



New Hampshire

FISH AND GAME

Connecting you to life outdoors™

MANAGING STATE LANDS FOR WILDLIFE

Managing Forests

Forest management has been used for many decades to enhance wildlife habitats on public and private lands. A well-planned and executed harvest can provide many wildlife benefits. Enhanced acorn production feed deer, bear, turkeys, and songbirds; increased berry production provides songbirds fuel before their fall migration. Improved woody browse help deer get through the winter. Enhanced understory cover in the form of densely packed stems of young trees provide wind breaks for deer and turkey in the winter and good nesting cover for songbirds in the spring and summer.

Partnering to Harvest Timber

For decades, the NH Division of Forests and Lands and Fish and Game have worked cooperatively to ensure that harvests on state lands help enhance wildlife habitat. In 1986 this partnership was formalized with the two agencies entering into a cooperative agreement. This agreement included the joint funding of two foresters to work specifically on wildlife habitat improvement on state lands. These positions are funded with [Federal Aid in Wildlife Restoration](#) dollars provided through Fish and Game and matched by state dollars from the Division of Forests and Lands. The focus in the early years of this agreement was forest



A feller buncher cuts trees to create young forest habitat at the Cocheco River WMA in Dover.

inventories. The first timber harvest on a WMA was conducted on the Hirst WMA in Boscawen in 1990. Since then timber harvests, with a primary goal of enhancing habitat, have occurred on numerous WMAs, state forests and state parks across the state.

Planning a Harvest

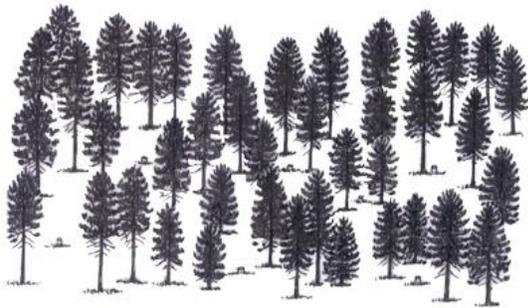
The foresters analyze soils information, past management history, wildlife information, and other factors to draft prescriptions that are reviewed in the field with Fish and Game's State Lands Habitat Biologist. Once prescriptions are finalized, they are presented to an inter-agency team of resource professionals to ensure the project will have a net benefit to wildlife without having a negative impact on rare plants or wildlife, historic resources, wetlands, trails, and other important resources. Any input that is received is incorporated into a comprehensive project planning report that describes the current habitat condition on the property and surrounding landscape; how soil types will impact

regeneration; potential impacts on wildlife; presence of rare species, historic resources, and wetlands and how any concerns associated with these resources will be addressed; how the project is going to be carried out; and other things. Once the plan is finalized, the public is notified of the pending project. Projects are laid out in the field, trees are marked, the sale area is shown to logging contractors, and bids received. The foresters oversee the harvest from start to finish - coordinating with the logging contractor to schedule start up, visiting the job to ensure it is going as planned, and working with the contractor to put skid roads and the log landing to bed once the harvest is complete.

To ensure that we continually have the opportunity to harvest wood and improve wildlife habitats without having a negative impact on long term forest health, the foresters have also calculated the amount of wood that can be harvested annually from WMAs. Fish and Game has been meeting those harvest goals, on average, over the last 10 years.

Commonly Used Timber Harvest Techniques

Various different types of harvest techniques are used to attain wildlife benefits. Many factors, as described above, are considered to ensure the correct harvesting technique is used in the appropriate location.



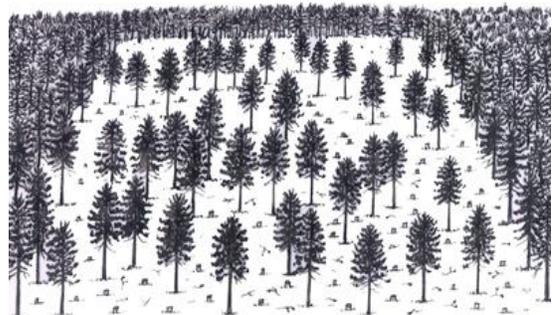
Single tree selection - Individual trees are harvested to make space for natural regeneration.

Single Tree Selection

Scattered individual trees of multiple age classes are harvested in single tree selection. This type of harvest generally produces small canopy openings especially conducive to the establishment and growth of shade tolerant species such as hemlock and sugar maple. This technique helps to enhance understory cover that's particularly beneficial for nesting and foraging forest songbirds. It can also be used to improve the wind blocking and insulation properties of winter areas for deer, turkey, and other wildlife.

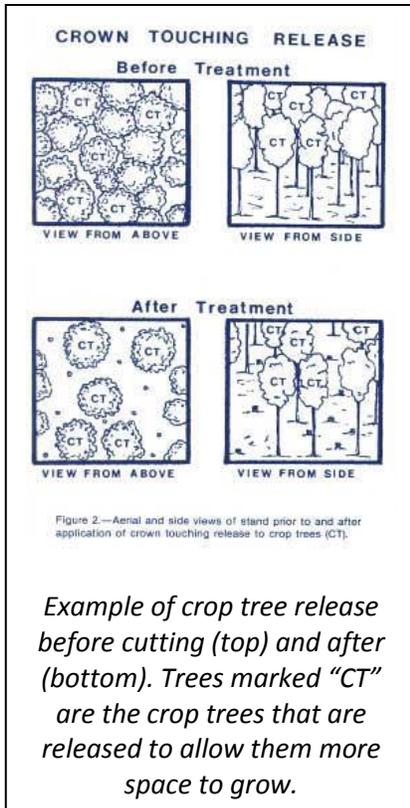
Shelterwood

Shelterwoods are cuts to reduce tree density by around 50%. This allows a lot of sunlight to hit the forest floor to regenerate sun loving trees such as pine and oak. This will greatly enhance understory cover that will benefit a variety of wildlife. It will improve woody browse for deer and moose and nesting and foraging cover for many young forest dependant wildlife including grouse, turkey, and eastern towhees. It may also benefit some rare snakes including black racers



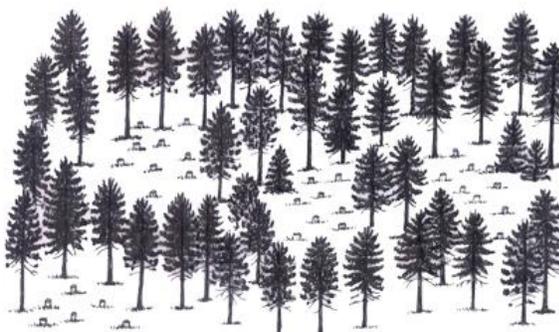
Shelterwood - partial harvesting that allows new stems to grow up under an overstory of maturing trees. The shelterwood may be removed at a later date (e.g., 5 to 10 years)

and smooth green snakes. Once the young trees reach at least head height, the overstory can be removed (referred to as overstory removal) to allow the young trees to flourish.



Crop Tree Release

Crop tree release is the removal of surrounding trees that are competing with a selected crop tree for sun and space. Crop trees are typically those that a landowner is aiming to improve the growth on for a future harvest. From a wildlife perspective this technique is typically used to enhance acorn production by providing oak crowns more room to grow. Crop tree release also results in more wildlife cover and woody browse in the understory, a result of hardwood stumps resprouting, and oak and pine seeds germinating and growing.



Group selection - groups of trees are harvested to make space for natural regeneration.

Image courtesy of USDA Forest Service

Group Selection

In group selection, groups of trees in patches ranging in size from 1/10 to 1 acre are removed. Smaller groups are typically used to encourage regeneration of hemlock to improve the wind blocking capabilities and insulation qualities of wintering areas that are important for deer and turkey to survive our sometimes harsh winters. Larger groups will encourage species that require more sun such as white pine, red oak, red maple, and birch. This technique will enhance berry and seed production in the group for the first few years after harvest. As young trees start to take over, it will provide nesting opportunities for many forest songbirds, woody browse for deer

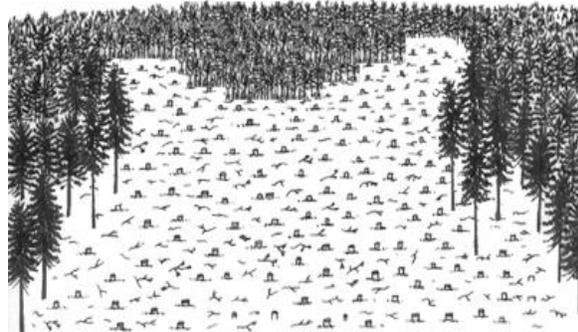
and moose, and better cover for grouse. This technique can also result in enhanced acorn production of mature oaks that are left along the edge of the groups. The open space in the

canopy allows the crowns of those oaks to grow bigger, thereby resulting in better acorn production.

Clearcut

In a clearcut, all trees in the project area are cut and removed. This technique is particularly useful for promoting sun and disturbance tolerant species such as aspen and birch. It is also commonly used to regenerate northern hardwoods (i.e., sugar maple, beech, and yellow birch).

Initially, clearcuts become dominated by grasses, wildflowers, blackberries and raspberries, and new stump sprouting trees. At this stage they provide food in the form of seeds, insects, and berries to many species, including migrating songbirds. A few years after harvest, clearcuts become dense patches of young trees that are difficult to walk through, but provide excellent habitat for species such as grouse, woodcock, chestnut-sided warblers and blue-winged warblers, some of which have suffered declining populations for decades. Moose are common visitors to clearcuts where there is an excellent supply of woody browse. Generally speaking, clearcuts need to be at least 5 acres in size to provide significant wildlife benefit.



Clearcutting - The entire stand is cut at one time and naturally regenerates.

Image courtesy of USDA Forest Service

Images on this page from the USDA Forest Service online Forest Management Guide. For more information on ecology and forest health, click [here](#).

Commercial Timber Sale Samples

- Carpenter's Marsh WMA, Hancock – A harvest was completed in 2008 for a commercial habitat project on 45 acres to enhance early-successional forest conditions and spruce-fir.
- Beaudette & Palmer Lots, Durham – In 2010, a 13 acre patch was clear cut in a poor quality stand of white pine and mixed hardwood. Harvesting occurred during the winter to stimulate root suckering of aspen. This will create thick young forest that will benefit numerous species including New England cottontail, American woodcock, and eastern towhees. An-11 acre portion of an old pasture at the Palmer Lot was cleared to achieve similar goals.
- Hackett Hill WMA, Tamworth - A timber harvest was completed on 147 acres of this 400-acre WMA in 2012. This project included single tree selection and group selection cuts (0.25 – 0.5 acre areas) to enhance understory regeneration, wildlife cover, and mast production in pine-oak-maple and hardwood-hemlock-pine areas. The harvest also included clear cutting a few patches up to 3 acres each to enhance young forest habitat and woody browse.

- For more examples of how forest management techniques are used to enhance habitats on WMAs and other state lands, refer to any of the State Lands Habitat Program accomplishment reports.