

**FOREST STEWARDSHIP PLAN**

for

**Maryland Department of Natural Resources  
Forest Service  
Salem Tract**

**Location**

**South side of Indian Bridge Road, ¼ mile South of St. Andrews Church Road**

**MD Grid 930,000/160,000**

**Tax Map 42, Grid 13, Parcel 64, 783.13 acres  
Tax Map 49, Grid 5, Parcel 67, 62.61 acres**

**Total 845.74 acres**

in

**St. Mary's County**

on

**832.0 acres woodland  
13.0 acres Utility Right of Way  
845.0 +/- total acres**

Prepared by

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**February 2006**

## INTRODUCTION

The Salem property was acquired by the Maryland Department of Natural Resources in 2003. The parcel is located on the South side of St. Andrews Church Road in St. Mary's County, directly North of St. Mary's Lake. This property adjoins St. Mary's River State Park. The land was previously owned by the Glatfelter Pulpwood Company and primarily managed for Loblolly pine production. The Maryland Forest Service will be the agency coordinating the management of the property with other disciplines in the Department of Natural Resources. The forest on the property consists of approximately 275 acres of loblolly pine plantation that is 26 - 30 years old. There is an additional 345 acres that were harvested by the clear cut method in 2000, approximately 108 acres were treated with herbicides to control hardwood sprouting and replanted with loblolly pine. The remaining 239 acres were left to regenerate naturally and established a stand of mixed pine and hardwoods. Other forest stands on the property include areas of mixed Virginian pine and oaks, mature loblolly pine and bottomland hardwoods.

Future forest management strategies will be to continue with the loblolly pine management through thinning and regeneration operations. Loblolly pine plantation management is also a priority.

The terrain is flat with heavy clay Beltsville soils on the upland areas and silt and gravelly loam soils in the flood plain areas. The Western Branch of the St. Mary's River and two unnamed tributary streams flow through the property. Forested non-tidal wetlands are scattered along the riparian area of the property.

Currently the property is leased for hunting by a private group. The lease agreement is due to expire September 30, 2006, and will be the final lease agreement on the property. The Wildlife Division in cooperation with the Forest Service will establish a public hunting program on the property. Tentative plans will be to open the property for public hunting in calendar year 2007. Hunter parking areas will need to be established and additional gates and security are needed to prevent trespassing. Hunting reservations will be coordinated by the Wildlife Division at the Myrtle Grove office in Pisgah.

The Southern boundary line of the property adjoins St. Mary's River State Park. Currently a hiking trail exists around the Northern portion of St. Mary's Lake. Plans are to extend the trail system that currently exists around the lake on to the Salem tract. All terrain vehicles and motorcycles are illegally riding on the Salem Tract, additional law enforcement action will be necessary to deter trespassers. Signage will be installed to close roads to off road vehicles. The Department of Natural Resources Police Division is monitoring the situation.

The boundary lines are currently marked with a white band of paint at chest height. Future plans are to repaint the boundary lines to State land standards with yellow paint and post management zone maps delineating State ownership.

## STAND DESCRIPTION AND RECOMMENDED PRACTICES

STAND NUMBER: 1

AREA ACRES: 274.6

DOMINANT OVERSTORY SPECIES: Loblolly Pine

DOMINANT UNDERSTORY SPECIES: Sweetgum

TIMBER SIZE: Pole

AGE: Even (26 – 30 years old)

STOCKING: Adequate to Overstocked

BASAL AREA: 175 square feet per acre

DESIRABLE TREES: 85 %    UNDESIRABLE TREES: 10 %

GROWTH POTENTIAL: Good

SITE INDEX: Loblolly Pine 85

DOMINANT SOIL TYPES: Beltsville silt loam

### RECOMMENDATIONS/PRACTICES

This stand of pine was planted following a regeneration harvest in the late 1970s. The site was drum chopped and burned to prepare the site for planting. Loblolly pine was planted on a 9' x 9' spacing (538 trees/acre). Isolated pockets of hardwoods that were not killed by the fire were chemically deadened the summer following the prescribed burn.

It is generally accepted that the first thinning should be delayed until revenue received from the trees removed will pay the cost of the operation, in order to eliminate a deficit timber sale. Hence, the first thinning is usually made when the trees reach pulpwood size, about 6 - 10 inches in diameter at breast height. The trees will normally be between 20 - 26 years old when they reach this size.

Pines sampled for growth estimates showed an increase of two inches in diameter every nine years under current conditions, which is declining for the species and soil conditions present. The live crown ratio of the trees is less than one third of the total tree height, another indicator that growth has stagnated and a release thinning is necessary to improve growth. This stand should be thinned in three units over the next three years.

The result of any thinning operation should be to provide more growing space for the well formed, fast growing trees; while harvesting trees that are diseased, damaged or poorly formed and those that are not anticipated to live until the next scheduled harvest.

In pine plantations a method known as a Modified Row Thinning should be initiated in which every third or fourth row is removed to provide access to the stand and intermediate rows are thinned by individual tree selection. The intermediate rows of pine should be selectively thinned to a residual basal area of 100 square feet of basal area per acre.

This pine plantation should be managed for pulpwood and sawlog products. A second thinning for pulpwood and sawlogs should be initiated approximately ten years after the first thinning is complete.

## STAND DESCRIPTION AND RECOMMENDED PRACTICES

STAND NUMBER: 2

AREA ACRES: 142.8

DOMINANT OVERSTORY SPECIES: White Oak, Red Oak, Virginia pine and Loblolly pine

DOMINANT UNDERSTORY: American Holly and American Beech

TIMBER SIZE: Sawtimber & Pole

AGE: Uneven

STOCKING: Overstocked

BASAL AREA: 145 square feet per acre

DESIRABLE TREES: 85 %    UNDESIRABLE TREES: 15 %

GROWTH POTENTIAL: Good

SITE INDEX: White Oak 72

DOMINANT SOIL TYPES: Croom gravelly sandy loam, Sassafras sandy loam, Elkton silt loam and Beltsville silt loam

### RECOMMENDATIONS/PRACTICES

This stand of mixed pine and hardwood species occupies six units along the Southern portion of the property. White Oak and Red Oak species occupy approximately 37 percent of the species present in this stand, with Virginia pine and loblolly pine comprising 22 % of the stand. Other tree species present include Yellow Poplar, Sweetgum, Blackgum, Hickory, American Beech and Red Maple.

American Holly dominates a large majority of the understory with mixtures of American Beech, Flowering Dogwood, Sweetgum and Red Maple regeneration present. Heavy concentrations of High Bush and Low Bush Blueberry are present in low areas with hydric soils. Natural oak regeneration is lacking.

The timber size is predominantly sawtimber and poles. Approximately 55 percent of the trees in this stand are in the sawtimber size class (dbh of 11.0 inches and greater measured at breast height). White oaks are increasing two inches in diameter every ten years under current conditions, which is excellent for the species and site conditions. Pockets of mature Virginia pine are scattered throughout this stand. These pockets of

pine should be harvested in conjunction with the harvest recommended in stand number one. These patches of pine should be clear cut and allowed to regenerate naturally among the residual hardwood stand.

Current growth rates are such that this stand should be allowed to grow another ten years at which time a single tree selection harvest should be applied to remove mature trees, culls and undesirable species. The stand stocking should not be reduced below 70 percent of the current stocking (leaving a residual basal area of 90 – 100 square feet per acre). Caution should be taken to not make any large holes in the canopy because of possible adverse effects on quality of residual stems due to epicormic branching. These guidelines will also conserve FID habitat and help decrease the regeneration of invasive exotic species in the understory by minimizing the canopy opening after the harvest. Following the initial thinning operation a firewood sale should be implemented in order to utilize the top wood.

Following the harvest the stand should be left to grow for 15 years, at which time the management recommendations should be updated.

## STAND DESCRIPTION AND RECOMMENDED PRACTICES

STAND NUMBER: 3

AREA ACRES: 28.9

DOMINANT OVERSTORY SPECIES: White Oak and Yellow Poplar

DOMINANT UNDERSTORY SPECIES: Spicebush

TIMBER SIZE: Sawtimber

AGE: Even

STOCKING: Adequate

DESIRABLE TREES: 95%    UNDESIRABLE TREES: 5%

GROWTH POTENTIAL: Good

SITE INDEX: Yellow Poplar 90

DOMINANT SOIL TYPE: Bibb silt loam and Croom sandy loam

### RECOMMENDATIONS/PRACTICES

This stand encompasses the riparian area adjacent to the Western Branch of St. Mary's River. Non-tidal wetlands are also present adjacent to the Western Branch. Access to this stand with heavy equipment should be minimized in order to avoid soil compaction and damage to the hydrology of the stream drainage area. There is an established stream crossing in this stand that does not impact non tidal wetlands. The crossing fords the creek and should be maintained for future use.

In order to protect the water quality of the St. Mary's River watershed this stand should be maintained in its undisturbed condition as a forest buffer. The forest floor adjacent to the riparian areas remove sediments, nutrients and potentially harmful or toxic substances in runoff entering the Western Branch.

Allow this stand to grow undisturbed another fifteen years to function as a forest buffer that will provide riparian wildlife habitat and filter overland run off. Re-examine the entire stand in fifteen years to update the management recommendations.

## STAND DESCRIPTION AND RECOMMENDED PRACTICES

STAND NUMBER: 4

AREA ACRES: 40.7

DOMINANT OVERSTORY SPECIES: Loblolly and Virginia pine

DOMINANT UNDERSTORY SPECIES: American Holly

TIMBER SIZE: Sawtimber and Pole

AGE: Even (50 years old)

STOCKING: Overstocked

BASAL AREA: 135 square feet per acre

DESIRABLE TREES: 90%

UNDESIRABLE TREES: 10%

GROWTH POTENTIAL: Good

SITE INDEX: Loblolly Pine 85

DOMINANT SOIL TYPES: Beltsville silt loam and Mattapeake fine sandy loam

### RECOMMENDATIONS/PRACTICES

This stand of pine is typical of abandoned farmland in Southern Maryland. Loblolly pine comprises 35 percent of the species present in the stand and Virginia pine makes up 25 percent of the stand. The trees are mature for the species and should be harvested.

Following the harvest a prescribed burn should be initiated to prepare the site for reforestation with Loblolly pine. Annual inspections should be done to monitor hardwood competition in the newly established plantation. Hardwood eradication is recommended as needed in order to improve the growth of the pine.

Access to this stand will be by crossing the Western Branch at the designated crossing. The stream crossing will only span one branch of the stream and does not encompass extensive areas of non-tidal wetlands. Wooden timbers should be used to span the creek from bank to bank, as to not cause damage to the stream channel.

This stand falls under the provisions of the Maryland Seed Tree Law. The seed tree law requires the reforestation of loblolly pine, pond pine, or shortleaf pine that is commercially harvested from 5 acres or more of land where these species singly or together occur and constitute 25% or more of the live trees on each acre. Before any



harvesting can begin eight seed trees (cone bearing) 14 inches or larger in diameter must be marked to be retained on each acre, if trees 14 inches or larger are not present then two trees of the next largest diameter must be retained for each tree not present. If seed trees are not left a reforestation plan must be approved by the Maryland DNR-Forest Service. DNR Seed Tree Law form 362 must be submitted to the local DNR-Forest Service office with the Pine Reforestation Plan attached. The reforestation plan must provide for reforestation other than by natural seeding.

## STAND DESCRIPTION AND RECOMMENDED PRACTICES

STAND NUMBER: 5

AREA ACRES: 133.6

DOMINANT OVERSTORY SPECIES: Loblolly pine and mixed hardwoods

DOMINANT UNDERSTORY SPECIES: Grass

TIMBER SIZE: Sapling

AGE: Even (6 years old)

STOCKING: Adequate to Overstocked

BASAL AREA: N/A

DESIRABLE TREES: 75 %    UNDESIRABLE TREES: 20 %

GROWTH POTENTIAL: Good

SITE INDEX: Loblolly pine 75

DOMINANT SOIL TYPES: Beltsville silt loam

### RECOMMENDATIONS/PRACTICES

This stand was allowed to regenerate naturally following a harvest in 2000. The tree species present in this stand include Loblolly pine, Virginia pine, Red Maple, Sweetgum and Yellow Poplar. The naturally regenerated Loblolly pine saplings are out growing the hardwoods and should eventually dominate the stand; however, aerial herbicide treatment to eradicate the hardwoods would improve the stand. One hundred acres of this stand should be treated with herbicides to release the Loblolly pine.

Allow this stand to grow another fifteen years at which time an inspection should be done to determine the feasibility of initiating a pulpwood thinning. This stand should be managed for pulpwood and sawlog products.

## STAND DESCRIPTION AND RECOMMENDED PRACTICES

STAND NUMBER: 6                      7

AREA ACRES: 108 acres            36.6 acres    Total 144.6 acres

DOMINANT OVERSTORY SPECIES: Loblolly Pine

DOMINANT UNDERSTORY SPECIES: Sweetgum

TIMBER SIZE: Sapling

AGE: Even (6 - 10 years old)

STOCKING: Adequate

BASAL AREA: N/A

DESIRABLE TREES: 75 %      UNDESIRABLE TREES: 20 %

GROWTH POTENTIAL: Good

SITE INDEX: Loblolly Pine 75

DOMINANT SOIL TYPES: Beltsville silt loam

### RECOMMENDATIONS/PRACTICES

This stand of Loblolly pine was planted following a regeneration harvest in 2000. The site was treated with Arsenal and burned to prepare the site for planting. The trees are planted at a rate of 780 trees per acre.

This stand should be left to grow another ten to fifteen years at which time an inspection should be done to schedule a pulpwood thinning.

The first thinning should be delayed until revenue received from the trees removed will pay the cost of the operation, in order to eliminate a deficit timber sale. Hence, the first thinning is usually made when the trees reach pulpwood size, about 6 - 10 inches in diameter at breast height. The trees will normally be between 20 - 26 years old when they reach this size.

This pine plantation should be managed for pulpwood and sawlog products. A second thinning for pulpwood and sawlogs should be initiated ten years after the initial thinning is complete.

## STAND DESCRIPTION AND RECOMMENDED PRACTICES

STAND NUMBER: 8

AREA ACRES: 66.8

DOMINANT OVERSTORY SPECIES: Sweetgum and Red Maple

DOMINANT UNDERSTORY SPECIES: Grass

TIMBER SIZE: Sapling

AGE: Even (6 years old)

STOCKING: Adequate

DESIRABLE TREES: 75 %    UNDESIRABLE TREES: 25 %

GROWTH POTENTIAL: Fair/Good

SOIL TYPE: Beltsville silt loam

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### RECOMMENDATIONS/PRACTICES

This stand was harvested in 2000 by the clear cut method. All trees greater than two inches in diameter at chest height were harvested. The stand has naturally regenerated into a predominantly mixed hardwood stand with a few scattered loblolly pines.

At this time allow the stand to develop naturally over the next fifteen years. The hardwood species present include Sweetgum, Red Maple, Yellow Poplar and mixed oak species.

## **NON-TIDAL WETLANDS/ BEST MANAGEMENT PRACTICES**

Non-tidal wetlands (wetlands not adjacent to tidal waters) are found all across the state. These wetlands include marshes, bogs, and swamps, and may include other areas that are only flooded or saturated for fairly short periods of time. Non-tidal wetlands are delineated on the ground by the presence of wetland hydrology, wetland soils, and wetland vegetation. Many of these wetlands are forested.

These wetland areas often provide important benefits such as water quality improvement, flood control, natural products for human use, forest products and aesthetic and recreational opportunities. They also provide habitat for a wide variety of plants and animals, many of which depend on wetlands for all or part of their life cycle.

Activities in non-tidal wetlands, such as excavation, filling, draining, or other activities which may change the water level will require a permit issued by the Maryland DNR - Water Resources Administration. Forestry practices do not require a non-tidal wetlands permit from the Department of Natural Resources if the land use remains as forestry. Forestry activities are planting, cultivating, thinning, harvesting or any other activity undertaken to use the forest resources or to improve their quality or productivity. Activities that change non-tidal wetlands to another land use, including but not limited to agriculture or development, are not forestry activities.

The non-tidal wetland regulations require that Best Management Practices (BMPs) to protect non-tidal wetlands be incorporated into the sediment and erosion control plan required for forest harvest operations. The sediment and erosion control plan must be prepared by a registered professional forester. These Best Management Practices or "BMPs", which describe how certain operations should be carried out, must be used to prevent or minimize any adverse impacts on water quality or the functional characteristics of the wetland.

Best Management Practices are conservation measures that:

- \* Control soil loss and sediment deposition in non-tidal wetlands
- \* Minimize water quality degradation caused by sediment
- \* Minimize adverse impacts to circulation patterns or flow of surface water or ground water
- \* Minimize any adverse impact to the chemical, physical or biological characteristics of non-tidal wetlands
- \* Prevent non-tidal wetlands from being changed to upland or any other area that no longer meets the non-tidal wetland definition

Examples of BMPs include:

- \* Designing stream crossings to have the shortest distance feasible
- \* Locating roads and log decks on upland areas to minimize adverse wetland impacts
- \* Harvesting with specialized equipment such as high flotation equipment when non-tidal wetland soils and hydrology have the potential to be adversely affected
- \* Using mats or similar temporary structures to reduce compaction or rutting
- \* Conduct forest harvest operations during dry seasons
- \* Follow natural contours of the land, whenever feasible

Hydric Soils:

The Beltsville and Bibb series soils are classified as hydric soils. A hydric soil is a soil that, in its undrained condition, is saturated, flooded, or ponded long enough during the growing season to favor the growth and regeneration of hydrophytic vegetation. Best management practices (BMPs) should be used when a timber harvest is initiated in these soils.

## **NATURAL RESOURCE PROTECTION**

### **GYPSY MOTH**

The Gypsy Moth has been a major problem in the Northeastern U.S. since 1869. Over the years it has become a primary defoliator of hardwood trees in Maryland. Several factors determine the likelihood of a woodlot being infested by the Gypsy Moth. The type of trees present is one factor. Oak are among the most preferred species, also favorable are Sweetgum, Blackgum, Dogwood, Hickory, Maple and Pine. Least preferred species include American Holly, American Sycamore, Ash, Black Locust, and Yellow Poplar.

The condition of the woodland is also important. Areas with a considerable percentage of cull, damaged and deformed trees are highly susceptible. These conditions provide structural refuges which provide hiding places for larvae, pupae and eggs.

If a stand is attacked by Gypsy Moth, its vulnerability will determine the amount of mortality. Trees in stress conditions, (overcrowded, over-mature, overtopped, damaged), are highly vulnerable.

Good forest management can reduce the susceptibility of your woodlot to attacks by Gypsy Moth. Thinning can be used to reduce the amount of structural refuges and the percentage of preferred food species present in your woodland. Maintaining a healthy, vigorous forest is the best tool in controlling susceptibility and reducing vulnerability.

### **SOUTHERN PINE BARK BEETLE**

The Southern Pine Bark Beetle attacks live trees by boring through the bark where eggs are laid. Trees attacked by the Pine Bark Beetle are girdled as the beetle constructs its egg galleries in the phloem layer of the inner bark.

As a general rule, pine bark beetles attack trees that are dying or in a state of decline due to a variety of stress factors such as drought, mechanical injury, compaction of soil in the root zone, smog, root rot, etc. Damage from the beetle can be identified by the red needles from the dying crown, reddish brown particles of boring dust at the base of the tree, pitch tubes in boring holes and S-shaped galleries on the inner side of the bark.

Prompt salvage of infested trees is the cheapest and often the most practical method of control. If infested trees remain in the stand an even greater number of trees may be destroyed by the next generation of beetles. Salvage will help reduce losses until natural factors supplemented by forestry treatments, such as thinning; improve the health and vigor of trees.

## **FIRE**

The Salem Tract has an established road system and several hiking trails that are accessible for fire suppression equipment by the Forest Service. The boundary lines are also fairly accessible for fire suppression activities. The continued maintenance of roads and fire lines is a timely and costly chore on the forest; however, access is essential for suppression of wildfires. A Fire Suppression Plan is being prepared for this tract in order to provide additional details for direct and indirect attack methods of fire suppression.

## **FOREST INTERIOR DWELLING BIRDS TIMBER HARVEST GUIDELINES FOR FIDS HABITAT**

The forested area on the project site contains Forest Interior Dwelling Bird habitat. Populations of many Forest Interior Dwelling Bird species (FIDS) are declining in Maryland and throughout the eastern United States. The conservation of this habitat is strongly encouraged by the Department of Natural Resources. The following guidelines give highest priority and the greatest protection to the following habitats: riparian forests (including floodplain or bottomland forests), mature to overmature forests in coves and ravines, and overmature forests in upland areas not associated with coves and ravines.

1. Timber harvesting should not result in the creation of any new permanent forest openings (e.g. as a result of logging roads, landing areas, wildlife food plots, etc.)
2. No timber harvesting should occur within the buffer of any perennial tidal or non-tidal streams, as indicated on USGS 7.5 minute topographic maps.
3. Encourage the use of single-tree selection with the retention of 70% or greater forest canopy closure in the following areas:
  - a. Mature to overmature upland hardwood and mixed hardwood-pine forests
  - b. Within 150 feet of intermittent streams if high quality FIDS habitat is present
  - c. Forested coves and ravines containing high quality FIDS habitat
4. Avoid timber harvesting between April 1-July 31, the breeding season for most FIDS.
5. Encourage the retention of at least 8 snags per acre (each 8 inches dbh or greater) in timber harvest areas. The largest snags possible should be selected for retention. Groups of snags should be favored over scattered isolated snags. In clear cuts where insufficient densities of size classes of snags are present, live trees (e.g. such as trees with relatively little merchantable value) of a similar minimum size and density should be frilled or girdled and left standing.
7. Encourage the retention of dead and downed woody debris on the forest floor. Slash should be left lying and not placed in windows or brush piles. Clean, park-like conditions should be avoided.



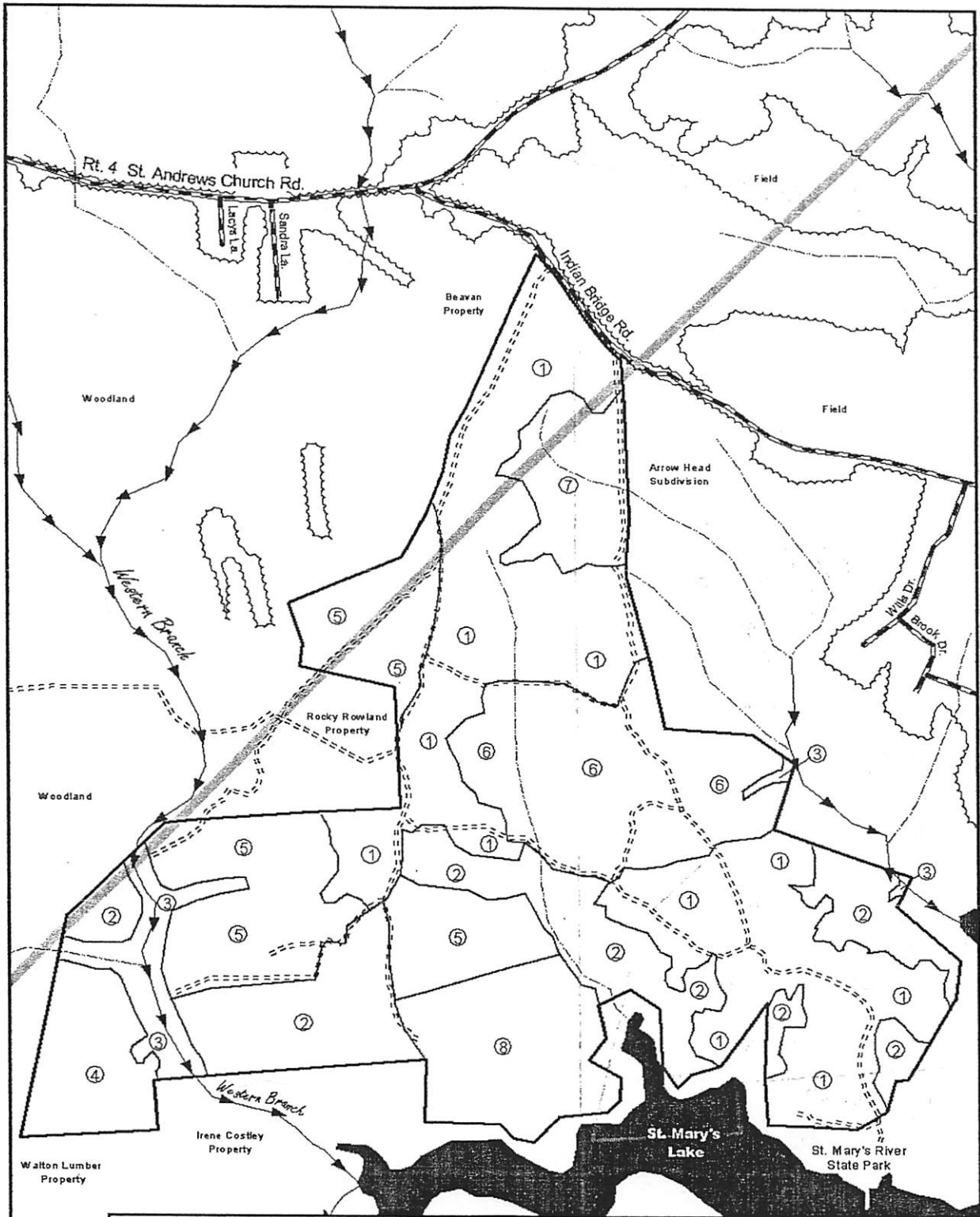
**8. Regarding logging roads and trails:**

- a. Woods road maintenance should be kept to the minimum that will allow access for fire suppression and future management activities.
- b. Maintain forest canopy closure over roads (i.e. do not daylight).
- c. Road widths should be less than 15 feet.
- d. Avoid maintaining grassy roadbeds and berms.
- e. If '12d' is unavoidable, maintain at least 10 inches of grass height throughout the FIDS breeding season (April 1-July 31).
- f. Where possible, allow logging roads to succeed to native forest vegetation.

The term "Natural Heritage" is used to describe the plants, animals, and natural ecosystems, which make up the landscapes of Maryland. Thus, Natural Heritage Stewardship is concerned with preserving the plants, animals, and ecosystem of the state for the many benefits they provide us, especially those determined to be threatened, endangered, or in need of conservation. The DNR-Natural Heritage Program maintains a database of the locations where sensitive species are known to occur. A search of this database indicates there is a species of concern located along the Southern boundary of the property.

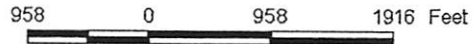
## FOREST MANAGEMENT PRACTICE SCHEDULE

<u>COMPLETION DATE</u>	<u>PRACTICE</u>	<u>STAND</u>	<u>ACRES</u>
2007	Boundary Line Marking	all	845.0
2007	Herbicide Treatment Release	5	100.0
2007	Thinning	1	82.0
2007	Regeneration Harvest	4	40.7
2008	Site Preparation	4	40.7
2008	Thinning	1	96.6
2008	Regeneration Harvest	2	18.0
2009-2013	Plantation Management	4	40.7
2009	Reforestation	4	40.7
2009	Thinning	1	96.0
2016	Thinning	2	63.0
2016-2021	Thinning	7	30.0
2023	Thinning	6	98.0
2024	Thinning	5	67.8
2025	Thinning	5	65.8
2021	Re-examine	all	845.0
Continuous As Necessary	Boundary Line Maintenance	all	845.0
"	Fire Control	all	845.0
"	Road/Trail Maintenance	all	845.0



LEGEND		
	Property line	
	Woods line	
	Blue line stream	
	Blue line intermittent stream	
	Open water	
	Stand line	
	Unimproved road	
	Power line	
		Stand number

Forest Stewardship Map  
 for  
 Salem Tract  
 County: St. Mary's  
 Woodland Acres: 845  
 Scale 1" = 958'  
 Prepared by: S. Wolfe  
 Date: 3/6/06



This map is for planning purposes only.  
 This map is not a boundary survey.

