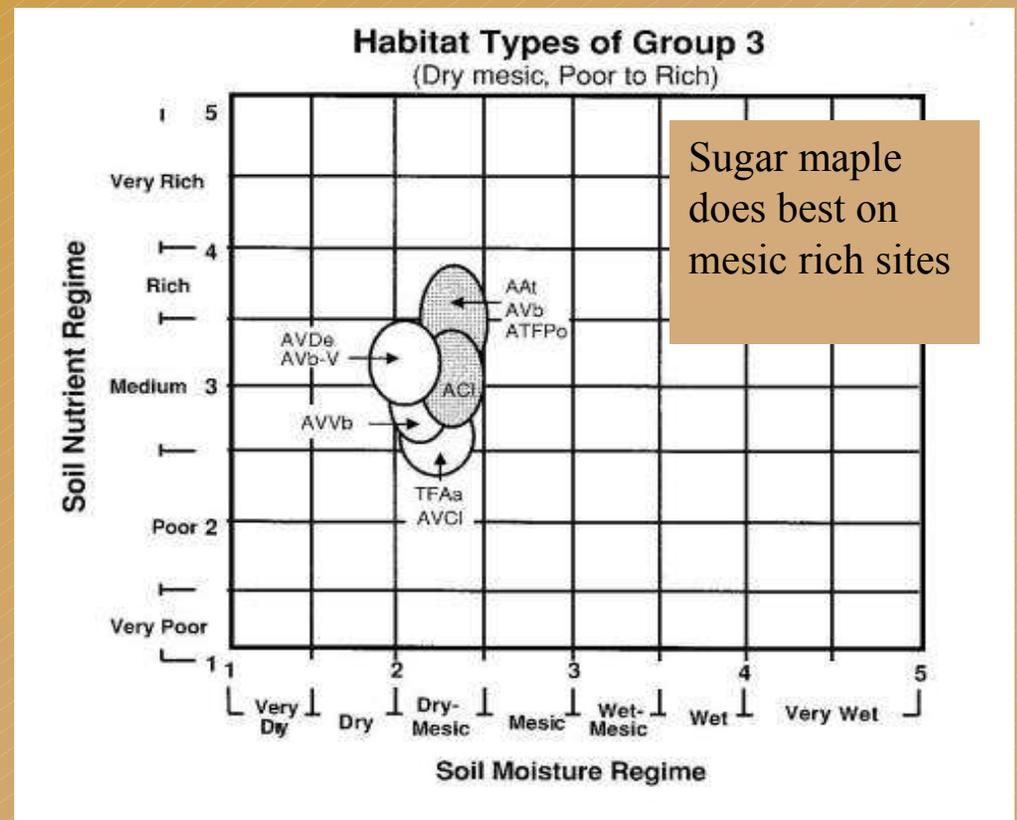
Species not suited to the site will not grow well.



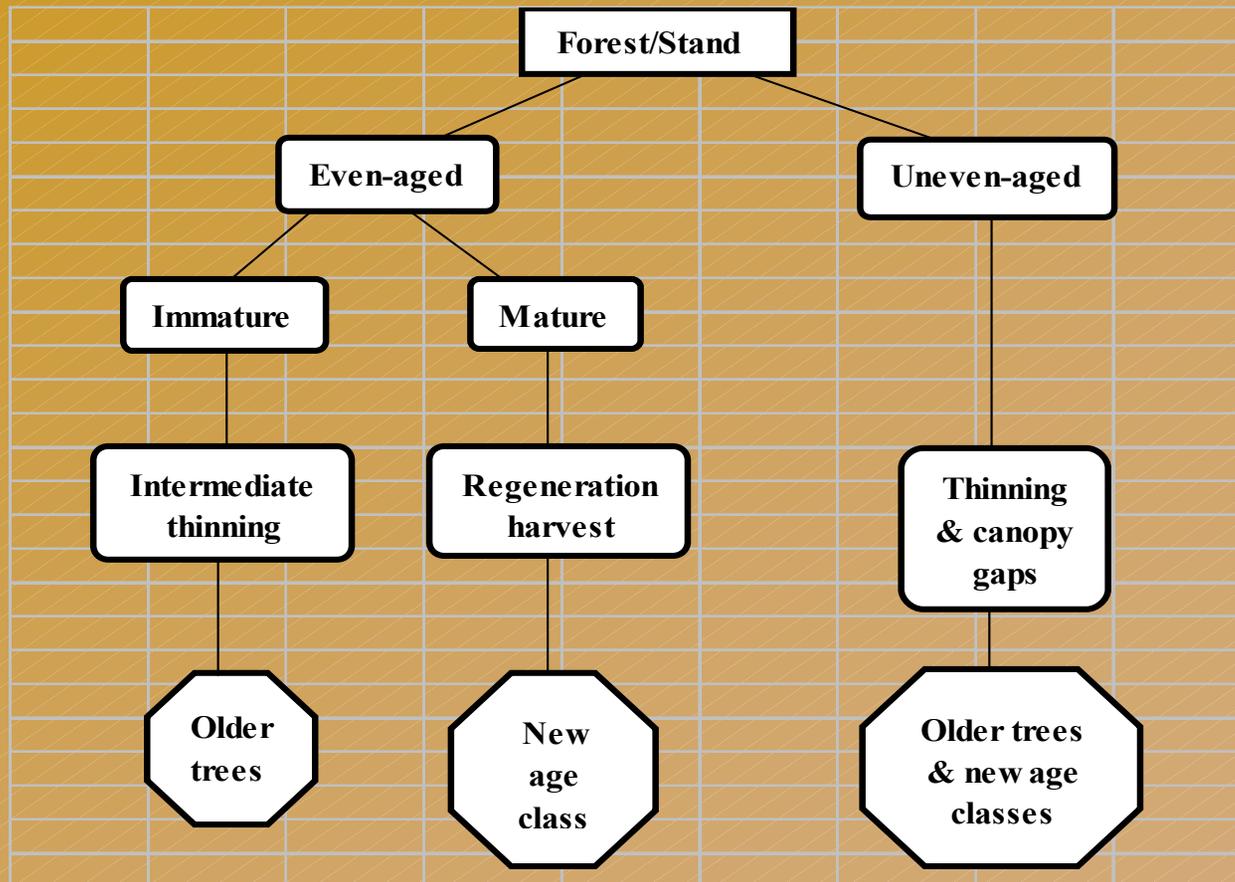
# Stand History or Site Quality

Vegetative Habitat Type: Is the tree suited to the site?

Using understory vegetation to assess site moisture/nutrient status.



# Forest & Stand Condition



# Definitions: Tree sizes

Seedlings: less than 1" dbh

Saplings: 1 - 5" dbh

Poletimber: 5 – 9(11)" dbh

Small sawtimber: 9(11) – 15" dbh

Large sawtimber: 15"+ dbh

Dbh = Diameter at breast height or 4.5 feet above ground.

# Stand Condition: Even-aged or Uneven-aged



Even-aged: all trees are about the same age.  
(All shade tolerance classes.)



Uneven-aged: multiple age classes and sizes.  
(Only shade tolerant species.)

# Stand Condition: Even-aged or Uneven-aged

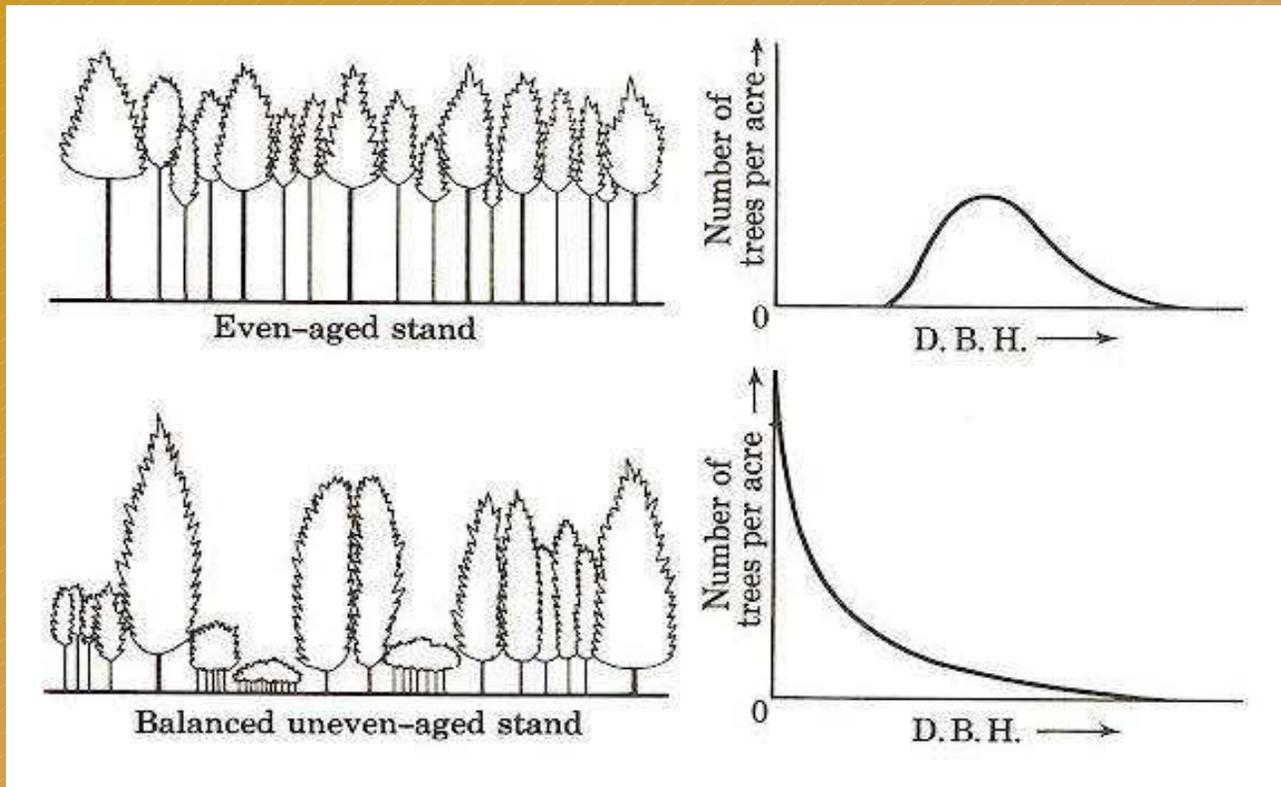
Tree diameter does not necessarily indicate age.

Only counting the annual growth rings will accurately age a tree.

In most private forests, even if there are trees of multiple diameters, the ages of these different sized trees tend to be nearly the same.

On most private lands, the overstory trees all originated in the early part of the 1900s. True uneven-aged forests are very rare on private lands.

# Stand Condition: Even-aged or Uneven-aged



Group increases in average size over time.

Size distribution maintained over time. Young trees replace older trees.

Smith, 1986

# Stand Condition:

## Even-aged: Immature or Mature



Immature: tight bark, good growth rings, full crown, low mortality

Stand maturity is assessed.



Mature: rough bark, growth rings narrow, crown dieback, mortality increasing.

Not simply tree size.

# Stand Condition: Even-aged: Immature or Mature

“Mature” has different meanings depending on the management goals.

Economic maturity is different than ecologic maturity.

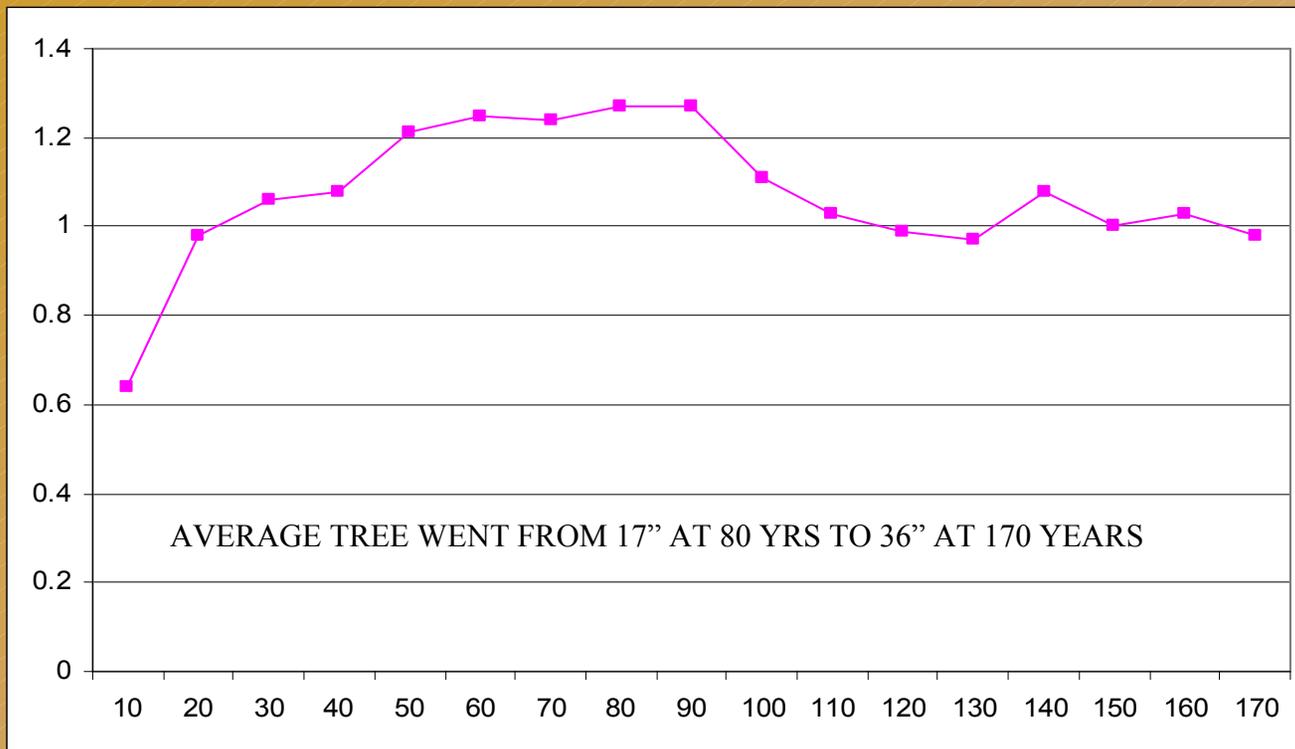
Forests managed solely for ecologic maturity may provide less economic return.

Forests managed solely for economic maturity will lack older ecologic structure.

Thus, manage for balance between both.

# Stand Condition: Even-aged: Immature or Mature

Red Oak radial growth



Data from 56  
dominant &  
codominant  
trees,  
20-40" dbh

Inches  
Decade

Decade

# Stand Condition: Even-aged: Immature or Mature

18" 16-foot log contains	210 board feet	<u>Change:</u>
20" 16-foot log contains	280 board feet	33%
22" 16-foot log contains	330 board feet	18%
24" 16-foot log contains	400 board feet	21%

Healthy trees are adding volume.

# Silvicultural Systems: Even-aged Thinning



In stands that are **not** mature.

Poorer, less vigorous trees harvested to provide space to better trees.

Thin at 10-15 year intervals until mature.

Oaks, birches, red maple, bottomland hardwoods, pines

# Silvicultural Systems: Even-aged Regeneration

Starting a new age class in even-aged mature forests.



Shelterwood first cut

For relatively shade intolerant species.

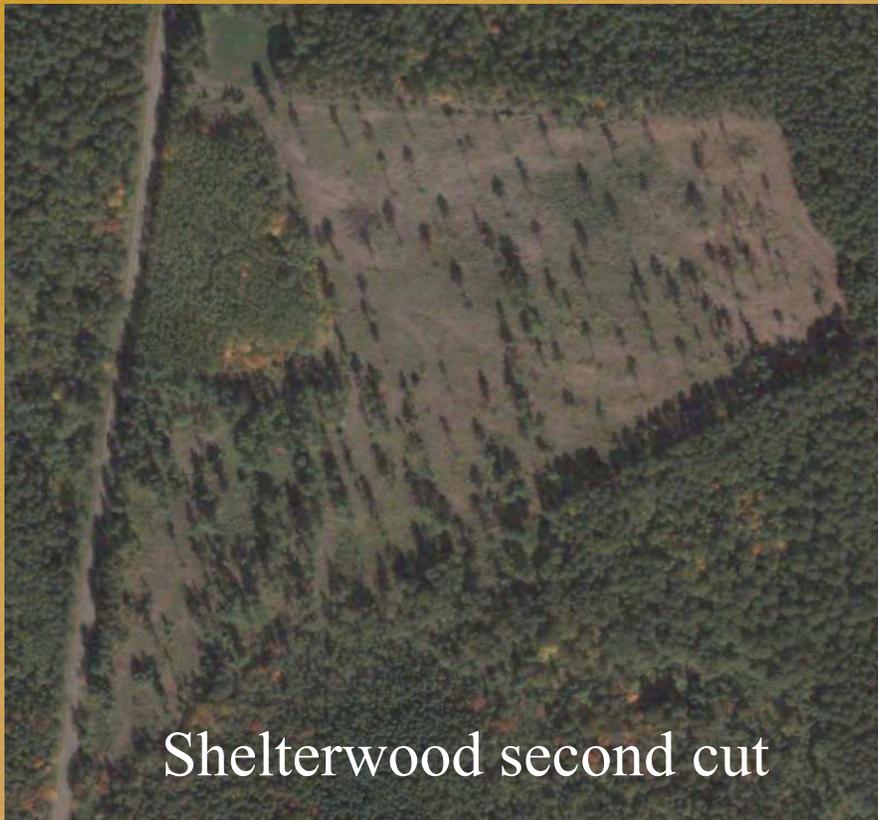
Recreate open environmental conditions.

Must be done while trees can still produce adequate seeds.

Oaks, pines, birches

# Silvicultural Systems: Even-aged Regeneration

Starting a new age class in even-aged mature forests.



Shelterwood second cut

When seedlings are 3-5 years old, remove at least 80% of the overstory.

Must be done to provide suitable light conditions to develop vigorous regeneration.

# Silvicultural Systems: Even-aged Regeneration

Starting a new age class in even-aged mature forests.



Except for planned retention, all stems 1" dbh and greater are cut.

In larger clearcuts, always plan to leave scattered trees and clumps of trees (retention) to provide some structural diversity.

Aspen (possibly white birch and pin oak)

# Silvicultural Systems: Even-aged Regeneration

Starting a new age class in even-aged mature forests.



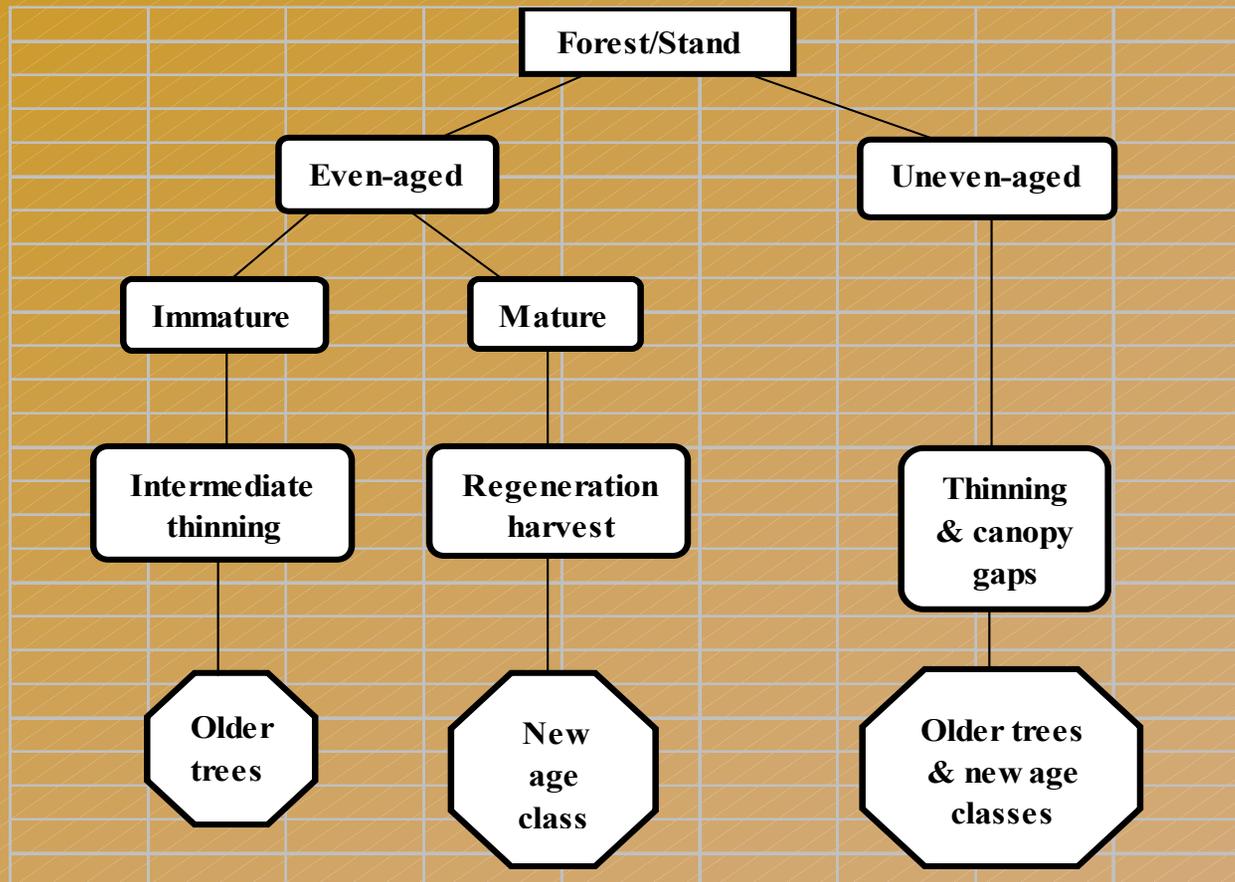
**Overstory removal/release**

Remove the overstory to release pre-existing desirable regeneration.

Must ensure that regeneration is viable: not too old or too weak.

Virtually any species

# Forest & Stand Condition



Now we address uneven-aged stands

# Silvicultural Systems: Uneven-aged selection

Shade tolerant species: sugar maple, beech, hemlock

Individual trees are evaluated for their risk and vigor (i.e., maturity). Not just tree size.

Poorer, less vigorous trees harvested to provide space to better trees.



AND

Starting new age classes

# Silvicultural Systems: Uneven-aged selection

Uneven-aged forests should have at least three age classes.



A  
problem:  
1-2 age  
classes due  
to shade or  
deer

The  
goal



# Silvicultural Systems: Uneven-aged selection

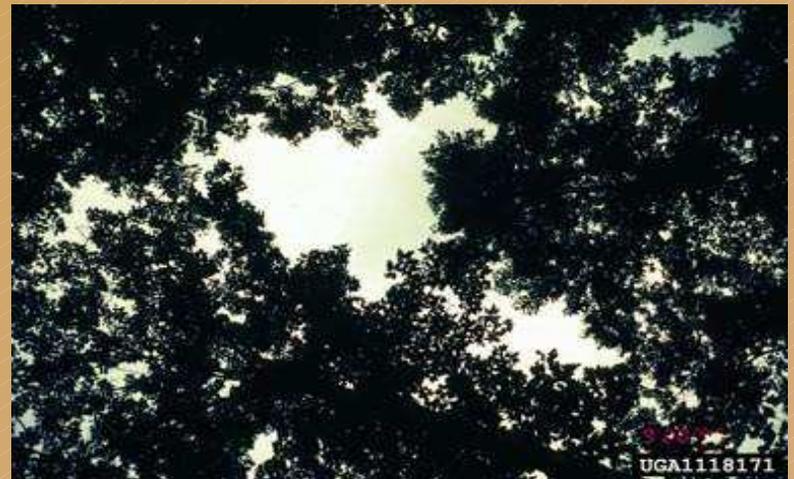
Single-tree selection with canopy gaps



Suppressed saplings can often be the same age as the larger tree.

With thinning in between  
gaps

Create canopy gaps (~ 40 foot diameter) where all trees are cut to provide light at forest floor



Brian Lockhart, USDA Forest Service, Bugwood.org

# Silvicultural Systems: Uneven-aged selection

Canopy gap:  
Young, vigorous  
shade tolerant  
seedlings &  
saplings



# Silvicultural Systems: Uneven-aged selection

## Group selection



Brian Lockhart, USDA Forest Service, Bugwood.org

Create openings up to about 0.5 acre in areas of poorer quality or less vigorous trees.

Often with thinning in between groups.

Used for species that need a bit more light to regenerate: yellow birch, red maple, ash

# Harvest tree selections

Even & Uneven Aged Systems

## Timber tree quality rating



**Crop tree:** vigorous, high quality (#1), straight, no defect, suited to site. Managed to maturity.

**Acceptable tree:** moderate vigor, some defects, will produce sawlogs (#2 and #3). Managed to “mid”-maturity.

**Unacceptable tree:** low vigor, high risk, major defect, off site, will not produce sawlogs. Harvested as soon as possible.



There are also tree quality ratings for wildlife trees, aesthetic trees, etc.

# Harvest tree selections

Even & Uneven Aged Systems

Ideally, looking for 75-100 crop trees per acre in young stands.

In an even-aged stand at desired stocking (~90 ft<sup>2</sup>/acre basal area):

If trees are 8" dbh, then there are 258 trees per acre

If	12"	115
----	-----	-----

If	16"	64
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If	18"	51
----	-----	----

Most of the trees that get harvested in the first and second thinnings are mainly poor quality, low value trees.

# Harvest tree selections

Even & Uneven Aged Systems

ALWAYS harvest **WORST TREES FIRST!**

To favor crop trees, cut:

- High Risk
- Low Vigor
- Poor Form

Marking Priority	High Vigor	Medium Vigor	Low Vigor
Low Risk	Green	Green	Red
Medium Risk	Yellow	Yellow	Red
High Risk	Red	Red	Red

High risk trees are those that will die before the next harvest.

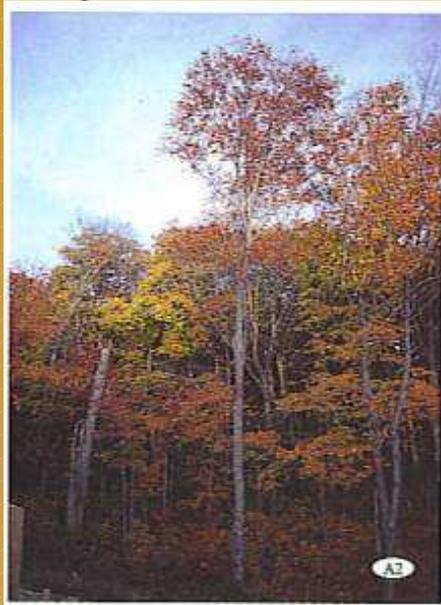
Evaluation of degrade must be made carefully – not an excuse to cut large trees.

# Harvest tree selections

Even & Uneven Aged Systems

Assessing vigor: Evaluate tree crown length

Less than 25% of height



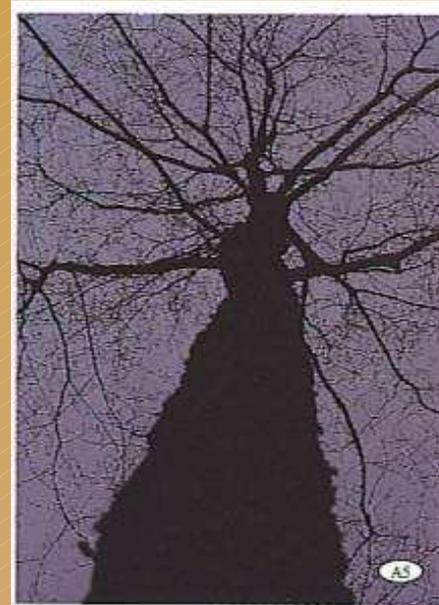
poorer

33-50% of height



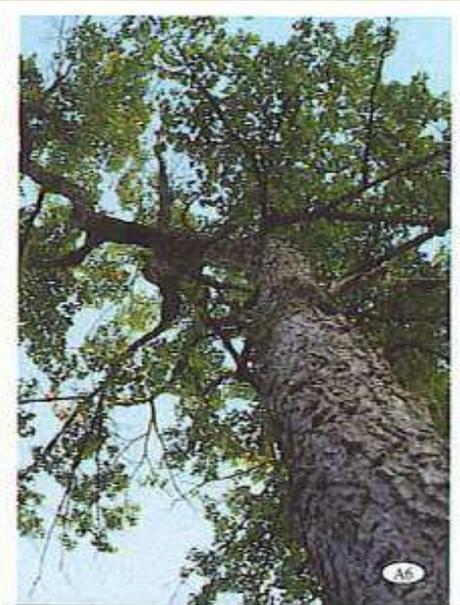
good

Full and round



good

Partial



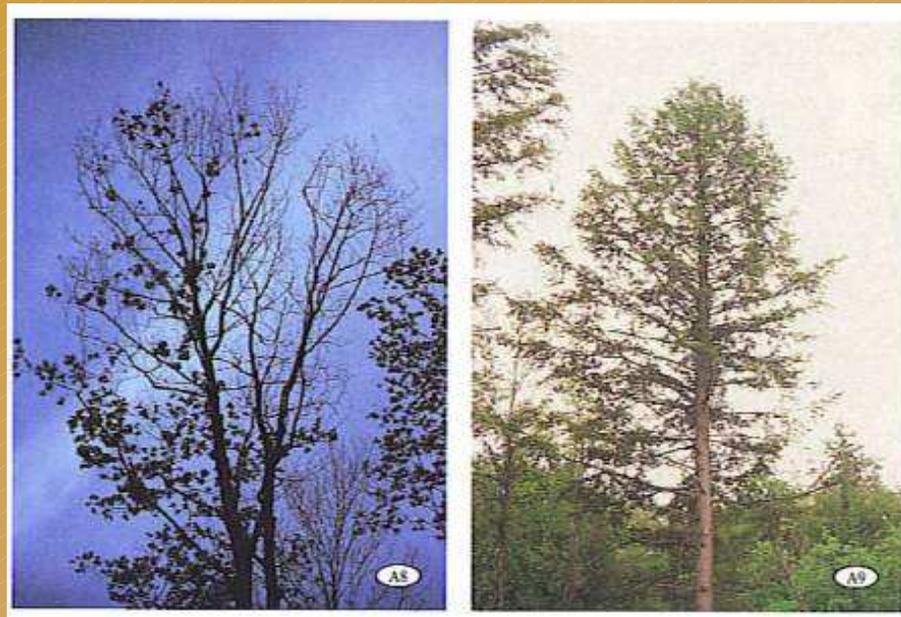
poorer

# Harvest tree selections

Even & Uneven Aged Systems

Vigor is directly related to crown mass.

Assessing vigor: Evaluate tree crown mass



Thin crowns are lower vigor

# Harvest tree selections

Even & Uneven Aged Systems

Assessing vigor: Evaluate tree bark (sugar maple poletimber)

Rough



Low vigor & slow growth

Smoother



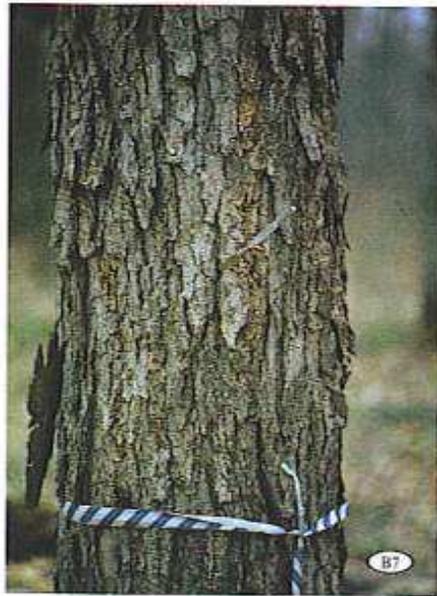
Good vigor & fast growth

# Harvest tree selections

Even & Uneven Aged Systems

Assessing vigor: Evaluate tree bark (sugar maple sawtimber)

Rough, flaky bark



Low vigor & slow growth

Tight, firm bark ridges



Good vigor & fast growth

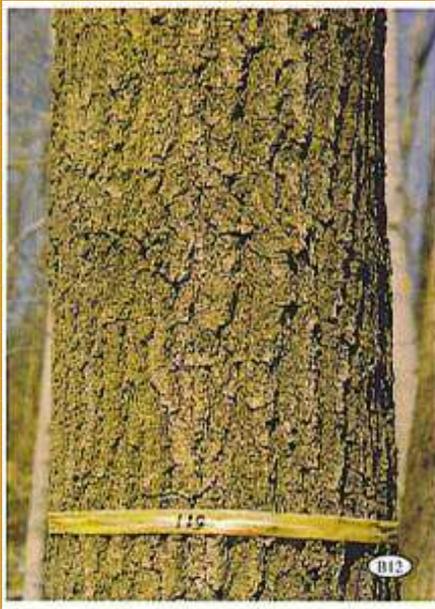
# Harvest tree selections

Even & Uneven Aged Systems

## Assessing vigor: Evaluate tree bark

Red oak

White ash



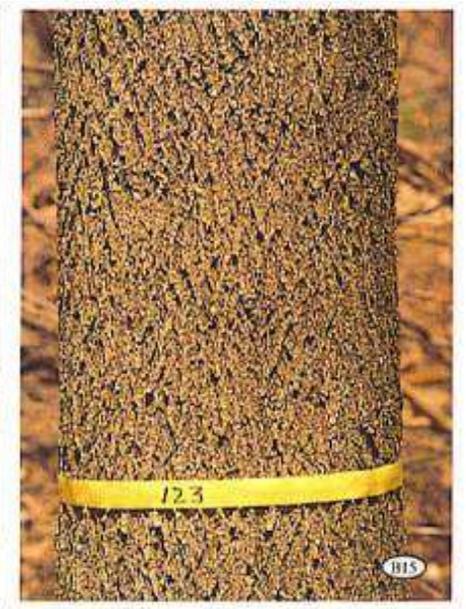
Low vigor  
& slow  
growth



Good vigor &  
fast growth



Low vigor  
& slow  
growth

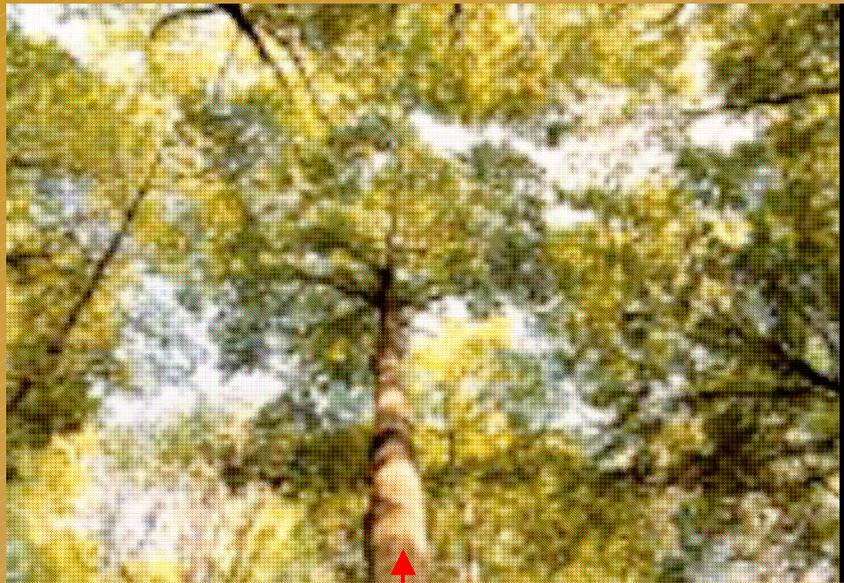


Good vigor &  
fast growth

# Harvest tree selections

Even & Uneven Aged Systems

Accomplish crown release on at least two sides.



Before

Crop tree

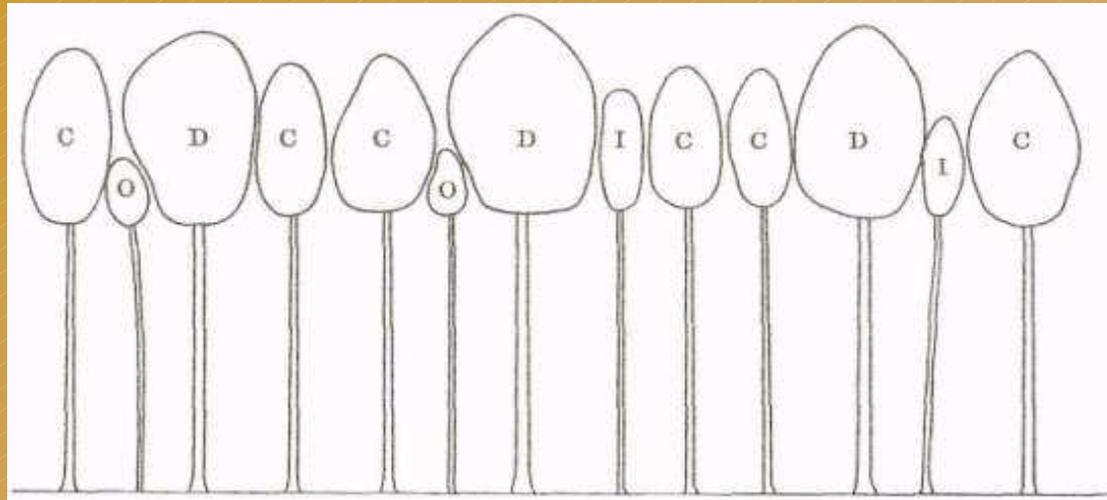


Crop tree

After

# Harvest tree selections

Even Aged Systems



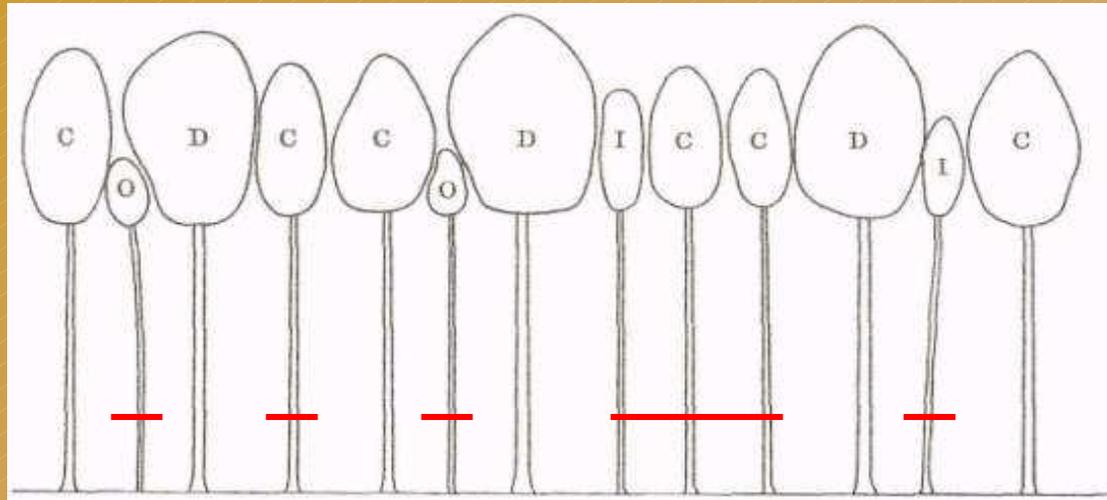
Even-aged crown classes

D = Dominant, C = codominant, I = intermediate, O = overtopped

All else equal, D & C are crop trees

# Harvest tree selections

Even Aged Systems



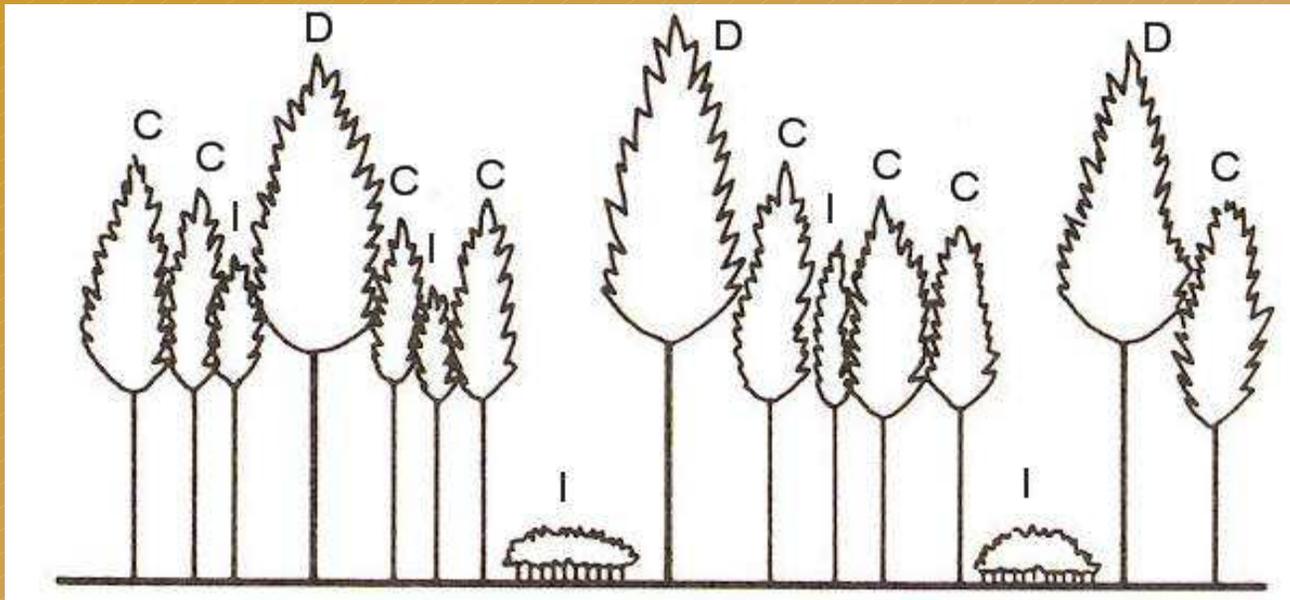
## Even-aged harvest trees

Cutting less vigorous trees to provide 2-sided crown release on crop trees.

Cutting just overtopped trees does not provide crown release.

# Harvest tree selections

Uneven Aged Systems



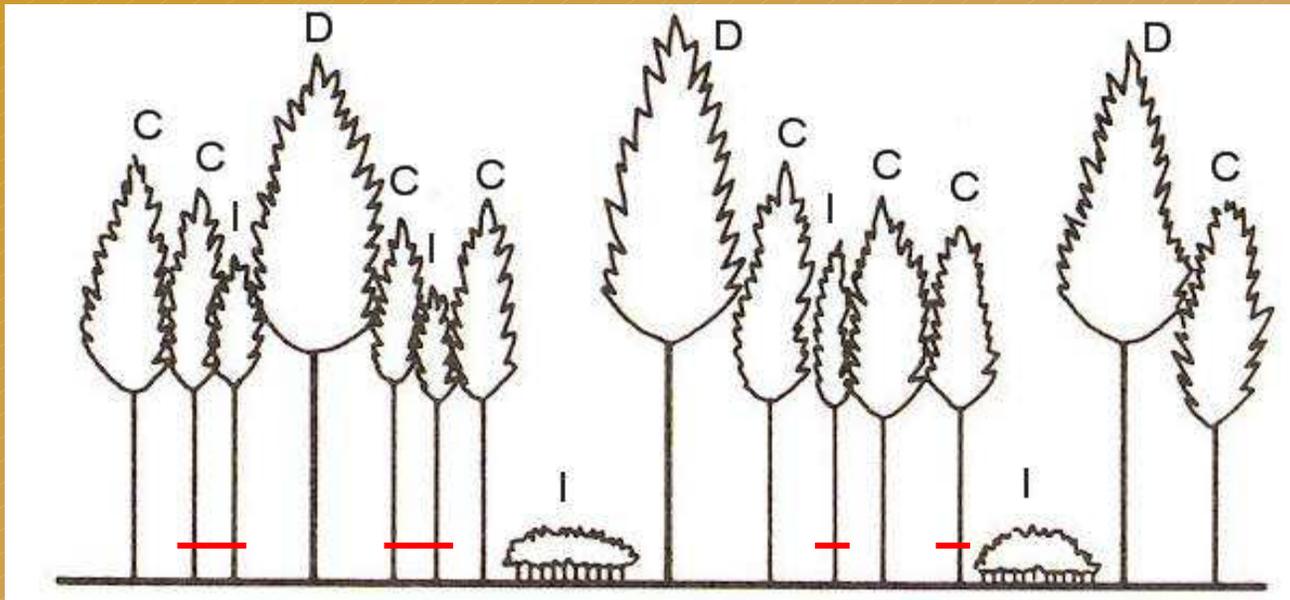
## Uneven-aged crown classes

D = Dominant, C = codominant, I = intermediate, O = overtopped

All else equal, D & C are crop trees. As are young I.

# Harvest tree selections

Uneven Aged Systems



## Uneven-aged harvest trees

Cutting less vigorous trees to provide 2-sided crown release on crop trees and creating canopy gaps. May cut old dominant to start new regeneration.

# High-grading: Not a silvicultural system

Cuts better trees first, SOLELY for their economic value.

This is not silviculture. In high-grading, there is no thought given to future stand structure or regeneration.

Small landowners are targeted. Most high-grading occurs on non-industrial lands, not industrial.



Blue dot tree is a crop tree marked for harvest by a log buyer. Smaller orange-marked tree is the same age and has a seam (the correct tree to cut).

# High-grading: Aliases

(Remember, most forests are even-aged)

“Diameter limit”: Cuts all the trees above a certain diameter.  
Leaves you with all the smaller trees.

“Cut the mature ones to let the little ones grow”: Same result

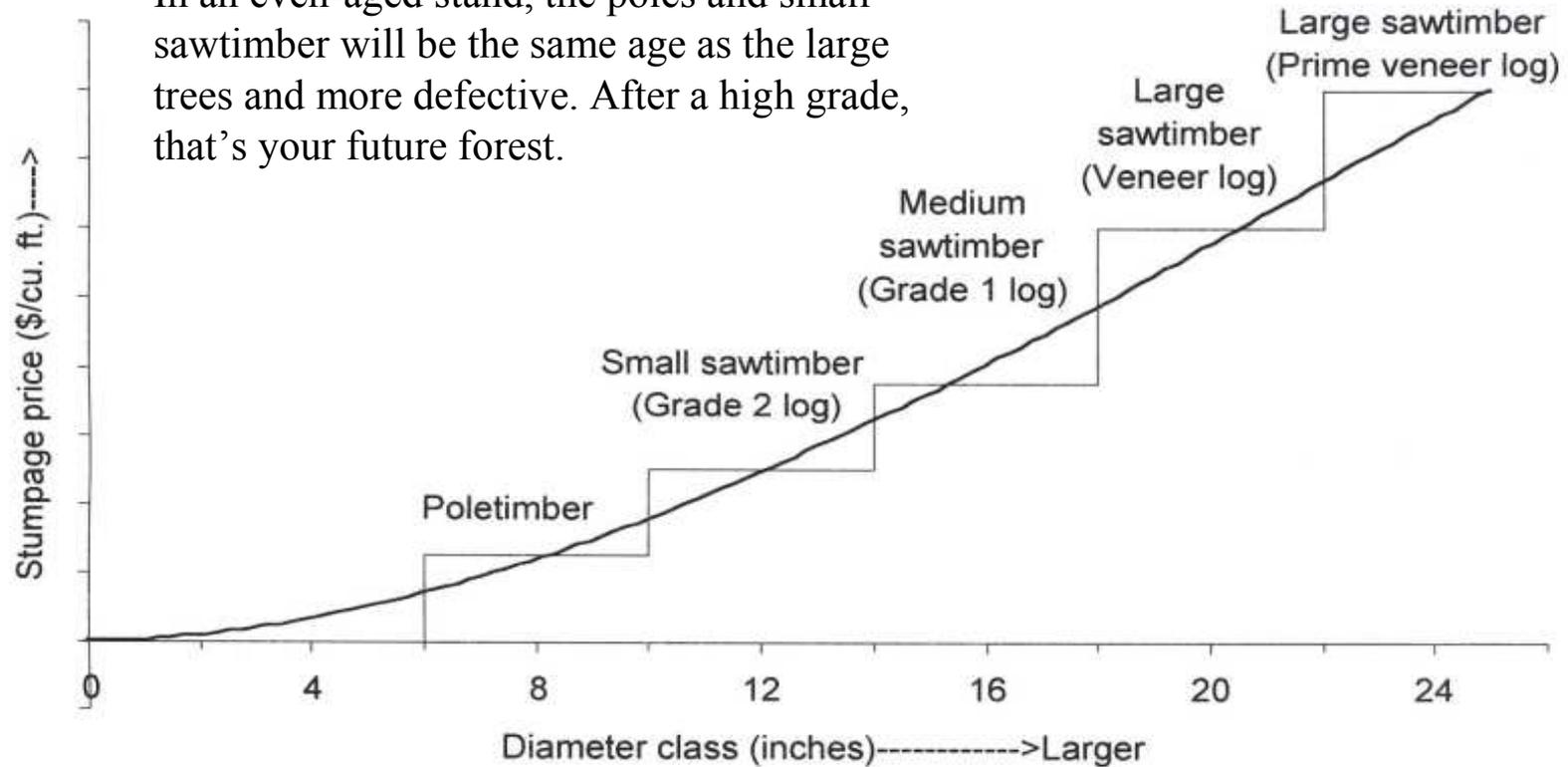
“Selective logging”: The buyer selects what they want,  
you get the leftovers.

High-grading is ALWAYS wrong.

A true management prescription will address the current and future forest condition, NOT JUST FOREST PRODUCTS.

# High-grading: Effects

In an even-aged stand, the poles and small sawtimber will be the same age as the large trees and more defective. After a high grade, that's your future forest.



# Professional Foresters: Conserves your forest

Focuses on proper resource management.



Does not allow high-grading, overcutting, or detrimental impacts to other forest resources.



## Timber harvest is a management tool.

- ❖ Timber harvest is not done simply to generate revenue.
  - ❖ Trees are harvested as part of a plan for the forest.
- ❖ Beware the person that spends more time talking about the value of your timber than about your forest.
- ❖ The person that talks about managing and conserving your forest is interested in addressing your goals.

## Preparing for harvest (Harvprep)

- ❖ Establish property and stand boundaries.
- ❖ Mark harvest trees or clearly designate them.
- ❖ Estimate harvest volumes.
- ❖ Discuss the harvest and access with neighbors.
- ❖ Establish roads and landings.
- ❖ Prepare DNR and county cutting notices.
- ❖ Prepare timber sale contract.

# Harvprep: property & stand boundaries



Old fences may not be  
on the property line.



Mark out areas to protect  
(wetlands, steep slopes,  
sensitive areas).

# Harvprep: mark/designate harvest trees



Mark trees to cut

or

Mark trees to leave

Stump marks are the only way to tell if the correct tree was cut or left.

Unmarked harvests are often difficult to evaluate after harvest. Was the right tree cut?

Designate harvest species, sizes, or areas. Must be specific.



# Harvyprep: Estimate harvest volumes

Measure harvest tree volumes.



**Kruzer 2003**  
Version 1.0, written by Kris Wilms

08/02/07

Landowner's Name: City of Sorabis  
County: 0 Town: 0 Sec-Town-Range: 0  
Cruzer: Pubantz Date: 12/15/03  
BAF: 10  
Stand: Cut  
# Points: 9

Species Table - per acre				
Species	#Trees	BA	MBF	Cords
Ash-black	0	0	0.00	0.0
Ash-green	0	0	0.00	0.0
Ash-white	2	0	0.00	0.0
Aspen-big tooth	2	0	0.00	0.0
Aspen-quaking	2	0	0.00	0.0
Basswood	0	0	0.00	0.0
Beech	0	0	0.00	0.0
Birch-silver	2	0	0.00	0.0
Birch-white	2	0	0.00	0.0
Birch-yellow	2	0	0.00	0.0
Black locust	0	0	0.00	0.0
Birch-elder	0	0	0.00	0.0
Burial	0	0	0.00	0.0
Cherry-black	0	0	0.00	0.0
Cottonwood	0	0	0.00	0.0
Elm-american	0	0	0.00	0.0
Elm-rock	0	0	0.00	0.0
Elm-slippery	0	0	0.00	0.0
Hackberry	0	0	0.00	0.0
Hickory-Bitternut	0	0	0.00	0.0
Hickory-Shagbark	2	1	0.00	0.2
Ironwood	0	0	0.00	0.0
Maple-hard	0	0	0.00	0.0
Maple-red	0	0	0.00	0.0
Maple-silver	0	0	0.00	0.0
Misc. hardwood	0	0	0.00	0.0
Oak-black	0	0	0.00	0.0
Oak-bur	0	0	0.00	0.0
Oak-N. red	0	0	0.00	0.0
Oak-pin	0	0	0.00	0.0
Oak-swamp white	0	0	0.00	0.0
Oak-white	0	0	0.00	0.0
Walnut-black	0	0	0.00	0.0
White	0	0	0.00	0.0
White fir	0	0	0.00	0.0
Yew-green	0	0	0.00	0.0
Cedar-white	0	0	0.00	0.0
Hemlock	0	0	0.00	0.0
Larch	0	0	0.00	0.0
Misc-conifer	0	0	0.00	0.0
Pine-jack	0	0	0.00	0.0
Pine-red	64	41	2.70	5.8
Pine-scorch	0	0	0.00	0.0
Pine-white	35	23	1.36	3.0
Spruce-black	0	0	0.00	0.0
Spruce-chimney	0	0	0.00	0.0
Spruce-white	0	0	0.00	0.0
Tamarack	0	0	0.00	0.0
<b>Total</b>	<b>101</b>	<b>66</b>	<b>4.05</b>	<b>9.4</b>

Stand Table - per acre				
Species	#Trees	BA	MBF	Cords
2	0	0	0.00	0.0
4	0	0	0.00	0.0
8	0	1	0.00	0.4
8	13	4	0.00	3.2
10	33	18	0.68	3.7
12	44	34	2.70	3.6
14	4	4	0.36	0.6
16	1	1	0.16	0.1
18	1	2	0.21	0.1
20	0	0	0.00	0.0
22	0	0	0.00	0.0
24	0	0	0.00	0.0
26	0	0	0.00	0.0
28	0	0	0.00	0.0
30	0	0	0.00	0.0
<b>Total</b>	<b>101</b>	<b>66</b>	<b>4.05</b>	<b>9.4</b>

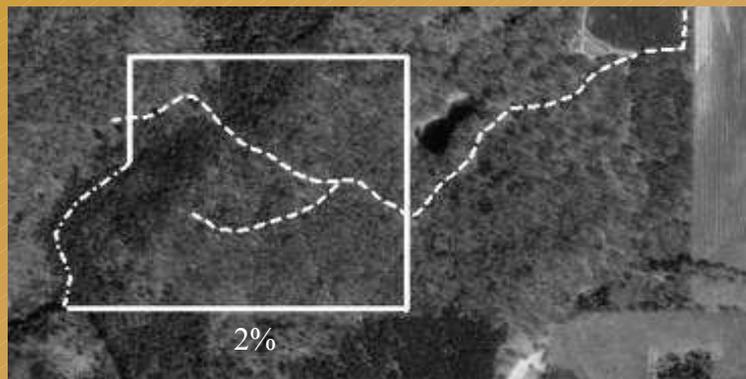
Sample Tree Information				
Product	#Tallied	Mean DBH (in.)	Mean Sawlogs (ft)	Mean Pulp Sticks (ft)
Cull	0			
Premerchandise	0			
Pulpwood	9	8.7		4.7
Small Sawtimber	47	11.1	2.8	3.2
Large Sawtimber	3	17.3	3.0	3.0
Composite	59	11.5		

Stand Information							
Product	Trees Per Acre	BA Per Acre	Mean DBH (in.)	Cords Per Acre	MBF Per Acre	Per Sq.Ft. BA	Per Tree
Cull	0	0	0.0				
Premerchandise	0	0	0.0				
Pulpwood	27	10	8.3	3.8	0.381	0.072	0.108
Small Sawtimber	72	52	11.5	6.4	3.74	0.123	0.089
Large Sawtimber	2	3	17.3	0.2	0.21	0.063	0.151
Composite	101	66	10.9	9.4	4.05		

# Harvprep: Neighbor access, roads, landings

Neighbors: Obtain agreement to access and boundaries.



$\frac{1}{4}$  mile road 15' wide covers 0.5 acre (1% of forty). Generally, will move wood at least across a forty.

Roads are about water management: locate on high ground, away from wetlands, use BMPs

# Harvprep: Neighbor access, roads, landings

0.1  
acre



Landings: make them  
as small as possible

2 acre

0.5  
acre





# Harvprep: county cutting notice

Expires December 31 of every year

**LAND OWNER TO COMPLETE BOTTOM HALF**

Notice of intent to cut timber products as stated below has been filed in our office.

\_\_\_\_\_ COUNTY CLERK  
 \_\_\_\_\_ COUNTY TREASURER  
 \_\_\_\_\_ DNR FORESTRY  
 \_\_\_\_\_ TOWN CHAIRPERSON

PARCEL NUMBER: \_\_\_\_\_

TAKES CHECKED BY: \_\_\_\_\_ DATE \_\_\_\_\_

TAX STATUS: CURRENT \_\_\_\_\_ DELINQUENT \_\_\_\_\_

TAX ASSESSMENT: WOODLAND \_\_\_\_\_ FOL \_\_\_\_\_ MFL \_\_\_\_\_

\*\*\*\*\*

TO BE COMPLETED BY LAND OWNER

\_\_\_\_\_ COUNTY  
 \_\_\_\_\_ TOWNSHIP  
 \_\_\_\_\_ DATE

TO COUNTY CLERK:  
 Notice is hereby given, pursuant to Section 28.03 of the Wisconsin Statutes, that I am going to cut wood products on the following described lands:

DESCRIPTION	SECTION-TOWNSHIP-RANGE

Check type of cutting and approximate area of cutting:

LOGS

PULP

CHRISTMAS TREES

MISCELLANEOUS \_\_\_\_\_

		N		
	NW		NE	
W				E
	SW		SE	
		S		

LAND OWNER: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

LOGGER: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

THIS NOTICE EXPIRES DECEMBER 31 EACH YEAR

# The timber sale contract

- ❖ Establishes the relationship between seller (landowner) and buyer (logger).
- ❖ Establish harvest restrictions and requirements.
  - ❖ Dates of operation
  - ❖ Timber to be harvested.
  - ❖ Acceptable harvesting practices.
  - ❖ Utilization & payment requirements.
  - ❖ Performance bond.
  - ❖ Liability insurance & responsibilities of each party.

All reputable loggers will be familiar and comfortable with these requirements.

Wisconsin Woodland Owners Association (WWOA) has contract templates available.

# Sale contract: Operation dates

Seasonal Restrictions:

Site Protection:

Tight Tree Bark (late fall and winter)

Frozen ground

Insect & Disease Concerns (oak wilt, annosum; all usually  
worse in summer)

Hunting Seasons

Completion Date

# Sale contract: Harvest trees

Be clear and specific.

The BUYER is authorized and shall cut, remove and pay for the following timber or forest products during the period of this contract:

**In areas designated on the map as “Thin”: All trees marked with orange paint by SELLER’s agent at dbh and at the stump.**

**In areas designated on the map as “CC”: All trees 1” dbh and greater inside blue boundaries, except blue-banded trees.**

# Sale contract: Acceptable practices

Define what you want to happen.

Sensitive areas, sites of threatened or endangered species, or otherwise designated excluded areas are avoided at all times, or otherwise managed in accordance with written guidelines provided by forester.

Landings, roads, and other areas with significant soil disturbance will be re-bladed and contoured as directed by forester to re-establish natural drainage patterns.

Basal scarring/barking of residual trees is minimized. Significant wounds are defined as those exceeding 50 inches<sup>2</sup> in area. No more than 1% of residual trees within the harvest unit may have significant wounds.

# Sale contract: Utilization & payment

Make sure you know what you're being paid.

- a. This is a scaled products sale. Payment to the SELLER shall be made based upon mill scale at the following unit values and as further described herein:

Species	Product	Specification	Est. Volume	Unit Price	Est. Total Value
Mixed Hardwood	Pulp	≥ 4" diam	60 cords	\$20 per cord	\$1200
Mixed Hardwood	Bolts	≥ 7" diam	10 cords	\$20 per cord	\$200
Mixed Hardwood	Saw	≥ 10" diam	0.2 mbf	\$125 per mbf	\$25
Hemlock	Pulp	≥ 4" diam	30cords	\$10 per cord	\$300
<b>Total Estimated Value:</b>					<b>\$1725</b>

# Sale contract: Utilization & payment

Define what you want to happen.

Trees shall be utilized to a 4" minimum top diameter.

Trucking will occur as soon as possible after cutting to minimize product degrade and help ensure prompt payment to all parties.

All products for harvest will be felled, bucked, handled, and sorted for the highest and best value.

The BUYER shall pay the SELLER for the products delivered to the Mill, as measured on BUYER's purchasing mill scale slip, within 14 days of delivery. The BUYER shall include copies of the mill scale slips with payments.

# Sale contract: Performance bond

“Insurance” provided by logger to fix problems and to ensure good performance.

The Buyer has deposited cash, a surety bond, a certified check, or other form acceptable to the SELLER in the amount of \$\_\_\_\_\_ as a performance bond to assure proper performance, along with and as a term of this executed contract.

# Sale contract: Insurance & responsibilities

Logger must have proper insurances to protect your interests.

The BUYER agrees to furnish SELLER with a certificate of current insurance coverage under the Wisconsin Worker's Compensation Law, Chapter 102, Wis. Stats., and public liability insurance for the period of logging operations on the SELLER's property in the amount of :

Personal Injury: Minimum limit of coverage is \$1,000,000 per occurrence for personal injury liability and \$2,000,000 in general aggregate limits for each policy year.

Property Damage: \$100,000

The BUYER is an independent contractor for all purposes including Worker's Compensation and is not an employee or agent of the SELLER.

# What is stumpage?

- ❖ For a commercial timber sale, you do not pay out-of-pocket for harvesting.
- ❖ The logger buys the standing wood from you.
- ❖ This payment is stumpage.



Stumpage = Mill value – logging cost & profit.

# Scaled sale versus lump sum

- ❖ Scaled sale: stumpage paid per unit of timber as it's harvested.
- ❖ Scaled sale is “accurate”, based on actual harvest volumes.
  - ❖ Requires conscientious loggers.
  - ❖ Requires periodic checking of volumes to account for all loads.
- ❖ Lump sum: stumpage paid upfront for all designated timber.
- ❖ Lump sum is “easiest”, unless only 1-2 bids (which may make it difficult to determine if the price is fair).

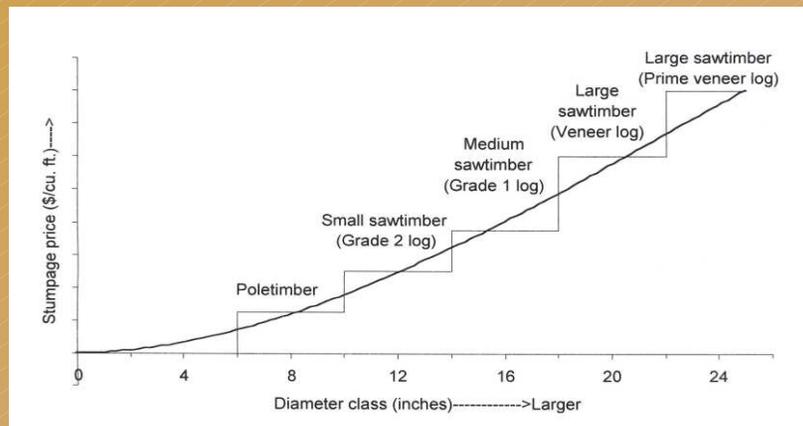
# Definitions: Forest products

Pulpwood: Non-sawable material > 4” diameter. (\$1.50)

Boltwood: 8 – 11” diameter, better quality (\$8.50)

Sawtimber: 9(11)”+ diameter, >50% sound (\$12.00)

Veneer: Higher quality than sawtimber (>\$20.00)



\$ are the relative stumpage values of an 11” diameter 8-foot sugar maple log

# Advertising your harvest

Develop prospectus and harvest map to describe your sale.

## STANDING TIMBER FOR SALE

### SALE ID:

\_\_\_\_\_ are offering marked timber for scaled sale. The land is located in Shawano County, Red Springs Township, Wisconsin, described as: \_\_\_\_\_, Town 28N North, Range 14E. Harvest units comprise 4 acres. This sale contains pulpwood, boltwood, and sawtimber.

**General:** We are seeking timber harvesters that pride themselves on high quality work. Care in protecting the site is required. Harvest units are easily accessible with good logging chance. **Trees to be harvested are designated with orange or yellow paint at 4 1/2 feet above ground and again at the base.** Buyers should ensure that their bid for timber reflects all costs required to comply with contract specifications.

**Terms:** Only designated trees/species within marked harvest units are to be harvested. Equipment use will be limited to identified harvest units and decking areas. Low-impact equipment is desired; minimizing site disturbance is a primary objective. Designated timber shall be harvested and slash handled as per contract specs. Refer to the attached bid sheet for volume estimates and cutting specifications. This attachment and the work specified will become a term of contract. **Access used for access, storing or decking logs are subject to prior approval from the landowners.** The Buyer is responsible for rehabilitating decking areas when finished using them. A start-up meeting prior to beginning harvest operations is a condition of sale. A standard timber sale contract will be required.

**Timing:** Harvest will be during dry or frozen ground conditions only. Harvesting may occur between **December 1 and January 31.** The harvest shall be completed by \_\_\_\_\_. Buyers should state their need for a longer contract if desired. The seller or their agents reserves the right to extend the contract date and/or to cease all operations due to conditions causing unnecessary site damage.

**Bidding:** Buyers should satisfy themselves as to the volume and value of timber designated for harvest prior to bidding. Buyers may inspect this timber at any time prior to bid opening. If buyers desire other terms, they should be indicated on the enclosed bid form. All bids are due by \_\_\_\_\_. **No improvement is required to bid.** The owner reserves the right to reject any or all bids.

**Performance Bond:** The Buyer agrees to maintain a performance bond in an amount equivalent to \_\_\_\_\_. The Buyer may deposit cash or submit an approved letter of credit upon award of and as a condition of contract. This performance bond will be returned immediately upon satisfactory completion of the contract and full stumpage payment.

**Payments:** Payment in full shall be made to the Sellers prior to commencing harvest. Buyer shall provide to Seller a liability insurance certificate prior to harvest. Buyer shall also provide proof of workers compensation insurance for all workers on site.

SALE ID: \_\_\_\_\_ SALE ACRES: ~20 BUYER: \_\_\_\_\_

COUNTY: WALPACA TOWN: ST. LAWRENCE

T. 23N R. 12E SECTION(S): 36

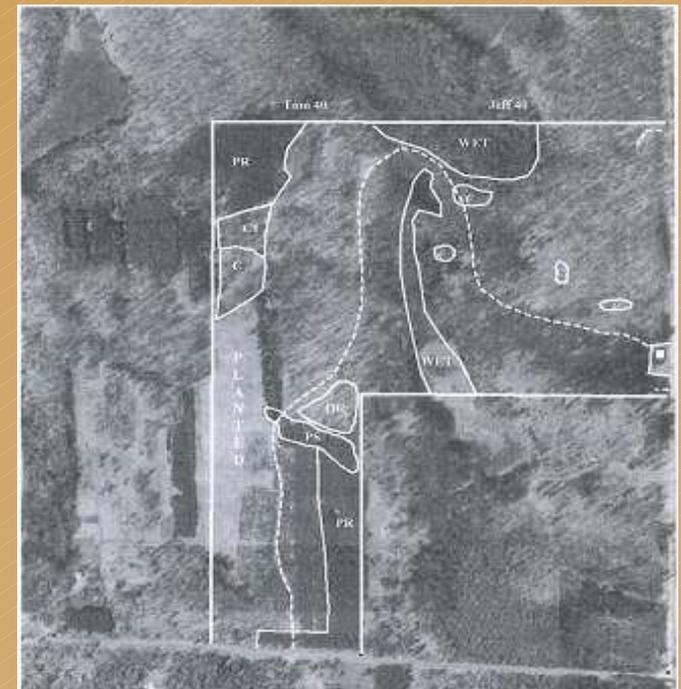
DATE: \_\_\_\_\_

Buyer: Please fill in stumpage rates for the applicable species and products below. Adjust product specifications as needed to fit your markets by crossing out and/or adding specs. Note that volumes are estimates only. Stumpage rates will be used to prepare a timber sale contract, and are not fixed until the contract is signed.

SPECIES	PULPWOOD			BOLTS			SAWLOGS		
	PRODUCT SPEC	ESTIMATED VOLUME (CUBIC FEET)	STUMPAGE RATE PER CUBIC FOOT	PRODUCT SPEC	ESTIMATED VOLUME (CUBIC FEET)	STUMPAGE RATE PER CUBIC FOOT	PRODUCT SPEC	ESTIMATED VOLUME (CUBIC FEET)	STUMPAGE RATE PER CUBIC FOOT
White Pine	≥ 7" diam	48		≥ 7" diam			≥ 8" diam	5.9	
Red Pine	≥ 7" diam	5		≥ 7" diam			≥ 8" diam		
Aspen	≥ 7" diam	26		≥ 7" diam	30		≥ 11" diam		
Red Oak	≥ 7" diam			≥ 7" diam			≥ 11" diam	0.2	
Bitter Hardwood	≥ 7" diam	5		≥ 7" diam			≥ 11" diam	0.2	
<b>TOTALS</b>		<b>73</b>			<b>30</b>			<b>6.4</b>	

PLEASE RECORD BUYER PULPWOOD WEIGHT SCALE CONVERSIONS FOR EACH SPECIES:

NOTES: Two-year contract. Volume estimates are conservative.



Harvest Areas: 80 acres  
 North boundary is marked with red paint, west boundary with red & blue paint, southeast boundaries with orange paint.  
 Scale = 1:4345

# Awarding your harvest

- ❖ Distribute bid packages to conscientious loggers.
- ❖ Evaluate bids.
  - ❖ Highest bid may not always be most desirable. Careful operation has a cost.
  - ❖ Always choose skilled and conscientious loggers.
  - ❖ Check examples of their work.
- ❖ Sign contract and accept performance bond.

# Definitions: Harvesting equipment



Processor/Harvester



Forwarder

# Definitions: Harvesting equipment



Feller-buncher



Grapple Skidder

Dragging logs often equals damage.

# Harvest administration

- ❖ Landowner, forester, and logger at on site startup meeting.
- ❖ Weekly visits checking contract compliance.
- ❖ Three party cooperation. All should communicate!



Landowners should inspect, as well. Discuss your concerns with the forester and the logger.

# Normal disturbance

- ❖ Logging slash (should be <3' high)
- ❖ Small broken branches
- ❖ Small wounds
- ❖ Damage is not common



# Definition: Woody debris

Don't clean  
the forest.

Woody  
material  
provides soil  
nutrients and  
wildlife habitat.



# Avoid: Significant tree wounds



A significant wound is one that is 50 inches<sup>2</sup> or greater in area. Wounds in contact with soil allow rapid entrance for disease organisms.

The bottom 16 feet of a sawtimber tree contains 60% of its value. Damage here greatly reduces your future timber value.

# Avoid: Negative soil impacts



Recent soil ruts



Ruts made 15 years earlier

Most tree feeder roots are in the upper 12" of soil. Ruts deeper than 3-6" sever these roots and impede water flow through the soil. Once a soil is rutted, it does not heal.

# Avoid: Damage to wetlands



It's the care of the operator, not necessarily the size of the equipment. These soil ruts and the stream damage were done with horse logging.

Careful harvesting

Attention to  
ecological  
conditions

Reflect your  
stewardship

Retains a healthy  
forest for future  
generations.



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