UNIVERSITY of NEW HAMPSHIRE
COOPERATIVE EXTENSION

Managing Forested Wildlife Habitats

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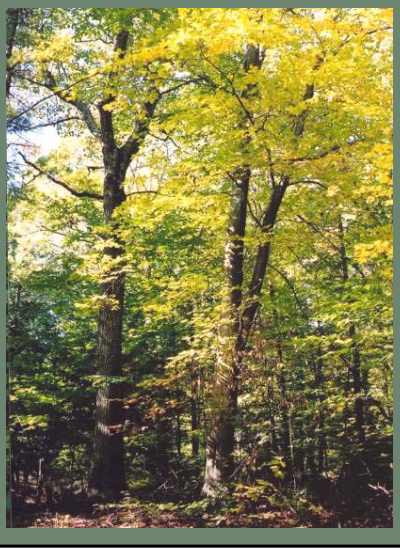
What management activities are "right" for a given property?

There is no one "right" way to manage any piece of land…



What is appropriate is determined by:

- Your management objectives
- Growing conditions of your property
- Current and potential condition of your forest

Must find a balance between your objectives and the capacity of the land

FOREST MANAGEMENT OBJECTIVES

OBJECTIVES OUTLINE

GOALS	Degree of Importance High	Med	Low	Remarks
Recreational Use	X			*Town would like to expand community use of the property. Also improve/extend the trail and path network, and promote a variety of uses. Some areas off-limits to motorized vehicles.
Woodland Access		X		*Town does not want to incur high expense in an expanded road system, but would like access for recreation and fire protection
Wildlife Habitat Enhancement	X			*Town would like to manage and enhance wildlife habitat for broad variety of species.
Forest Health and Productivity	X			*An increasingly healthy, productive, and valuable forest is a result of silvicultural management.
Timber Income				*Timber income is generated as a result of implementing the recommended silvicultural practices. Trees are not to be cut for the sole purpose of generating income, but for forest improvement or wildlife management purposes.
Current		X		
Long Term		X		
Forest Education	X			*Establish interpretive trail(s). School use of Town Forest. Occasional educational tours for townspeople.
Aesthetics	X			*Townspeople value the forest's natural beauty. They would like to see large trees as well as a diversity of species. Forest improvement work must be done to the highest quality standards, with short-lived visual impact.
Forest Protection	X			*Maintaining the large open-space block, of which the Town Forest is an integral part, is important to the town for conservation (water quality, wildlife, forest) and to help "stabilize the tax base".

A written list of objectives is a helpful tool

It's important to know what you are trying to accomplish…

Before you begin your management


TREE
FARM
?

Your first call should be to:

UNH Cooperative Extension

•County Extension Foresters

Available to meet with landowners free-of-charge and help them:

- •determine their objectives
- •provide basic assessment of property resources
- •identify opportunities for improving or creating those resources
- •provide recommendations for meeting objectives
- •provide referral to private consulting foresters

Cooperative Extension contacts: http://ceinfo.unh.edu/Forestry/Docs/list.pdf

Managing your land for wildlife

Managing for a specific species or group of species

deer

game birds

song birds

Managing to provide habitat for a variety of wildlife species

Managing for a specific wildlife species

Need to know what food and cover the animal requires in each season:

seeps

green fields

hard mast

roosting sites

winter food

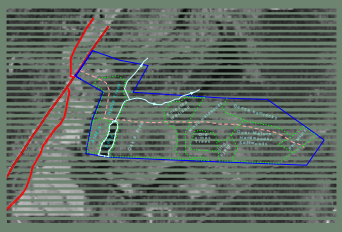
Goal is to provide each of these habitats on your land or, manage your property to provide habitats not available on neighboring properties

Managing for a diversity of wildlife species

Each wildlife species has its own set of requirements for the food and cover it needs to survive

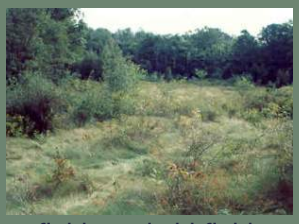
Managing for a diversity of wildlife species

Manage your property to compliment surrounding properties to provide as many different habitat options as possible



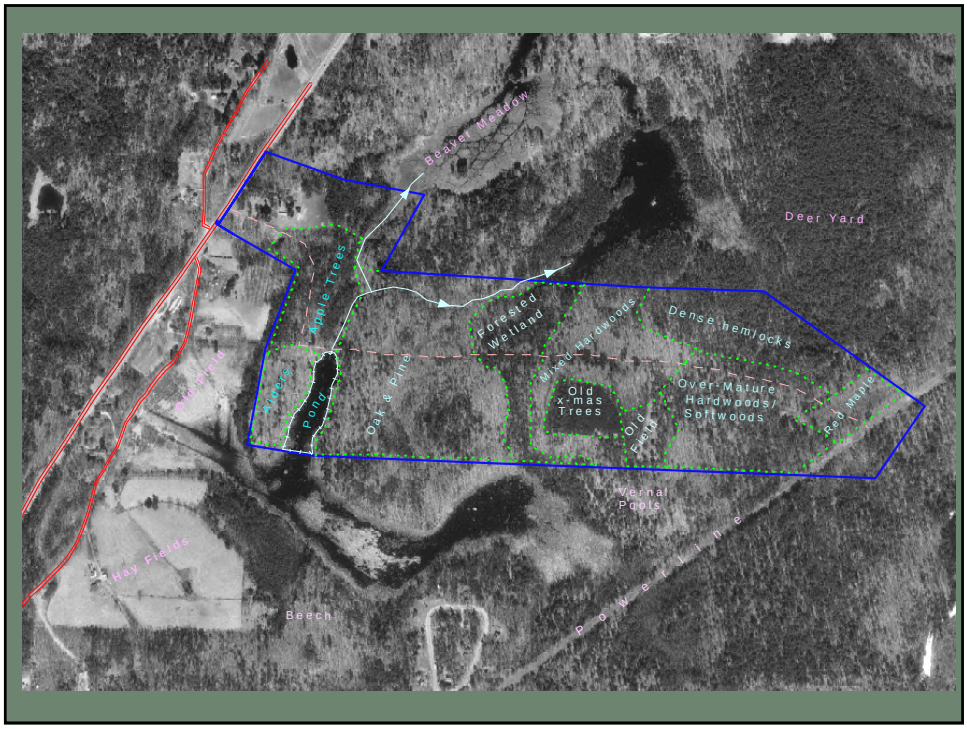
forested habitats

wetland habitats

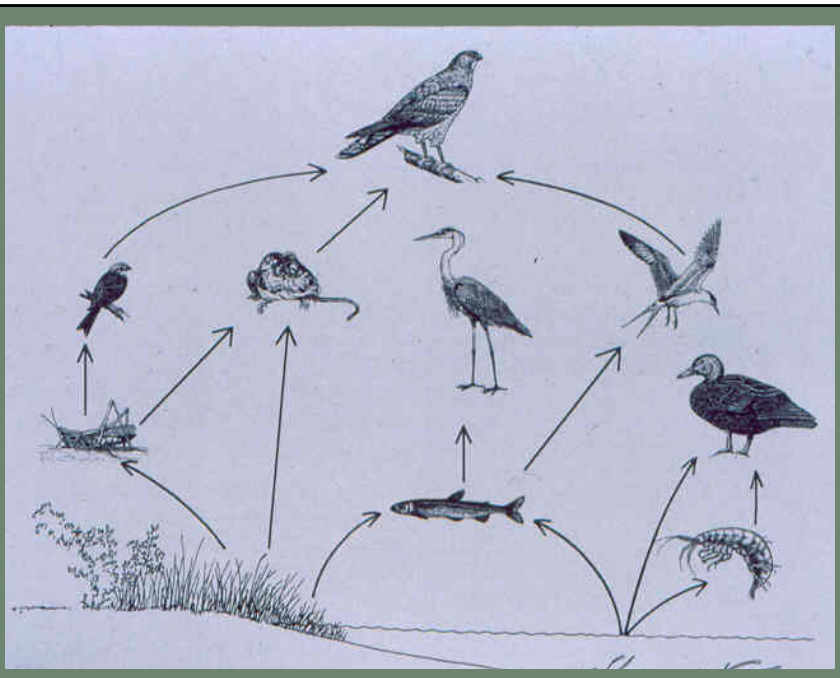


fields and old-fields


Apple Trees
Pond
Oak & Pine
Forested Wetland
Mixed Hardwoods
Dense Hemlocks
Old x-mas Trees
Old Field
Over Mature Hardwoods/ Softwoods
Red Maple


Beaver Meadow
Deer Yard
Apple Trees
Forested Wetland
Mixed Hardwoods
Dense hemlocks
Old Field
Apple Trees
Pond
Oak & Pine
Old x-mas Trees
Old Field
Over-Mature Hardwoods/ Softwoods
Red maple
Vernal Pools
Hay Fields
Beech
Powerline


Property Size Matters….
Set Realistic Goals!



Structural Layers of Your Forest

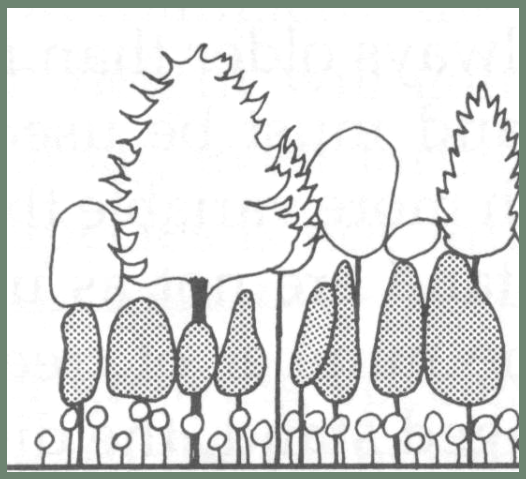
Check it out: The forest on your property has different layers

overstory (above 30 feet)

mid-story (10-30 feet)

shrub layer (2-10 feet)

ground cover (0-2 feet)

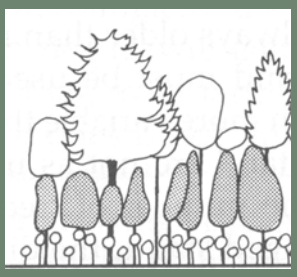


Wildlife species respond to the presence/absence of each layer

Managing for a diversity of wildlife species

Wildlife uses different layers of your forest

Maintaining all layers across a property encourages a diversity of wildlife species that use forest habitats



Can use timber harvesting to create, enhance, and maintain each of these layers on a property

Canopy

Mid-story

Shrub layer

Ground cover

Can we manage for timber and wildlife at the same time?

I prefer to coordinate habitat improvement projects with a commercial timber sale whenever possible

- can sell timber to pay for wildlife improvements
- can treat a larger area more effectively
- can utilize harvested trees
- have skilled workers and large equipment

I recommend strongly that a consulting forester is hired to help plan the timber harvest to ensure that all of your objectives are being met

A carefully planned timber harvest can improve cover and food opportunities for wildlife

Forest Openings

- Trees are removed in "groups" or in small patch-clearcuts
- Purpose is to create an uneven-aged forest…
- Encourages each of the different forest layers across a property

Forest Openings

Openings can be as small as 1/10 acre…

…or larger than 3 acres in size

The landowner's objectives and size of the property often dictate what size openings are appropriate

Where to Create Forest Openings

poor-quality hardwoods

Where to Create Forest Openings

poor-quality hardwoods

Removal of poor-quality trees doesn't result in loss of future timber value

Openings regenerate into a combination of herbaceous and woody plant species

Where to Create Forest Openings

poor-quality hardwoods

Encourages new browse for deer, moose, and rabbits…

provides cover, nesting and feeding opportunities to song birds and small mammals…

provides feeding opportunities to a variety of predators including hawks, foxes, and snakes

Where to Create Forest Openings

Aspen/poplar stands

Where to Create Forest Openings

adjacent to powerline corridors

Maximizes the size of the right-of-way and benefits many wildlife species that require young forest openings

Where to Create Forest Openings

Field Edges

Can encourage a diversity of fruit-producing shrubs and herbaceous plants

Improves cover and feeding opportunities on the edge of the field

May provide habitat for a variety of wildlife that require “old-field” habitats

Where to Create Forest Openings

Create 1/4 to 1 acre clearcuts on wetland edges

upland → transition → wetland

Different plants grow back in each of these zone across the opening

Where to Create Forest Openings

- always look for opportunities to release fruit producing shrubs in the shrub layer

Remove over-topping trees to provide sunlight to fruiting shrubs

Where to Create Forest Openings




Most wildlife shrubs that you might purchase and plant can be encouraged to grow on their own!

Where to Create Forest Openings

to release apple trees

Forest Roads as Openings

Snags and live cavity trees

Table 1.
Minimum tree diameters for cavity-using species *(From Tubbs et al 1987, Harrison 1975)*

<8″
Black-capped chickadee*
Downy woodpecker*
Boreal chickadee*
Tufted titmouse
House wren
Winter wren
Eastern bluebird

6-12″
Northern saw-whet owl
Hairy woodpecker*
Yellow-bellied sapsucker*
Red-breasted nuthatch*
White-breasted nuthatch
Brown creeper
Chimney swift
Southern flying squirrel
Northern flying squirrel
Ermine

12-18″
Eastern screech-owl
Three-toed woodpecker*
Black-backed woodpecker*
Northern flicker*
Great crested flycatcher
Northern long eared bat
Indiana myotis

>18″
Wood duck
Common goldeneye
Hooded merganser
Common merganser
Turkey vulture
Barred owl
Pileated woodpecker*
Silver-haired bat
Gray squirrel
Red squirrel
Porcupine
Marten
Fisher
Long-tailed weasel

>24″
Little brown bat
Big brown bat
Gray fox
Black bear
Raccoon

* Primary cavity excavators

How many snags are enough?

Good Forestry in the Granite State:

6 snags/acre, 1>12", 1>18"

Leave cavity trees & snags uncut whenever possible

A few large diameter trees are as valuable as many smaller trees

Retain variety of tree types

Retain snags in multiple locations

Coarse Woody Material

Fallen trees provide important cover and feeding opportunities for wildlife

Coarse Woody Material

Small mammals use fallen logs for nesting/denning and as cover from predators

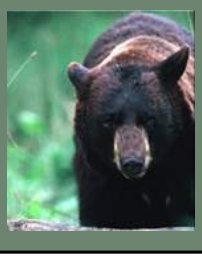
Northern redback salamanders spend most of their lives under fallen logs

Spotted salamanders and wood frog breed in vernal pools in the spring and spend most of the year in uplands under cover objects like fallen logs

Coarse Woody Material

Predators such as coyotes, foxes, and fisher hunt around fallen logs

Pileated woodpeckers feed on insects in rotting logs and stumps



Black bears eat ant larvae found in logs and stumps

Coarse Woody Material

Management usually involves avoiding damaging fallen logs with equipment

Allowing some trees to grow old, large, and die to become woody debris

Logs over 24" diameter most valuable to wildlife

Hard and Soft Mast Production

red oak

white oak

beech

hickory

white ash

cherry

Maintain

Diversity!

Mast Production

Management involves identifying the largest trees with the healthiest crowns…

…provide those trees room to expand their crowns by removing two or more of their competitors

Often the best timber trees will be great fruit or nut producers

Mast Production

To maximize mast production of trees:

Mast producing trees must be allowed to attain optimum age and diameter required for greatest mast production

Species	Optimum age	Optimum diameter
oaks	50-200 yrs	18-20”dbh
beech	>60 yrs	>14” dbh
hickory	60-200 yrs	>18” dbh
ash & maple	>50 yrs	>14” dbh
cherry	30-100 yrs	>10” dbh

Managing timber and wildlife habitat

Retain trees that show evidence of past use by wildlife

Clawing on beech trees by bears is a good way to identify the trees that produce good seed crops consistently

Softwood Cover

Softwoods provide important year-round habitat to many wildlife species

Cover from hemlock, spruce, and fir is especially important to wildlife

Softwood Cover

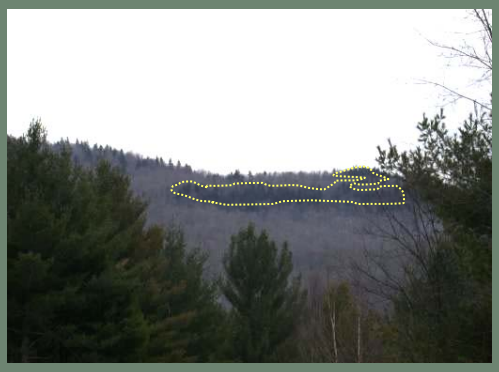
Stands of dense softwoods provide important cover to deer during winter

- softwoods trap snow above ground
- insulates habitat under softwoods
- reduces energy cost associated with walking

Need habitats where softwood crown closure is greater than 65%

Softwood Cover

Softwood “inclusions” within hardwood stands provide cover for a variety of wildlife species



A single hemlock tree within a hardwood stand can increase the number of wildlife species using the stand

Retain hemlocks whenever possible!

Softwood Cover

Deer require dense softwood cover during winter in New Hampshire

- softwoods trap snow above ground
- insulates habitat under softwoods
- reduces energy cost associated with walking

Need habitats where softwood crown closure is greater than 65%

Softwood Cover

These areas often lack understory because the dense crown closure doesn't let enough light to the ground

Areas might be harvested to get more valuable tree species to grow

Retain pockets of softwoods as year-round cover for wildlife

Alright to harvest hardwoods within the softwoods

- provides browse within the cover
- small openings will encourage hemlock to regenerate