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## CONNWOOD FORESTERS, INC.

MANAGEMENT PLANS  
SILVICULTURE  
WATERSHED MANAGEMENT  
WILDLIFE MANAGEMENT  
FORESTSCAPING

39 CHERRY HILL ROAD, P.O. BOX 150  
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(860) 349-9910 FAX (860) 349-8163

TIMBER SALES  
WOODLAND APPRAISALS  
CHRISTMAS TREE CULTURE  
FOREST RECREATION  
BOUNDARY MAINTENANCE

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A FOREST OWNERS' COOPERATIVE ASSOCIATION ENGAGED SINCE 1945 IN THE MANAGEMENT OF FORESTS FOR WOOD, WATER, WILDLIFE, RECREATION, AND AESTHETICS.

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# FOREST MANAGEMENT PLAN

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RAD OSTBY MEMORIAL FOREST  
EAST OLD ROUTE 6  
HAMPTON, CT

# CONNWOOD FORESTERS, INC.

## FOREST MANAGEMENT PLAN

### RAD OSTBY MEMORIAL FOREST

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# CONNWOOD FORESTERS, INC.

## FOREST MANAGEMENT PLAN

### RAD OSTBY MEMORIAL FOREST

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#### GENERAL INFORMATION

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Date Prepared: April, 2003

Prepared By:

CONNWOOD FORESTERS, INC.  
39 CHERRY HILL ROAD, P.O. BOX 150  
ROCKFALL, CONNECTICUT 06481  
(860) 349-9910 FAX: (860) 349-8163

Property Owner: ECFLA \ Wolf Den Land Trust

Address: PO Box 404, Brooklyn, CT

Contact: David Schroeder, Chairman

Property Address: East Old Route Six, Hampton, CT

Survey Description of Property: Please see enclosed maps.

#### Signatures:

Preparer:



CONNWOOD FORESTERS, INC.

Date:

4/09/

Property Owner: \_\_\_\_\_

Date: \_\_\_\_\_

# CONNWOOD FORESTERS, INC.

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## INTRODUCTION

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Upon request by the ECFLA/Wolf Den Land Trust, Connwood Foresters, Inc. has prepared a ten-year (2003-2012) forest management plan for the Rad Ostby Memorial Forest. An inventory of the property was conducted in March 2003 in order to determine how to best implement the natural resource management objectives of Wolf Den Land Trust for this property.

### THE PRIMARY OBJECTIVES FOR THIS PROPERTY ARE:

1. **Maintain and enhance forest health and productivity through active forest management;**
2. **Develop and maintain a trail and woods road system for recreation and education;**
3. **Maintain and enhance wildlife habitat;**
4. **Maintain and enhance scenic views and aesthetic features.**

Integral to the development of this plan is the completion of a thorough forest and natural resources inventory. The data collected in the course of the inventory is then used to provide a picture of the current conditions present on the property today. This information is then used to determine when, where, and how the management objectives stated above can and should be implemented.

The management activity recommendations within this plan are designed to cover a ten-year management period. It may become apparent that as the management progresses on this property that some recommendations are no longer valid and others may become critical. Please note that while these management activities are spaced out over ten years, the order and timing are not carved in stone.

Be assured that Connwood Foresters, Inc. is available to assist you with all of the management recommendations outlined in this plan. Connwood is available to provide: management and oversight of timber harvests from bid placement to permit applications to harvest completion; assistance with requirements for federal and state cost-sharing programs (SIP, WHIP, FLEP, etc.) and other membership programs (Tree Farm); on-site labor for timber stand improvement, wildlife habitat improvement, invasive exotic species control, etc.; and many other natural resource management services.

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## NATURAL RESOURCE OVERVIEW

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### THE FOREST

The character and development of a forest is strongly influenced by its environment. In this context, the environment should be thought of as an inter-related set of many living and non-living components. The current make-up of this forest – or any forest in southern New England - is the result of both human and natural influences. The most notable human influences would be that of past use. This property was undoubtedly farmed as is evidenced by the two structures that were on the property. Other evidence of the property's agricultural past is the abundant stone fences and the distinct plow line in stand 2. Primary natural influences upon this property are numerous and include: site factors (soil type, slope position, hydrology), the chestnut blight (a human influence as well), Gypsy moth (again, also a human influence), and the hurricane of 1938. At the present time the Rad Ostby Memorial Forest is primarily upland deciduous forest varying in age from 40 to 80 years. As a result of the forest inventory and evaluation we have been able divide the forest into four separate but distinct stands – each with its own distinct forest type. These separate stands are defined by age class, size class, dominant species type, growing site, and potential management activities required.

### THE SITE

The ability of an area to produce wood or other fiber products is closely related to the characteristics of the underlying soil and other factors of the physical environment. Collectively, these factors taken together constitute what is termed as "site". Site productivity can be strongly influenced by forest soils. These soils provide nutrients, moisture, and support for trees and other plant life in forest ecosystems. Because there are great differences among soil types as to their ability to provide these things, the characteristics of the specific soils underlying a forest must be given careful consideration. While conducting the forest inventory "site index" was determined. Site index is a tool used by a forester to determine site productivity. Site indexes for the Rad Ostby Memorial Forest range from the low 50's to the mid 60's and can be directly related to slope position. The lower indexes were found at the higher and dryer slope positions with the higher indexes at lower slope positions. This is typical for southern New England forests.

### HYDROLOGY

Due to the climate in the northeast, there is a sufficient water supply to accommodate productive forest growth. On an annual basis 48" to 54" of precipitation can be expected (NOAA, USDA-NRCS). There are significant areas of wetland soils present on this property, most of which are occupied by forest. These sites are important for preventing floods by slowing water runoff during storm periods and provide excellent wildlife habitat. In terms of producing valuable wood products, however, wetland soils are usually restricted by operability concerns: unless activities are limited to when the water table has receded, operation of logging equipment within wetlands carries a risk of resulting in adverse environmental impacts. The principle wetland soil classifications are **Adrian muck and Ridgebury extremely stony fine sandy loam**. These soil types are typically associated with drainages, down slope from well-drained upland soil types. Many of the watercourses are surrounded by narrow bands of these soils.



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## NATURAL RESOURCE OVERVIEW

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### WILDLIFE

Wildlife populations within a forested habitat are directly linked to how the forestland is managed. Managing for diversity of vegetation classes will result in diverse cover types and habitats. Working to provide wildlife with a diversity of cover types and other critical habitat requirements (food, cover, water, and space) is critical to successful wildlife habitat management. The Rad Ostby Memorial Forest contains a variety of cover types or habitats including early successional, mature hardwood, and a variety of wetland types.

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## EXPLANATION OF SILVICULTURAL TREATMENTS

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The following silvicultural treatments may be utilized during the current ten-year planning period or in future management periods.

### PRE-COMMERCIAL TREATMENTS

#### TIMBER STAND IMPROVEMENT (TSI)

In a TSI application, silvicultural prescriptions are carried out non-commercially, i.e. no forest products are sold. In most cases a TSI application is an investment in a stand prior to the stands reaching the age or size where the harvested trees can be utilized. When prescribing a TSI application the goal is the long-term enhancement of sawtimber volume and value growth thus enhancing the landowners return on investment. Such prescriptions are implemented in order to correct undesirable stand conditions that are negatively affecting the growth of crop trees. Trees selected for removal are girdled or felled, but not sold as timber or firewood. Girdled trees become snags (standing dead trees) that serve as valuable habitat for birds and other wildlife. Trees that are felled are lopped to lie close to the ground. The resulting coarse woody debris provides habitat for small mammals, and may protect tree seedlings from browsing by white-tailed deer. Although TSI operations do not generate revenue, they allow greater flexibility than commercial operations. Trees selected for removal in a TSI operation do not need to meet minimum standards of merchantability. Unlike commercial timber harvests, in which heavy machinery must move through the stand, TSI operations do not run the risk of ground disturbance that may result in soil erosion and possible sedimentation in wetlands or streams.

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## INTERMEDIATE TREATMENTS

Intermediate treatments can be commercial or non-commercial in application. The separation depends upon the size class, volume, and quality of trees to be removed.

### CROWN THINNING

In a crown thinning “. . . trees are removed from the upper crown classes in order to open up the canopy and favor the development of large and promising overstory trees. Most of the trees that are cut come from the codominant class, but any intermediate or dominant trees interfering with the development of potential crop trees are also removed. The trees to be retained are primarily dominants and, occasionally, codominants.

### IMPROVEMENT CUT

In an improvement cut, which is frequently applied in conjunction with a crown thinning, trees with little present or future value for timber, wildlife, or other management objectives are removed from the stand in order to provide additional growing space to the remaining trees.

### CROP TREE MANAGEMENT (CTM)

When timber stand improvement operations are implemented during the management period, the principles of crop tree management will be applied. CTM can be defined as releasing selected trees having one or more desirable attributes by cutting or girdling other trees in direct competition with crop trees. CTM differs from other forms of thinning in that CTM focuses attention on retaining and culturing individual trees with the greatest potential to produce specific benefits consistent with the landowner's property goals. These “crop” trees are singled out and their crowns are released so that they might produce more wildlife mast, better sawlogs, or aesthetic benefits. Releasing crop trees also helps them survive and stay healthier and more resistant to stress through the removal of their competitors thus giving them more sunlight, water and nutrients.

The following criteria are used to guide the selection of crop trees for forest health and productivity where crop tree management is called for to help achieve the ECFLA / Wolf Den Land Trust's objectives:

#### 1) Timber Crop Tree Selection Criteria:

- Dominant and codominant trees at least 30 feet tall with large healthy crowns;
- High quality trees (minimal sweep, minimal branches on the lower bole);
- High value commercial species;
- Expected longevity of 20+ years;
- Species better adapted to site conditions.

#### 2) Wildlife Crop Tree Selection Criteria:

- Dominant and codominant trees with large healthy crowns;
- Hard mast producers selected over soft mast producers;
- Expected longevity of better than 20 years;
- Cavities preferred, large broken branches acceptable.

Detailed information on the principles of crop tree management is presented in Perkey, Wilkins, and Smith (1993).

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## REGENERATION TREATMENTS

Where an existing stand is approaching maturity, efforts need to be taken to ensure suitable numbers of new trees of desirable species are established in the understory; these usually replace the mature trees. This is accomplished using "regeneration treatments".

### EVEN-AGED MANAGEMENT

Even-aged stands are comprised of trees of essentially the same age. Often the heights of the trees forming the main canopy are rather uniform, and the trees making up the main crown canopy have a relatively narrow range in diameters. When an even-aged stand managed for wood products is judged to be mature, the trees are removed in one or more cuttings, with a goal of replacing the mature age class with a new stand of trees. Even aged techniques are best for growing tree species that require high light intensities to survive. This includes most of the species that are presently of the greatest value in the northeastern hardwood forest. Oaks, Ash, Black Cherry, and Tulip Poplar are examples of some high sunlight requiring species.

### SHELTERWOOD REGENERATION METHOD

When using the Shelterwood method, the existing overstory is removed in two or more cuttings in a manner whereby a new age class of desirable trees is established under the "shelter" of the older trees. Once suitable numbers of desirable species are well established and distributed, the shelter is removed, and a new even-aged forest is released. The first step in the Shelterwood sequence is one (or more) "preparatory cutting" followed by a "seed cutting" which in turn is followed by the "removal cutting".

**Preparatory Cutting:** this treatment is used to create environmental conditions suitable for the establishment of desirable tree reproduction. Although similar to a thinning the primary objective here is reproduction rather than the promotion of growth of the existing stand.

**Seed Cutting:** this treatment is applied to assist in the further establishment and development of the reproduction by providing more light in order to stimulate rapid growth.

**Removal cutting:** after the reproduction is of sufficient numbers and is capable of competing successfully with non-desirable plants, the new stand is completely released from the shelter of the older stand.

### UNEVEN-AGED MANAGEMENT

Uneven-age stands are stands where the age of the trees differs significantly. This age difference is generally greater than 20% of the rotation period. For example if the rotation age is 100 years, the difference in age has to be greater than 20 years. There are two primary methods of maintaining an uneven-aged stand, single tree selection and group selection. The single tree method promotes the growth of new age classes by removing mature trees somewhat uniformly across the stand. Group selection removes small groups of mature trees through out the stand.

These methods promote the regeneration of new trees by increasing the amount of light that reaches the forest floor. Uneven-age management methods require a shorter cutting cycle that typically removes less volume per harvest than even-age methods.



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## MANAGEMENT UNIT #1

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### EXISTING CONDITIONS

#### DESCRIPTION OF MANAGEMENT UNIT

NUMBER OF ACRES: 43

FOREST COVER TYPE: Oak Hickory Small Sawtimber

OVERSTORY: Black Oak, White Oak, Red Maple, Black Birch, Northern Red Oak

UNDERSTORY: Red Maple, Black Birch, Mixed Oaks

SAPLINGS: Black Birch, Yellow Birch, Red Maple, Mixed Oaks

SHRUBS: Hornbeam, Highbush Blueberry, Lowbush Blueberry, Huckleberry

SEEDLINGS: None

CONDITION: Fair to poor, overcrowded, UGS>AGS.

MU 1 takes up the eastern half of the property. The topography varies slightly from relatively flat to moderate slopes. The dense canopy has allowed little light to reach the forest floor, which has resulted in a poorly developed understory. Regeneration is non-existent. Wetlands and associated drainages are interspersed within the stand. The age of the stand is approximately 80 years.

#### FOREST HEALTH AND PRODUCTIVITY

Increment borings indicate a site index for black oak in the 50's in the higher sites to the 60's in the lower sites. This indicates that the inherent site conditions of adequate moisture supply and available nutrients for hardwoods are moderate. Eastern white pine would do well on this site.

Basal Area = 95, Acceptable Growing Stock=39, Unacceptable Growing Stock=56;

Trees / Acre = 191, Acceptable Growing Stock = 79, Unacceptable Growing Stock = 112;

% Stocking = 85, Fully Stocked.

MBF/Acre = 5.36, AGS = 2.36, UGS = 3.0, Value/Acre = \$1,072.00, Stand Value = \$46,096.00

At current stocking levels, the stand is above the optimum for best individual tree growth. At this density, growth rate of the biggest trees is moderate while growth rates of medium and smaller trees are poor. The crowded stand conditions predispose the stand to mortality or other loss due to stress of competition, insect infestation, or disease outbreak. The ratio of AGS to UGS is unacceptable but typical of un-managed stands.

#### RECREATION AND EDUCATION

The eastern portion of the loop trail passes through this stand. The potential for expansion of recreational use is high with many recreational and educational development opportunities.

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## MANAGEMENT UNIT #1

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### EXISTING CONDITIONS

#### WETLAND HABITAT

Wetlands and associated drainage provides a good water source. Mast production is abundant. The dense canopy has limited the stand structure with a consequent thus limiting wildlife species diversity. There are a limited number of snags present. Snags are standing dead trees which provide food and cover for wildlife. Den trees are trees which have a cavity (hollow) in the main stem or branch. Cavities provide critical nesting and roosting cover for numerous wildlife species.

#### STRUCTURAL AND OTHER SIGNIFICANT FEATURES

A stone foundation is present near the jog in the eastern bound. The stone foundation at the corner have a unique feature that is fairly uncommon. These stone features are present at intervals along the top of the wall. These stones were put in place for the fence rail.

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## MANAGEMENT UNIT #1

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### RESOURCE MANAGEMENT RECOMMENDATIONS (2003 – 2012)

#### **FOREST HEALTH AND PRODUCTIVITY**

In order to reduce competition and improve the overall quality of the timber stand an improvement thinning is recommended. This will reduce crowding, remove undesirable species, and bring the ratio of AGS to UGS closer to acceptable levels, and increase the volume and value growth of the residual stand. This will be accomplished through the application of an initial thinning. Trees to be removed will be undesirable growing stock from all diameter classes. Basal area will be reduced to 60'. This will result in the removal of 50% of the UGS in the stand. Volume to be removed is 1.5 MBF/acre for a total of 46 MBF with an approximate value of \$6,900.00. Additionally 4 cords per acre of firewood will be removed. The value of the firewood will depend upon locating local fuelwood markets.

#### **RECREATION AND EDUCATION**

The layout of the skid roads for the timber harvest will be done so that they can be used post harvest as hiking trails or woods roads depending on the terrain.

#### **WILDLIFE HABITAT MANAGEMENT**

Thinning of this stand will promote the growth and development of the understory. The addition of this structural component will provide for increased wildlife diversity in the stand. Also, thinning the stand will provide better growing conditions for understory plant species already present such as high bush blueberry. It is important that prior to timber harvesting active den trees be located and identified in order to insure that they are not removed or damaged. At any point in time (pre- or post- harvest) snag trees can be created. A total of 3 to 5 snags per acre, of which one or two should be greater than 18" DBH, will be sufficient. Snags are created by girdling a living tree with a chainsaw or hatchet. The tree is girdled by cutting through the living tissue of the tree just inside the bark - to a depth of one inch or less. Typically cull trees are used to create snags.

Wildlife brush piles can be created using the leftover tops from the timber harvest. The leftover tops or "slash" is piled in a fashion in order to create a brush cave. Numerous small mammals and some bird species use these brush piles for cover. Also, the predators that feed on these species benefit through the increased population of their food source.

#### **AESTHETIC AND SPECIAL AREAS MANAGEMENT**

The lay out of skid roads and trails will need to avoid the Homesite and make use of existing bar ways in the stone walls.

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## MANAGEMENT UNIT #2

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### EXISTING CONDITIONS

#### DESCRIPTION OF MANAGEMENT UNIT

NUMBER OF ACRES: 9

FOREST COVER TYPE: Mixed Poletimber – Early Successional

OVERSTORY: Black Oak, Red Maple, Scarlet Oak, Black Cherry, Eastern White Pine, Eastern White Cedar, Swamp White Oak.

UNDERSTORY: Sumac, Black Cherry, White Oak, White Pine, and Red Maple.

SAPLINGS: See Above

SHRUBS: High Bush Blueberry, Huckleberry, Sumac, Autumn Olive, Barberry.

SEEDLINGS: Occasional White Pine

CONDITION: Fair to poor, UGS>AGS.

MU 2 is located along the northern boundary and Sarah Pearl Road and is divided by Brook. The topography is relatively flat. This stand is relatively young and contains grassy areas. Field evidence indicates that a majority of this stand was intensively farmed.

#### FOREST HEALTH AND PRODUCTIVITY

Soil types present indicate that the inherent site conditions of adequate moisture and available nutrients are good. Invasive exotic plant species were noted during the inventory.

Basal Area = 36.7, Acceptable Growing Stock=16.7, Unacceptable Growing Stock=20;

Trees / Acre = 210, Acceptable Growing Stock = 90, Unacceptable Growing Stock = 120

MBF/Acre = NA

Cords / Acre = 1.8

At the present time this stand is in the early stage of forest succession. Numerous trees of importance to wild life as well as open grassy areas are present. Also, a stone bridge and stream are present in this stand. This stand also abuts a beaver impoundment that is central to the stand. These factors combined with difficult commercial access tend to preclude commercial products management.

#### RECREATION AND EDUCATION

The loop trail runs through this stand. The potential for expansion of recreational opportunities with many recreational and educational development opportunities. Due to the topography, potential for wildlife viewing and picnicking sites is good.



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## MANAGEMENT UNIT #2

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### EXISTING CONDITIONS

#### WILDLIFE HABITAT

The beaver impoundment, Murphy Brook and associated wetland drain water source. Mast producing trees, including a well developed stand are present. The grassy openings, well developed shrub layer and the openings are preferred by numerous wildlife species provide variable structure thus increasing diversity.

#### AESETHETIC AND OTHER SIGNIFICANT FEATURES

This loop trail crosses a stone bridge. An old home site is also preserved.

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## MANAGEMENT UNIT #2

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### RESOURCE MANAGEMENT RECOMMENDATIONS (2003 – 2012)

#### **FOREST HEALTH AND PRODUCTIVITY**

There are no commercial forest products management recommendations at this time.

#### **RECREATION AND EDUCATION**

The trail system should be expanded in this stand. A spur should lead to the edge of the beaver impoundment and a small viewing area created to look out over the open water. Educational opportunities abound including the wildlife habitat and historical structures.

#### **WILDLIFE HABITAT MANAGEMENT**

The focus of this stand should be primarily wildlife oriented. Trees and shrubs of high wildlife value (shagbark hickory, eastern red cedar, aspen, highbush blueberry, swamp white oak, etc.) should be identified and released. The open grassy areas should at a minimum be maintained and possibly slightly expanded. With the proximity of the wetlands this could make for excellent woodcock habitat – particularly for their aerial displays.

#### **AESTHETIC AND SPECIAL AREAS MANAGEMENT**

Actions need to be taken to control the invasive exotic plant species present. These plants need to be identified and controlled using a combination of physical removal and herbicide application.

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## MANAGEMENT UNIT #3

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### EXISTING CONDITIONS

#### DESCRIPTION OF MANAGEMENT UNIT

NUMBER OF ACRES: 7

FOREST COVER TYPE: Mixed Oak Poletimber

OVERSTORY: Black Oak, Scarlet Oak, White Oak, Eastern White Pine.

UNDERSTORY: White Oak, Eastern White Pine

SAPLINGS: Eastern White Pine

SHRUBS: Lowbush blueberry, Highbush Blueberry

SEEDLINGS: Eastern White Pine, Mixed Oaks

CONDITION: Fair, overcrowded, UGS>AGS.

This stand is located in the southwestern corner of the property. The topography is gently irregular with a predominantly eastern aspect. A limited amount of sunlight is making it through the canopy which has resulted in a moderately developed understory. Regeneration is fair. This stand is a two aged stand.

#### FOREST HEALTH AND PRODUCTIVITY

Increment borings indicate a site index in the 50 to 60 range for oak. This indicates that the inherent site conditions of adequate moisture supply and available nutrients are adequate. Eastern White Pine will do well on this site. The western boundary runs along the edge of this stand. Although the boundary has been flagged it has not been permanently marked.

Basal Area = 73, Acceptable Growing Stock=27, Unacceptable Growing Stock=46;

Trees / Acre = 321, Acceptable Growing Stock = 164, Unacceptable Growing Stock = 157;

% Stocking = 73, Fully Stocked.

MBF/Acre = 1.95, AGS = 0, UGS = 1.95, Value/Acre = \$390.00, Stand Value = \$2,700.00

At current stocking levels the stand is near the optimum for best individual tree growth. At this density, growth rate of the biggest trees is moderate while growth rates of medium and smaller trees are poor. The crowded stand conditions predispose the stand to mortality or other loss due to stress of competition, insect infestation, or disease outbreak. The ratio of AGS to UGS is unacceptable but typical of un-managed stands.

#### RECREATION AND EDUCATION

The loop trail runs through this stand. The potential for expansion of recreational use is high with many recreational and aesthetic development opportunities. Due to the topography the potential for wildlife viewing and picnicking sites is good.

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## MANAGEMENT UNIT #3

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### EXISTING CONDITIONS

#### **WILDLIFE HABITAT**

This stand has an element of coniferous cover that is becoming uncommon in CT. Numerous wildlife species require or make use of coniferous stands.

#### **WETLAND, WATER, AND FISHERIES RESOURCES**

The wetland and riparian areas associated with Murphy Brook abut the eastern edge of this stand.

#### **ESTHETIC AND OTHER SIGNIFICANT FEATURES**

The pattern of stone walls indicates that this area may have been plowed. It is doubtful that this area was very productive as the soils appear to be fairly sandy.