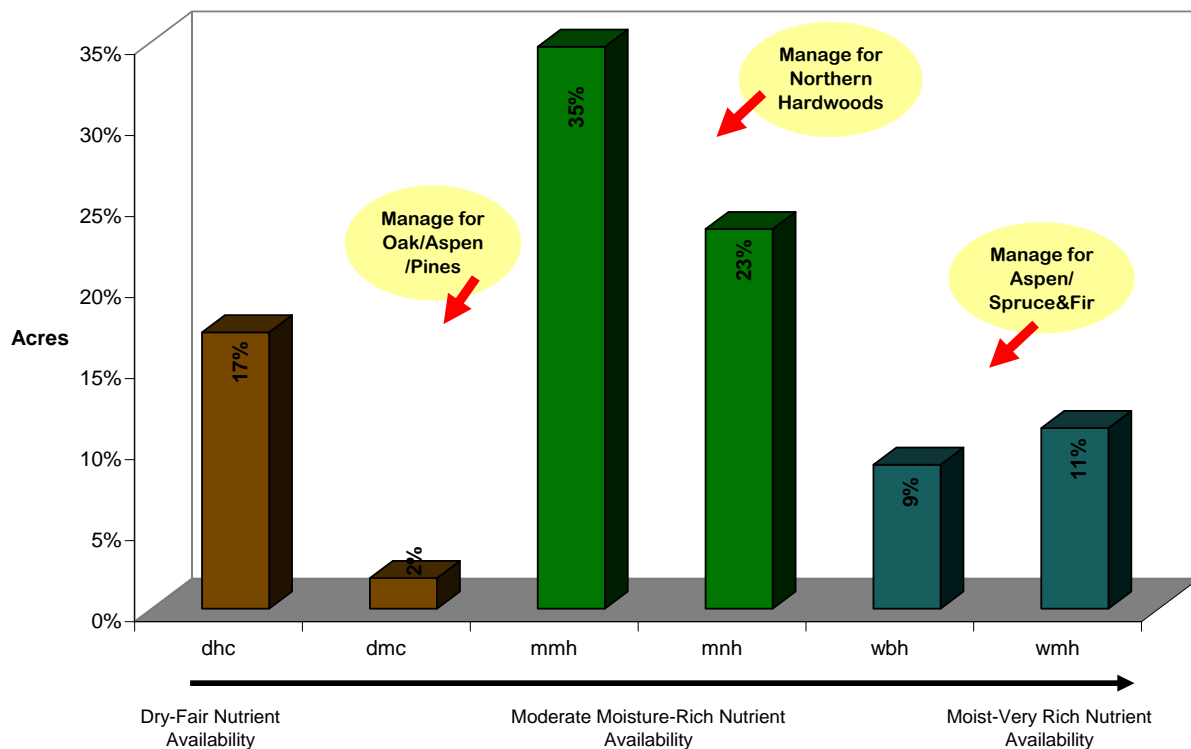


Cornish Hardwood Management Area (CHMA)

- The CHMA covers **14,882 acres** and includes County and State administered land for which a joint forest management plan was developed.
- Dominant cover type is **northern hardwoods** which is the favored forest community within the management area
- Northern hardwood forests contain a relatively large number of **shade tolerant species** which makes it conducive to management for **mature forest conditions**.



Acres of Northern Hardwoods by Forest Ecological System (FES)





Cover Type: Northern Hardwoods

ECS: MHn47, Northern Rich Mesic Hardwood

Current Stand Structure: Even-aged, Transition

Target Residual BA: 75 - 90 sq. ft./acre

Objectives: Bring into multi-aged management

Biodiversity Objectives (Forest Health!):

- Species
- Ecosystem
- Genetic

Landscape & stand:

Critical/sensitive habitats

- cover – thermal, access
- edges/ecotones/interior habitat
- “old growth”/mature forests
 - stand structure
 - canopy gaps
 - canopy residence
 - dead/declining trees
 - down woody debris/coarse woody debris
- riparian forest/fish habitat
- small streams, seepages and woodland pools
- rare/sensitive species



Trees as habitat:

- such as snag, den trees or mast producers
 - species of tree
 - size of tree
 - risk and vigor
 - dispersion



Managing Hardwoods:

Aitkin County's approach in quality hardwood stands designated for multi-aged (unevenaged) management is, generally, a crop tree release focusing on tree bole and crown quality of appropriate/target species with targeted 10 –25% regeneration gaps for retention of less tolerant species and understory development.

Northern Hardwoods Quality Trees:

1. DBH must be ≥ 8 " minimum.
2. Must occupy at least a codominant growing position in the canopy (see graphic, next page)
3. DBH > 16 " tree with a 16 foot #1 sawlog are considered high quality trees.
4. Quality trees must have no codominant leader originating less than 32 feet from the ground (unless > 16 " dbh and #1 grade, 16 foot sawlog)
5. Quality trees must have no major defect (large limb, large frost crack etc.) in the first 16 feet of the bole
6. Maximum sweep for a quality tree is 50% of diameter. (starting point for measurement may be up to 6 feet from the ground)
7. The third best face of a quality tree must be generally be clear

Sawlog Grade

1. Grading of the first 16 foot log on each sawtimber tree is done using US Forest Service criteria for Hardwood Factory Lumber Logs.
2. Only trees greater than 16" DBH are eligible for grade one logs. Only trees > 13 " DBH are eligible for grade two logs.






Tree and Stand Vigor: Crown Management:

Assumptions are that tree VIGOR is indicated by relative tree size and crown characteristics including canopy position, crown architecture, size and quality

Free to Grow:

1. This is a measurement of the quadrants of the crown of a canopy tree which are free from competition from neighboring trees.
2. Only codominant and dominant trees qualify as free to grow
3. Must be at least five feet of growing space in a radial position of any given side of a canopy tree.

Table 3.1 Crown position classification (adapted from Trimble 1969).

 Crown class	Position in canopy	Amount of sunlight received
Dominant (D)	Tree is taller than its immediate neighbours. Crown extends above the general level of the crown canopy.	Receives full light from above and considerable light from the sides.
Codominant (C)	Tree with crown formed at the general level of the crown canopy.	Receives full light from above but comparatively little from the sides.
Intermediate (I)	Tree is shorter than dominants or codominants but with crown extending into the canopy formed by them.	Receives some direct light from above but none from the sides.
Overtopped or Suppressed (S)	Tree with crown entirely below the general level of the crown canopy.	Receives no direct light.

Wildlife Species Associated with Northern Hardwood Communities

Birds	
Black-throated Green Warbler	Conifer
Veery	
Eastern Wood Pewee	
Least Flycatcher	
Northern Oriole	
Hairy Woodpecker	Cavities
Barred Owl	Cavities
Ovenbird	
Wood Duck	Cavities
Black-and-white Warbler	
Yellow-bellied Sapsucker	Cavities
Rose-breasted Grosbeak	
Brown Creeper	
Red-eyed vireo	
Scarlet Tanager	
Great-crested Flycatcher	Cavities
Pileated Woodpecker	Cavities
Red-shouldered Hawk	
White-breasted Nuthatch	
American Redstart	
Blue Jay	

Mammals	
Northern Flying Squirrel	Den/Cavity
Black Bear	
White-footed Deer Mouse	
Silver-Haired Bat	
Eastern Chipmunk	Den/Cavity
Porcupine	Den/Cavity
Hoary Bat	
Ermine	Den/Cavity
Gray Squirrel	Den/Cavity
Herps	
Wood Frog	
American Toad	
Spring Peeper	
Chorus Frog	
Blue-spotted Salamander	Den/Cavity
Red-backed Salamander	Den/Cavity
Redbelly Snake	Den/Cavity
Ringneck Snake	Den/Cavity





AITKIN COUNTY LAND DEPARTMENT
NORTHERN HARDWOODS FIELD EXERCISE

ASSIGNMENT:

Each team will be assigned to an area to collect timber appraisal information.

Tree Canopy Information:

For each plot center use a 10 BAF prism to determine trees that fall “in” or “out” of the plot.

For each “in” tree determine species:

- Use diameter tape to measure dbh,
- Use clinometer and logger’s tape to measure height to a 4” top (estimate) on 2 of the dominate trees in the plot
- Assign a Quality code of Cull, Average, or Quality

Count the total number of trees that fall “in” the plot and multiply by a 10 factor to get total basal area of the plot.

Establish 3 fixed radius regeneration plots at 1/100th-acre within the area near the variable density plot.

- Use a logger’s tape to measure out 11.8 foot radius and count (tally) the number of commercial species and record them by species and size class.

Concepts:

- Quality
- Products
- Residual Basal Area goals
- Advanced Regeneration

AITKIN COUNTY LAND DEPARTMENT
NORTHERN HARDWOODS FIELD EXERCISE

VARIABLE PLOT TREE DATA COLLECTION

TREE #	SPECIES	QUALITY	DBH	Height to 4"
1				
2				
3				
4				
5				
6				
7				
8				
12				
13				
Count		X 10	Total BA	

Tree Codes:

RO = Red Oak

BW = Basswood

MA = Maple

YBI = Yellow Birch

PBI = Paper Birch

Quality Codes:

C = Cull

A = Average

Q = Good Quality or better

REGENERATION PLOT DATA COLLECTION

SPECIES #	#/PLOT	#/ACRE	HEIGHT CLASS
1			
2			
3			
4			
5			
6			
7			
8			

Seedling DBH

Class

0" - 0.9"

1

1"-2.9"

2

3"-4.9"

3