
WOODLAND STEWARDSHIP PLAN

LANDOWNER:

Gary E. Anderson

6358 Lake Washburn rd. NE

Outing, MN. 56662

(218)838-2175

PROPERTY LOCATION:

SESE Section 15-139-26 (Crooked Lake Township)

Cass County

Total acres 38 Stew plan acres 35 SFIA acres 35

PREPARED BY

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Anderson Forestry Consulting LLC

Phone (218) 838-2175

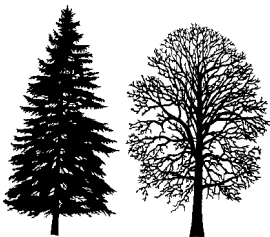
treefarm40@gmail.com

This woodland stewardship plan was designed in April 6, 2019 to help guide the management activities of the natural resources on your property. The plan is based on your goals in harmony with the environment around you. Project recommendations are for your consideration.

THE GOALS YOU IDENTIFIED FOR MANAGING THE PROPERTY ARE:

- ! To improve wildlife habitat for Deer, Grouse and non game birds
- ! To enhance income thru timber harvesting
- ! To reforest the property where necessary

Minnesota
Forest
Stewardship
Program



Property Description

PROPERTY LOCATION:

The property lies about 2 miles North of Outing MN.. There is a fair network of woods roads providing access thru out the whole property.. Topography is level to gently rolling

LANDSCAPE REGIONS: Pine Moraines and Outwash Plains

The enclosed Minnesota map shows our ecological landscape regions (or subsections). The actual boundaries are not as sharp as the lines might imply. In fact there can be islands of one landscape region inside another. However, there are basic ecological differences between the units.

Your land is primarily within the region named above and is described in more detail below. The purpose of providing this “landscape region” and the “interaction with nearby properties” information is to help you assemble a picture of how your land and your activities fit into the larger landscape.

The conservation issues of concern are of particular note. It is likely that at least some of your activities will affect these larger scale issues.

Pine Moraines and Outwash Plains Subsection

DISCUSSION

This region is located in central Minnesota, primarily south and west of Leech Lake. The headwaters of the Mississippi River, along with hundreds of lakes, dominate this area.

CLIMATE

Total annual precipitations ranges from 23 inches in the northwest to 27 inches in the east, with about 40% occurring during the growing season. Only 15% of the annual precipitation falls during winter months. Growing season length varies from 111 to 131 days.

LANDFORMS

This subsection consists primarily of large outwash plains, narrow outwash channels, and end moraines. The moraines are relatively large. Most of the glacial deposit was sandy, but there is loam to the north.

Property Description

HYDROLOGY

There are hundreds of lakes within the subsection that have a surface area greater than 160 acres. The headwaters of the Mississippi River (Itasca Lake in Itasca State Park) is in this subsection. Other large rivers include the Pine and Crow Wing rivers.

PRESETTLEMENT VEGETATION

Jack pine, in a mix with northern pin oak, was the most common species on excessively drained portions of broad outwash plains. Large areas of the other landforms were dominated by aspen-birch and pine forests (mixture of red and white pine). Red pine-white pine forests, occupied the rolling to irregularly sloped end moraines. Mixed hardwood and pine forests, dominated by a diverse mix of northern hardwoods and white pine, were found in the most fire-protected areas at the northern and eastern edges of the subsection. Fire protection was offered by irregular topography, broad wetlands, and relatively large lakes.

NATURAL DISTURBANCE

Fire occurred on a 10-40 year rotation within much of the subsection, accounting for the dominance by upland conifers and trembling aspen-birch forests.

PRESENT VEGETATION AND LAND USE

Forest management and tourism are the most important land uses. Agriculture is common in the west, where center pivot irrigation of corn and potatoes is common. Tourism is common where there are concentrations of lakes. Summertime swells the population of these areas significantly.

RARE ANIMALS AND PLANTS

Rare animals include the Piping Plover, the Bald eagle and Gray wolf. Rare plants of the area include the Ram's head Lady's Slipper, Olivaceous Spike-rush, Prairie Bush Clover, Bog Adder's mouth, Slender Naiad, One-sided Pondweed, and a species of moss called Tomethypnum falcifolium.

CONSERVATION CONCERNS

Preservation of old growth and rare species are important environmental considerations in the area. Increasing the amount of oak, northern white-cedar, and white pine within the region is also a forestry priority. Preventing the fragmentation of contiguous blocks of forests into non-forest uses is important to preserve habitat for birds which require large areas of forest to nest. Maintaining the availability of sufficient raw products for the area's wood product economy is also important.

INTERACTION WITH NEARBY PROPERTIES

The property is located in the Land-O-Lakes State Forest. The Land O Lakes State Forest is situated in the southeast part of Cass County and the northeast part of Crow Wing County.

The Land O Lakes State Forest was established in 1933 and has a total land area of 49,890 acres or 78 square miles of which about 30,000 is in State land and 11,520 owned by the County with the remaining 8600 acres in private ownership. These forest lands provide tremendous recreational and hunting opportunities nearby.

Timber in the Land O Lakes State Forest is managed under a multiple use sustained yield system. Many areas regenerate naturally, however others are replanted to insure future timber crops.

NATURAL HERITAGE INFORMATION

I have reviewed the Natural Heritage Database for any listing of Endangered, Threatened or Special Concern, plant or animal species in your area and the only thing that came up was that Bald Eagles (Mn. Status on the watch list) have been observed nesting in adjacent section 11 in the south half of the section about a mile from the property. This means only that we do not know of any other rare plant or animal in your area. We urge you to review "The Uncommon Ones" handout found in the Ecology section of the Forest Stewardship Book to see if you can identify any species on your property..We may have some more information once the County Biological Review is completed for this county.

CULTURAL HERITAGE RESOURCE INFORMATION

Your property has been compared with the state archaeological site database maintained by the Minnesota State Historic Preservation Office. No cultural heritage sites have been documented within or adjacent to the parcels.. A cultural resource is any resource that is 50 or more years old. This includes old Civilian Conservation Corps (CCC) camps, Native American camp sites, burial grounds etc

Most cultural artifacts are found within the top 16 inches of the ground.

All burial grounds are both federally and state protected so you must take care if you know of or suspect a burial ground. These may appear as mounds of dirt, shallow depressions or small openings in the forest canopy. They commonly occur along lakes and streams or in maple basswood forest stands. If you suspect a burial site please contact Mike Magner, DNR Forest Archaeologist at (218)322-2513 for assistance. Grave sites are protected by both Federal and State law. portion is very sensitive to all kinds of heavy equipment operating like logging, bulldozing etc. We recommend that whenever possible you should take the *light on the land* approach so as to protect cultural artifacts and the soils most productive area.

Property Description

LANDSCAPE:

SOILS: According to the Cass County Soil Survey of 1989 there are 2 different soil types on your property. Each of them has its own special characteristics. Listed below are the different soils, their attributes, and locations in the landscape. Please see the included soils map to identify where each of these soils are located on your property. The following information is general in nature and only provides an insight to what is actually on your property.

453B Demontreville loamy sand 2 to 8 percent slopes

- Can be found on side slopes and shoulder slopes on moraines.
- Well drained soil, water table greater than six feet.
- Principal tree species are red pine, jack pine, quaking aspen, red oak. Species of limited extent are white pine, basswood and white spruce. Use of containerized seedlings can reduce the mortality rate.
- If wheeled and tracked equipment is used, this soil is well suited to year-round logging, except during spring breakup.

217 Nokasippi Loamy Fine Sand

Drainage Class: Very poorly drained

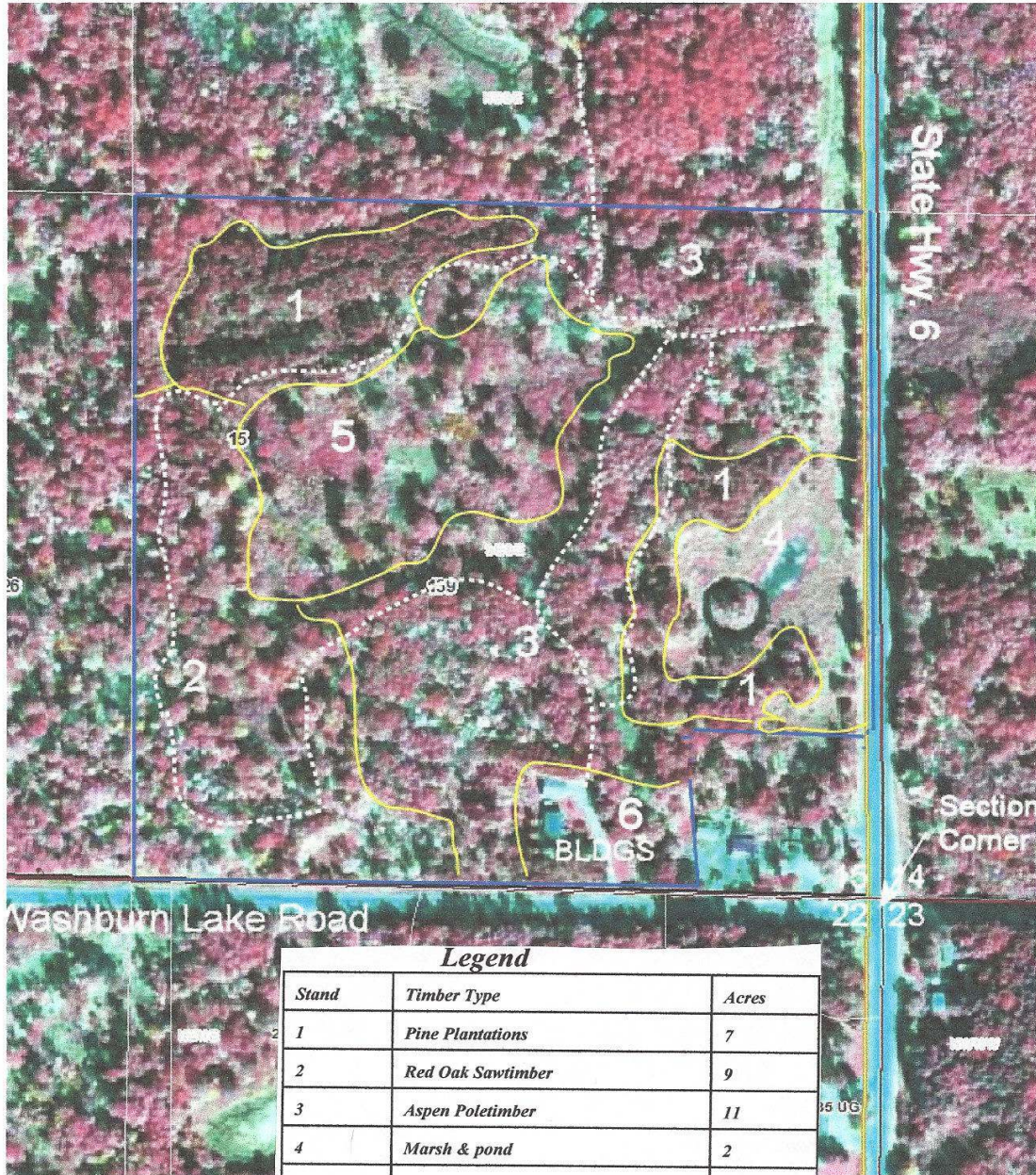
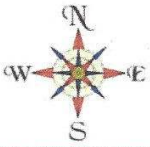
Seasonal high water : 1 foot above and 1 foot below the surface

Landform: Nearly level or concave drainageways on drumlins and moraines

The Nokasippi loamy fine sand is the soil that probably will be of little use for you in a forest production manner. They are on average much too wet to grow trees very well. This lowland soil provides an area that is wonderful land for wildlife and should be managed as such.

The other soils on your property are good soils for producing many different forest products, including recreation, wildlife habitat, and wood pulp, bolt, and possible small sawlog material. It is easy to see that the soil on your property will grow excellent stands of Aspen, Oak, Norway and White Pine and Spruce. The only restrictions for your soils to producing forest products in the upland areas is that they may be somewhat fragile when exposed to heavy machinery in the spring. Other concerns include tree seedling competition with other plants after harvesting. Each of these special concerns will be dealt with before any intensive land management is done on your property.

Gary Anderson Tree Farm
SESE Section 15-139-26 (Cass County)



Legend		
<i>Stand</i>	<i>Timber Type</i>	<i>Acres</i>
1	<i>Pine Plantations</i>	7
2	<i>Red Oak Sawtimber</i>	9
3	<i>Aspen Poletimber</i>	11
4	<i>Marsh & pond</i>	2
5	<i>Aspen Regeneration</i>	6
6	<i>Residence & Bldgs</i>	3

Woodland Stewardship Cover Types

Pine Plantations

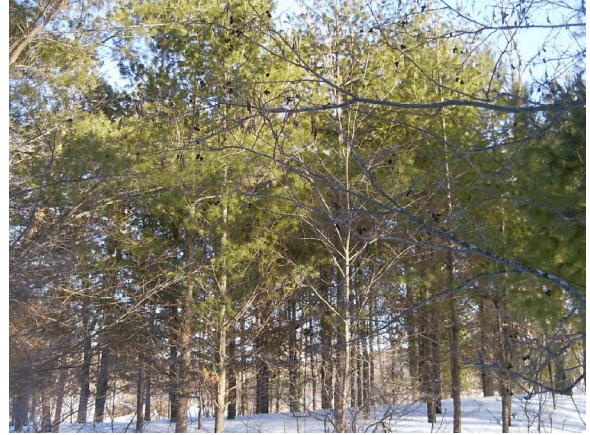
Stand Number: 1

Age -35- 44 years
Site Quality -Site index 75 Excellent
Tree Density - , 140-150 square feet of basal area per acre
Total Timber Volume - 35 cords per acre*
*volume should not be used for purposes of selling timber

Stand Acres: 7

Stand Description:

There are 4 small Red and white pine plantations on the property. A row of white spruce was planted around the red pine plantation in the nw side of the property too. The largest plantation was planted in 1984 on the nw side if the "40" and is 4 acres, the other three were planted in 1975 and 1979. All were planted at a 6'x7' spacing (1000 trees /acre) and survival was very good. The Red Pines now



range from 9-12 inches in diameter and 65 feet in height. The only white pine area is a ½ acre planting on the south side of the pond area. The white pines are 8-12" in diameter and 50 feet in height. The soil is a Demontreville loamy sand well suited to year- round logging except during spring break-up.

Desired Future condition:

Periodic thinning (10-15 year intervals) will allow trees more room to grow which increases vigor and tree girth (added value)

Recommended Management Activities:

These Red Pine stands received their first thinning in 2011 and will be in need of thinning again within the next 7-10 years in order to maintain stand vigor and prevent further loss of crown % and obtain maximum growth and yield. Commercial thinning involves removing some of the trees in a stand to improve the growth and quality of the trees left standing. Another benefit to thinning is the income from the sale of these trees. Too many trees on a site reduce the amount of available sunlight. The result is a slowdown in diameter growth. Thinning opens up the stand to sunlight, allowing treetops to expand and growth to increase. Removing deformed and poor quality trees during thinning improves the overall quality of the remaining stand. The White Pines will need special attention. Pruning of the lower limbs was done in 2016 to reduce damage from blister rust and white pine weevil. Pruning was done during the tree's dormant season (fall, winter).

Value to wildlife: Mature pine stands generally feature few shrubs and herbaceous plants- therefore limiting the variety of wildlife species. Needle-feeding insects attract a whole gamut of birds from wood warblers to thrushes. The most popular part of the conifer is its seeds and some species such as the red and white winged crossbills have evolved special beaks for extracting seeds from the cones. Seed eating rodents, such as southern bog lemmings, meadow voles, mice and squirrels, attract woodland hawks and owls, Stands such as this which contain openings with blueberries and hazel shrubs sometimes lure bears, foxes and other birds.

For more information refer to your Woodland Stewardship Manual:

Chapter	Title
Managing Important Forest types	Red (Norway) Pine
Marketing Timber	
Harvesting Timber	
Woodland Improvement Practices	Sapling and poletimber stands

Woodland Stewardship Cover Types

Red Oak Sawtimber

Stand Number:2

Age -110 years
Site Quality -Site index 50 Med.
Tree Density - ,105 square feet of basal area per acre
Total Timber Volume -27 cords per acre*
*volume should not be used for purposes of selling timber

Stand Acres:9

Stand

Description:

This is an even-aged stand of 110 years old Red Oak. The Oaks are in the 9-16" size class and average about 15 inches in diameter. About 50% of the Oaks have frost cracks but otherwise appear in healthy condition. Due to the presence of large charred pine stumps it appears that this Oak type originated following fire in about 1908. There is a minor component of scattered individual Basswood 12" in diameter, and Bur Oak .Red maple is common in the sub-canopy. Some White Pines



have been planted in the understory with heavy gage netting deer protection. In 2016 a 3.5 acre Oak shelterwood cut was done in the southwest corner of this type to stimulate advanced regeneration of red oak . The shrub layer consists of low density hazel brush. Also there is some natural reproduction of red oaks and basswood in the understory.

Underplanted White Pine with deer protection in Red Oak stand

Desired Future Condition:

Maintain oak coverytype to provide permanent cover and food for wildlife

Recommended Management Activities:

The Oak shelterwood cut area should be inspected again in about 10 years to determine if it is adequately stocked and another group selection can be implemented .No management activity will be required for your oak stand during the next five years. They need some more time to grow to full maturity. Meanwhile, your oak stand is providing valuable cover and food (acorns) to wildlife including squirrels, fox, white-tailed deer, hawks, and Bear. Be sure to take advantage of your woods for hiking, hunting, or for watching wildlife.

In the near future mark the stand for an individual tree selection method of harvest .

A single tree selection harvest in a Northern Red Oak type can provide:

- Income
- Increased growing room for the remaining trees
- Better tree species composition and stand value in the future

During a commercial partial cut, the following trees should be considered for harvest:

- Trees over 18" D.B.H. (diameter at a person's breast height). These trees are mature.
- Poorly-formed trees from 12 to 18" D.B.H. These trees will not increase much in value if they are left standing, and in the meantime they are taking up valuable growing space.
- All birch and sound aspen 12" D.B.H. and above. These trees are using valuable growing space. As with any harvest, several dead snags (standing trees) should be left on each acre as homes for wildlife. Check your stand each August for signs of oaks that are wilting or turning brown early--this could indicate a Chestnut borer infestation, a serious insect problem of oak. The Oaks have life spans that exceed 150 years under normal climatic conditions, however drought stress has accelerated the maturation process of this stand.

Management alternative:

Thin stand on a 5-10 year cycle to rotation age, favoring crop trees. Regeneration method: Natural seeding of Oak under a partial overstory of mature trees, remove overstory trees when seedlings reach 3-5' tall and greater than 400 seedlings per acre. Final harvest to release seedlings should occur in the winter. Crop trees should be 18-24" DBH before final harvest.

For more information refer to your Woodland Stewardship Manual:

Section	Title
Tree species	Chapter 6 Managing Important Forest Types Oak
Wildlife	Chpiter 11 Wildlife & Forest Management Late succeassional Forests and associated Wildlife
Timber Stand Improvement	Chapter 5 Woodland Improvement Practices

Woodland Stewardship Cover Types

Aspen Poletimber

Stand Number:3

Stand Acres:11

Age 42-years
Site Quality -Site index 80 Very Good
Tree Density - , 120 square feet of basal area per acre
Total Timber Volume -28 cords per acre*(Aspen)
*volume should not be used for purposes of selling timber

Stand Description:

This Aspen stand is a result of 2 harvests: one in 1976 and the other in 1977. The stand regenerated very well and now the trees average between 9 and 12 inches in diameter and 70 feet in height. In addition to the aspen there are scattered birch, maple and red & bur oak. The understory consists of 650 stems/acre of 0-1 and 1-3 inch green ash. The shrub level is low density hazel and ground cover grass and asters..The soil is a Demontreville loamy sand well suited to year-round logging except during spring break-up.



42 year old aspen stand

Desired Future condition:

Maintain the aspen type thru timber harvests at rotation age for wildlife habitat..

Recommended Management Activities:

This aspen stand should be left to grow without intensive management for the next eight to ten years. This stand was left because it is required to leave adjacent sites 10 years or more to provide Golden winged warbler forage habitat after the chicks fledge. This is a young area of trees, and they won't be ready to harvest for at least the year 2026. However stands with as good a site index as this could easily grow another 10 years beyond 2026 without any problems. Meanwhile, aspen stands can provide opportunities for hunting, and wildlife watching. The herbaceous and shrubby growth associated with aspen is usually more abundant because of the more sunlight that is admitted to the forest floor. Be sure to check your aspen area periodically for signs of forest tent caterpillars, which strip the leaves from aspen. Also look for "conks" (fungal growths) and other disease or damage.

For more information refer to your woodland stewardship manual:

Section	Title
Managing Important Forest Types	Aspen
Harvesting Timber	
Marketing Timber	

Woodland Stewardship Cover Types

Marsh & Pond

Stand Number:4

Stand Acres:2

Stand Description:

This is a Type 3 wetland- Inland shallow fresh marshes. Soil is usually waterlogged early during growing season; often covered with as much as 6 inches or more of water. Vegetation includes grasses, bulrushes, spikerushes, and various other marsh plants such as cattails, arrowheads, pickerelweed and smartweeds. These marshes may nearly fill shallow lake basins or sloughs, or may border deep marshes on landward side. In May of 1981 a wildlife “donut pond” was constructed and normally there is 3-5 feet of year round open water around the island .



Fall 2018 Donut Pond

Stewardship Objective:

To improve wildlife habitat

Recommended Management Activities:

This area offers a good opportunity to manage for wetland wildlife. This type is extremely important for waterfowl. I installed 3 wood duck nesting boxes in 2017. Put in fresh wood shavings in the boxes annually. Maintain thick grass cover along the edges of the water. Grass areas are used by mallards for nesting.

When doing any timber harvesting adjacent to this type be sure to leave at least a 50' filter strip of both living and dead trees around the pond. Trees provide nest sites and cavities for many wildlife species, provide shading to wetlands to reduce drying and maintaining lower temperatures for sensitive species, and help prevent sedimentation.

Woodland Stewardship Cover Types

Aspen Regeneration

Stand Number:5

Stand Acres:6

Age -3 years
Site Quality -Good
Tree Density - , 5,000 trees/ acre
Total Timber Volume -2 cords per acre*
*volume should not be used for purposes of selling timber

Stand Description:

This stand is the result of a patch clearcut done in 2016 for Golden Winged Warbler habitat. A few large 12-15" scattered Red Oak were left for mast production. This is a stand of young aspen saplings 1" in diameter and 12-15' tall. The stand is well stocked with 4000-5000 stems per acre in the areas that were clear cut. The stand is healthy and growing well. The aspen will soon start self thinning, as the more vigorous individuals out compete the less productive trees. This natural process is healthy, stimulates growth rates, and will continue throughout much of the life of the stand.



Golden winged warbler cut

Stewardship Objective:

Manage for the Golden Winged Warbler

Recommended Management Activities:

This project was designed to manage for Golden winged Warbler. The site is tailored to provide important cover for nesting, brood rearing and foraging. Other early successional forest wildlife are benefitting such as deer, woodcock, ruffed grouse, and black bear. Other non-game wildlife species that are benefitting include black-billed cuckoo, brown thrasher, eastern whip-poor-will, rose breasted grosbeak. Mourning warbler, eastern towhee, white throated sparrow and the veery.



3 year old Aspen 15' tall

Woodland Stewardship Cover Types

Residence & Buildings

Stand Number:6

Stand Acres:3

Recommendations:

Place about 3 more bluebird houses around the yard area. Bluebird houses should be 5 to 6 feet above the ground and spaced about 100 yards apart. The entrance hole should face north, east, or northeast to prevent sunlight from shining into the hole and overheating the box. Maintain the bluebird houses. The houses should be made ready by late March and should be checked periodically (every 7-10 days) from late March until mid-August. The nest should be cleaned out as soon as the young birds leave the nest box. This allows a second brood to be raised.



Golden-winged Warbler

Woodland Stewardship Summary

Access & Recreational Trails

This property has good access . .Some additional trails could be created in conjunction with timber sales to provide increased recreational opportunities for hiking, snowmobiling and hunting. The trails can be improved for wildlife by seeding a mix of grasses, clover, and legumes . Refer to the *Protecting water Quality and Wetlands in Forest Management* booklet in the front cover, and *Woodland trail Construction* in the Recreation section of the Stewardship binder.



Trail groomed for cross-country skiing

Wildlife Habitat Management

By following the recommendations in this plan. You will be providing increased habitat for white-tailed deer, ruffed grouse, as well as other non-game species by providing distribution of timber age classes. This means creating and maintaining situations where sapling and pole sized aspen stands adjoin mature aspen stands.

- ! Erect and maintain Wood Duck Boxes & Bluebird houses
- ! Seed clover on trails
- ! Construct ½ acre wildlife opening

Timber Management

By following the timber management recommendations outlined in this plan, you will provide an excellent opportunity for the forested types to naturally regenerate themselves. The keys to obtaining healthy and vigorous regeneration of naturally sprouting species, such as aspen, are to avoid leaving a significant amount of residual trees in the harvest area and damaging the soil during harvesting.

- ! Selectively Harvest Oak in stand #2 in next 5 to 10 years
- ! Aspen timber sale in stand 3 in 2026

Timber thinnings can improve the quality of the remaining timber, increase the life span of the stand, and provide periodic income from the property. If done improperly, without proper planning, a thinning or high grade can have the reverse impact on a stand. A Forester can assess thinning needs for a given stand, make recommendations and mark the individual trees needing to be harvested.

- ! Thin Pine plantation in stand #1 in next 5-10 years
- ! Underplant White Pine in stand #2 & maintain deer protectors
- ! Prune white pines