

FOREST STEWARDSHIP PLAN

for

Maryland Department of Natural Resources
Walton Lumber Tract I
Satellite Tract of Salem State Forest

LOCATION

North side of Maryland Route 5 in Redgate
Directly across from Chestnut Hills Subdivision

MD Grid: 924,000/ 155,000

Tax Map 41 Parcel 99

IN

St. Mary's County

ON

Non-Tidal Wetlands	24.0 acres
Non-Tidal Wetlands and Stream Buffers	31.5 acres
RT&E Habitat Protection Zones	105.5 acres
Forest Management Zone	531.0 acres
Powerline and Pipeline ROW	23.0 acres
Total Woodland Acres	692.0 acres
Total Acres	715.0 acres

PREPARED BY:

Mark Muir, Project Manager

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David Gailey, Regional Forester

Brian Stupak, Project Manager

March 24, 2016



INTRODUCTION/OVERVIEW TRACT I

The Walton Lumber property was acquired by the Maryland Department of Natural Resources in 2015. The Walton Lumber property is being divided into two separate tracts for management purposes. This plan addresses the management of Tract 1 which is located on the north side of Maryland Route 5 adjacent to the Salem State Forest. The land was previously owned by the Walton Lumber Company. This property will be managed by the Maryland Forest Service as a satellite tract of Salem State Forest. The forest on the property is comprised of 225.0 acres of mixed hardwood forest, and 315.0 acres of loblolly pine forest. Access to the tract is currently by a parking area located on Maryland Route 5, across from Chestnut Hills Subdivision. There is a petroleum pipeline that runs north and south on the property (the pipeline is currently not in use) and a SMECO high tension power line that runs NW to SW on the property. The property is also bordered by a SMECO substation on the northern boundary and Maryland Route 5.

Tract II is located on the north and south side of Wilderness Road along the west side of Point Lookout Road.

The terrain is flat to gently rolling with heavy clay soils typical of St. Mary's County.

The Wildlife Division in cooperation with the Maryland Forest Service will be establishing a public hunting program on the property. Hunting reservations are coordinated by the Wildlife Division at the Myrtle Grove office in Pisgah.

Japanese stiltgrass was observed on the pipeline right of way, and should be treated with herbicide to control.

Portions of this property were hit hard by Hurricane Irene in 2010. The storm damage was never salvaged by the previous landowner. This downed wood is no longer viable for timber products.

The property contains several rare and endangered species in the northern boundary where it joins the Salem State Forest. Recommendations to protect these species from Natural Heritage and Wildlife Division will be implemented.

Prior to initiating any activity on the petroleum pipeline, Potomac Edison Power Company must be contacted in order to protect the abandoned pipeline.

STAND DESCRIPTION AND RECOMMENDED PRACTICES

STAND NUMBER: 1

AREA ACRES: 315.0

DOMINANT OVERSTORY SPECIES: loblolly pine

DOMINANT UNDERSTORY SPECIES: American holly, sweetgum, red maple

TIMBER SIZE: sawtimber

AGE: even (67 years old)

STOCKING: overstocked

DESIRABLE TREES: 90%

UNDESIRABLE TREES: 10%

SITE GROWTH POTENTIAL: excellent

SITE INDEX: Loblolly pine (89)

SOIL: Caroline silt loam (CaC2, CaB2), Beltsville silt loam (B1A, B1B2), Elkton silt loam (Ek), Woodstown sandy loam (WsA)

RECOMMENDATIONS/PRACTICES:

This stand is comprised of sawtimber size loblolly pine. The tree density (stocking) is high in relation to maintaining optimum growing space per tree. As trees in the stand continue to grow larger, growing space per tree will continue to decrease.

In this "overstocked" condition the stand will become less vigorous due to excessive competition for limited resources such as soil nutrients, water, and sunlight. In this overstocked condition a stand is vulnerable to insect and disease infestation as well as decline from drought.

The tree species distribution in this stand is as follows:

Loblolly pine	67%
Sweetgum/Blackgum	7%
White oak	9%
Red maple	3%
Red oak	6%
Virginia pine	5%
Yellow poplar	3%
Total	100%

The current size class distribution in this stand is 70% saw timber (11.0 inches or greater in dbh [dbh = diameter at breast height - e.g. the tree diameter measured at 4.5 feet, approximately breast height]); 24% pole size (5.0 - 10.9 inches dbh); and 6% small tree (sapling to 4.9 inches dbh).

Increment borings of several loblolly pine trees within the stand indicate the trees are approximately sixty seven years old and growing at a rate of 2 inches every fifteen years.

This stand will fall 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. Artificial regeneration with loblolly pine may be implemented in lieu of leaving seed trees.

The prescription for this stand is to perform five 40 acre regeneration harvests. Once the harvests are completed the site will be prepared for reforestation by prescribed burning and reforested with loblolly pine on a 7' x 10' spacing (622 trees/acre). The first regeneration harvest will be in June 2017.

The Beltsville silt loam soils present in this stand are classified as hydric soils, a possible indicator of additional non-tidal wetland areas. 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.

Timber harvesting in the wetland areas and areas with hydric soils present must include the implementation of Best Management Practices (BMPs) in order to minimize impact on the hydrology of these soils.

BMPs are easily implemented conservation measures that control soil loss and minimize potentially adverse impacts during harvesting to protect water quality.

Best Management Practices are conservation measures that:

- * Control soil loss
- * Reduce water quality degradation
- * Maintain an area as a nontidal wetland after harvesting
- * Minimize any adverse impact to the chemical, physical or biological characteristics of nontidal wetlands.

This stand has an unnamed intermittent blue line stream running east to west through the middle of it. A "blue line" stream is a stream that is significant enough to be mapped on a 7.5 minute topographic map. In order to protect the water quality and riparian habitat in this stand a 100 foot no cut buffer will be established adjacent to the blue line stream in this stand.

Portions of this stand adjacent to the oil pipeline right of way and the intermittent blue line stream have been delineated as non-tidal wetlands by the U.S. Fish and Wildlife Service on the Hollywood and Piney Point USFWS NWI (National Wetland Inventory) Map. The wetland is classified as PFO1B (Palustrine, Forested, Broad-Leaved Deciduous, Saturated) and PFO4B (Palustrine, Forested, Needle Leaved Evergreen, Saturated), PEM1C (Palustrine, Emergent, Persistent, Seasonally Flooded), PFO4/1C (Palustrine, Forested, Needle Leaved Evergreen, Broad leaved deciduous, Seasonally flooded). A 100 foot no cut buffer will be established adjacent to perennial and intermittent streams and nontidal wetlands on the property (692 acre parcel) outside of the RT&E Buffer areas. There will be no forest harvest activities within the non tidal wetlands or the 100 foot buffers adjacent to non tidal wetlands and streams in this stand.

The entire stand should be re-examined in 15 years (2031) update the management recommendations.

STAND DESCRIPTION AND RECOMMENDED PRACTICES

STAND NUMBER: 2

AREA ACRES: 377.0

DOMINANT OVERSTORY SPECIES: loblolly pine, white oak

DOMINANT UNDERSTORY SPECIES: American holly, sweetgum, mountain laurel

TIMBER SIZE: sawtimber-pole

AGE: uneven

STOCKING: fully stocked

DESIRABLE TREES: 80%

UNDESIRABLE TREES: 20%

SITE GROWTH POTENTIAL: fair

SITE INDEX: white oak (72)

SOIL: Beltsville silt loam (B1B2, B1A, B1C2), Caroline silt loam (CaC2, CaB2)

RECOMMENDATIONS/PRACTICES:

This stand is comprised of sawtimber and pole timber size loblolly pine and white oak. The tree density (stocking) is adequate in relation to maintaining optimum growing space per tree.

This stand was hit hard by high winds and experienced severe windthrow during Hurricane Irene in 2010. Both the pines and hardwood species in this stand were blown over. The downed timber was not salvaged by the former landowner and is not viable for timber products at this time. Downed timber is usually only salvageable within the first six months to one year after being blown over since rot and stain enter the wood making it less valuable as timber products; this wood has been on the ground for approximately 6 years. This stand is very hard to navigate given the amount of wood blown over or on the ground.

The tree species distribution in this stand is as follows:

White oak	24%
Red oak	13%
Loblolly pine	30%
Sweetgum/Blackgum	13%
Red maple	5%
Virginia pine	7%
Willow oak	1%
Yellow poplar	5%
American beech	1%
Sassafras	1%
Total	100%

The current size class distribution in this stand is 44% saw timber (11.0 inches or greater in dbh [dbh = diameter at breast height - e.g. the tree diameter measured at 4.5 feet, approximately breast height]); 41% pole size (5.0 -10.9 inches dbh); and 15% small tree (sapling to 4.9 inches dbh).

Several increment borings taken throughout the stand revealed that the trees are approximately sixty eight years old and have been growing at a rate of 2 inches every sixteen years.

The prescription for this stand is to let this stand grow to provide water quality, habitat protection and aesthetics buffering.

The Beltsville silt loam soils present in this stand are classified as hydric soils, a possible indicator of additional non-tidal wetland areas. A hydric soil is a soil that, in it's undrained condition, is saturated, flooded, or ponded long enough during the growing season to favor the growth and regeneration of hydrophytic vegetation.

This stand has an unnamed intermittent blue line stream running through it east to west. A "blueline" stream is a stream that is significant enough to be mapped on a 7.5 minute topographic map. This legal designation will require the following in order to protect the water quality during a timber harvest:

- (1) delineation of a protective stream buffer (minimum width 50-feet, expanded 4-feet for each 1% of slope) for the stream;
- (2) within the delineated stream buffer, only selective harvesting is permitted;
- (3) before any harvesting is initiated within the stream buffer, a Custom Buffer Plan must be prepared by a Licensed Professional Forester to ensure the harvest is conducted according to all legal requirements

Portions of this stand that are adjacent to the Powerline right of way and the intermittent stream have been delineated as non-tidal wetlands. The wetlands have been delineated as non-tidal wetlands by the U.S. Fish and Wildlife Service on the Hollywood and Piney Point USFWS NWI (National Wetland Inventory) Map. The wetland is classified as

PFO1B (Palustrine, Forested, Broad-Leaved Deciduous, Saturated), PFO1A (Palustrine, Forested, Broad leaved deciduous, Temporarily Flooded), and PFO1C (Palustrine, Forested, Broad leaved Deciduous, Seasonally Flooded).

Harvesting in non tidal wetlands require that BMPs be implemented to minimize impact on the wetlands. Best management practices are conservation measures that:

- * Control soil loss
- * Reduce water quality degradation
- * Maintain an area as a nontidal wetland after harvesting
- * Minimize any adverse impact to the chemical, physical or biological characteristics of non-tidal wetlands.

There are no timber harvests recommendations within the non tidal wetlands or Stream Management Zone in this stand in order to protect water quality and the rare species present in this riparian area.

The following buffer management recommendations prepared by the DNR Wildlife and Heritage program should be implemented in this stand:

1. Provide a 300ft buffer to each side of the streams that cross the Walton Tract parcels. This will provide a riparian buffer that will offer FIDS habitat, protect seepage wetlands that provide potential habitat for the Tidewater amphipod, and protect the stream flow and water quality of habitat for the rare dragonflies and the Flier downstream. This 300ft buffer mirrors the buffers provided on Chesapeake Forest properties under the 2015 Sustainable Forest Management Plan. Selective logging may occur in the outer 100ft of this buffer if this will provide for a 100ft undisturbed buffer to nontidal wetlands. The goal of logging within this outer zone of the buffer would be to allow this stream corridor to be restored to deciduous forest. This zone for logging is more restricted than the general riparian buffer for Chesapeake Forest properties due to the presence of the rare wetland and aquatic species.
2. Avoid disturbance to nontidal wetlands bordering perennial and intermittent streams. Maintain an upland amphibian life zone extending 500ft from the edge of nontidal wetlands. Logging would be permitted within the outer portion of this zone (beyond 200ft from the stream or 100ft from the wetland edge, whichever is greater) as per the management regime identified in the 2015 Chesapeake Forest Sustainable Forest Management Plan, specified below. [The undisturbed buffer is larger on this property due to the presence of habitat for rare dragonflies, the Tidewater amphipod, and the Flier downstream.] The complex life history of amphibians requires protection of both the breeding habitat, which is used for a short period during summer months, and adjacent terrestrial habitat that is used for the majority of the year. Research conducted by wildlife biologists over the last 10 years studying the movements and habitat use of amphibians has revealed the importance of conserving upland buffers of substantial width in order to protect amphibians through their full life cycle. The 500ft buffer recommended as the amphibian life zone reflects the findings of this research. Within this life zone,

beyond 200ft from the stream corridor or 100ft from the wetland edge, whichever is greater, apply the following conservation and management prescriptions apply.

a) Pursue saw timber rotations maintaining $\geq 50\%$ canopy closure. A patch clearcut of ≤ 1 acre would be allowed in this area, but select harvests are preferred with retention of coarse woody debris and leaf litter. Natural regeneration is the preferred method.

b) 75% of the area is to contain large pole timber and saw timber age classes (10" DBH and greater) which will be managed for longer stand rotations (50+ years). Forest Management activities such as commercial thinning in these stands shall maintain a minimum of 70 sq. ft. of BA with the goal that $\geq 50\%$ of the stand composition will be comprised of hardwood species. When regeneration harvests occupy 25% of this zone, then natural regeneration must reach large pole timber size (10" DBH) before additional regeneration harvesting occurs.

c) There will be no mechanical site preparation. Prescribed burning will be allowed as a management tool. No new roads should be built in this area.

d) Harvests and heavy equipment should be conducted only when the ground is frozen or very dry.

2. Avoid crossing the perennial and intermittent streams with equipment.
3. Avoid disturbing steep slopes (15 % or greater).
4. Avoid logging during the wettest times of the year – logging between early August and late November may avoid the period when precipitation is high and the soils are wettest.
5. Retain dead and downed woody debris on forest floor. This material absorbs water, and as it decays it increases the water holding capacity of the soil.
6. Retain snags. These dead trees offer habitat to cavity nesting birds, such as woodpeckers.

The entire stand should be re-examined in 15 years (2030) to update the management recommendations.

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 woodlot is also important. Areas with 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, (over crowded, over-mature, overtopped, damaged), are highly vulnerable.

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

SOUTHERN PINE BARK BEETLE

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

General 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, soil compaction in the root zone, smog, and root rot. 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 underside of the bark.

Prompt salvage of the infested trees is the cheapest and often most practical method of control. If the infested trees remain in the stand and even greater number of trees maybe destroyed by the next generation of beetles. Salvage helps to reduce loss until natural factors supplemented by forestry treatments such as thinning, improve the health and vigor of the stand.

FIRE

The Walton Lumber Tract has a petroleum pipeline and powerline right of way bisecting the property for fire suppression equipment.

NATURAL HERITAGE

The term "Natural Heritage" is used to describe the plants, animals and natural ecosystems which make up the landscape of Maryland. Thus, Natural Heritage Stewardship is concerned with the preservation of the plants, animals and ecosystems of the state for the many benefits they provide, especially those determined to be threatened, endangered, or in need of conservation. The DNR-Natural heritage Division maintains a database of the locations where sensitive species are known to exist. A search of this database revealed there are threatened, or endangered species located on this property. Below are the recommendations from the MD DNR-Heritage Service:

January 28, 2015

MEMORANDUM

TO: Mark Muir
Forest Service

FROM: Katharine McCarthy
Natural Heritage Program
Wildlife and Heritage Service

RE: Walton Tract Forest Management Plan, 692 acres, Salem State Forest, St. Mary's County

Located to the west of St. Mary's Lake, the Walton Tract includes a large parcel contiguous with the existing Salem State Forest north of Route 5 and a smaller parcel bisected by Wilderness Rd to the south of Route 5.

ECOLOGICAL SIGNIFICANCE

The state threatened fish, the Flier (*Centrarchus macropterus*), inhabits St. Mary's Lake downstream of this property. This rare fish reaches the northern edge of its range in Maryland and occurs only in the Lower Potomac River drainage area in our state. St. Mary's River is a stronghold watershed for the Flier, considered essential to the conservation of this species due to the frequency of its occurrence and the abundance of fish documented in the area. Activities on this property influence the water quality and hydrology of Flier habitat downstream.

This tract lies within the area that the Natural Heritage Program has identified as core habitat in southern Maryland for the State Endangered Eastern Narrow-mouthed Toad

(*Gastrophryne carolinensis*). Three separate occurrences of this species have been noted within 1 mile of this Tract. In Maryland, the range of this state endangered species is confined to scattered coastal plain sites. This elusive amphibian breeds during late spring-summer in seasonal to semi-permanent, nontidal wetlands lacking fish. It is believed that adults spend most of the remaining year in surrounding mesic to xeric upland forests where ants and other small terrestrial invertebrates comprise most of its diet. The Eastern narrow-mouthed toad is semi-fossorial, meaning that it spends much of its life in burrows, both underground and in and under logs. Threats to Eastern narrow-mouthed toad in this region include upland forest loss due to development, wetland loss and degradation, habitat fragmentation, and direct mortality due to vehicles along expanding road networks.

The tributaries to Western Branch that run through the Walton Tract offer habitat for two rare and uncommon species of dragonfly, the Sable Clubtail (*Gomphus rogersi*, State Endangered) and the Gray petaltail (*Tachopteryx thoreyi*, State Watchlist), that have been documented in the vicinity. The Sable clubtail is a medium-sized, primarily black dragonfly requiring clear, moderately flowing forest streams with gravelly or sandy substrates. Its flight season is mid-April through late July. The species is primarily Appalachian in its distribution and is tracked as highly state rare in the mid-Atlantic states. Sable clubtail was observed along the stream at the north end of the Walton Tract at the border with the Salem Tract. The Gray petaltail is a large gray dragonfly that requires hillside seepages in deciduous forest for breeding. Unlike other species of dragonfly in the northeast, the larvae of this species are not truly aquatic, instead living in the mud and vegetated muck of seepages. For the adults, the primary flight season in Maryland is late May through mid-July. The species' range extends from northern Florida west to eastern Texas and Oklahoma, and north to southern Michigan, southern New York, and southern New England, and is tracked as rare in several of the surrounding mid-Atlantic states. Gray petaltail was observed at three locations along Western Branch. The streams on this Tract offer habitat for these dragonflies.

Tidewater amphipod (*Stygobromus indentatus*, Highly State Rare) was observed in a seepage wetland along Western Branch immediately adjacent to this parcel on the Salem Tract. This shrimp-like subterranean invertebrate inhabits shallow groundwater within a few meters of the ground surface. It is typically observed in spring, when groundwater levels are highest and they are flushed to the surface by the flow at seepage wetlands. Eyeless and lacking pigment, the tidewater amphipod is up to 1 cm long and feeds on bacteria, microfungi and decomposing plant and animal matter. Biologists sampling for subterranean species find these amphipods are attracted to shrimp bait, so they may act as a scavenger as well in the shallow groundwater system food chain. Tidewater amphipod has a very restricted range, from North Carolina to Virginia and southern Maryland, and is considered globally rare. Small seepage wetlands along the streams and adjacent ravines on the Walton Tract provide habitat for this globally rare amphipod.

The deciduous forest and mixed pine-deciduous forest on the Walton Tract are part of a large, contiguous block of forest in the St. Mary's River watershed. This extensive forest is recognized as an Important Bird Area (IBA) by the National Audubon Society due to the extraordinary number of forest interior dwelling bird species (FIDS) documented breeding in this large block of forest and the presence of breeding populations of eight birds whose survival is at risk nationwide. During a 2009 Bird Blitz survey coordinated by the National Audubon Society, 18 of the 24 potentially occurring FID species were recorded breeding in this IBA. These species require large, contiguous blocks of forest to successfully reproduce. Most FIDS are neotropical migrants or birds that travel long distances to breed in North America and winter in Central and South America. These species include some of our most brilliantly colored songbirds such as the Scarlet tanager and Prothonotary warbler. These birds and others play many important roles in our forests such as insect control, seed dispersal and providing food to other predators. Unfortunately, populations of many forest interior dwelling birds are declining. The declines have been attributed largely to the loss and fragmentation of forests in the eastern United States by urbanization, agriculture and some forest management practices. Deforestation of tropical wintering grounds also is an important factor. The key to maintaining breeding habitat for FIDS and halting their decline is to protect extensive, unbroken deciduous and mixed-pine deciduous forests throughout the region.

MANAGEMENT RECOMMENDATIONS

1. Provide a 300ft buffer to each side of the streams that cross the Walton Tract parcels. This will provide a riparian buffer that will offer FIDS habitat, protect seepage wetlands that provide potential habitat for the Tidewater amphipod, and protect the stream flow and water quality of habitat for the rare dragonflies and the Flier downstream. This 300ft buffer mirrors the buffers provided on Chesapeake Forest properties under the 2015 Sustainable Forest Management Plan. Selective logging may occur in the outer 100ft of this buffer if this will provide for a 100ft undisturbed buffer to nontidal wetlands. The goal of logging within this outer zone of the buffer would be to allow this stream corridor to be restored to deciduous forest. This zone for logging is more restricted than the general riparian buffer for Chesapeake Forest properties due to the presence of the rare wetland and aquatic species.
2. Avoid disturbance to nontidal wetlands bordering perennial and intermittent streams. Maintain an upland amphibian life zone extending 500ft from the edge of nontidal wetlands. Logging would be permitted within the outer portion of this zone (beyond 200ft from the stream or 100ft from the wetland edge, whichever is greater) as per the management regime identified in the 2015 Chesapeake Forest Sustainable Forest Management Plan, specified below. [The undisturbed buffer is larger on this property due to the presence of habitat for rare dragonflies, the Tidewater amphipod, and the Flier downstream.] The complex life history of amphibians requires protection of both the breeding habitat, which is used for a short period during summer months, and adjacent terrestrial habitat that is used

for the majority of the year. Research conducted by wildlife biologists over the last 10 years studying the movements and habitat use of amphibians has revealed the importance of conserving upland buffers of substantial width in order to protect amphibians through their full life cycle. The 500ft buffer recommended as the amphibian life zone reflects the findings of this research. Within this life zone, beyond 200ft from the stream corridor or 100ft from the wetland edge, whichever is greater, apply the following conservation and management prescriptions apply.

a) Pursue saw timber rotations maintaining $\geq 50\%$ canopy closure. A patch clearcut of ≤ 1 acre would be allowed in this area, but select harvests are preferred with retention of coarse woody debris and leaf litter. Natural regeneration is the preferred method.

b) 75% of the area is to contain large pole timber and saw timber age classes (10" DBH and greater) which will be managed for longer stand rotations (50+ years). Forest Management activities such as commercial thinning in these stands shall maintain a minimum of 70 sq. ft. of BA with the goal that $\geq 50\%$ of the stand composition will be comprised of hardwood species. When regeneration harvests occupy 25% of this zone, then natural regeneration must reach large pole timber size (10" DBH) before additional regeneration harvesting occurs.

c) There will be no mechanical site preparation. Prescribed burning will be allowed as a management tool. No new roads should be built in this area.

d) Harvests and heavy equipment should be conducted only when the ground is frozen or very dry.

3. Avoid crossing the perennial and intermittent streams with equipment.
4. Avoid disturbing steep slopes (15 % or greater).
5. Avoid logging during the wettest times of the year – logging between early August and late November may avoid the period when precipitation is high and the soils are wettest.
6. Retain dead and downed woody debris on forest floor. This material absorbs water, and as it decays it increases the water holding capacity of the soil.
7. Retain snags. These dead trees offer habitat to cavity nesting birds, such as woodpeckers.

A 100 foot no cut buffer will be established adjacent to perennial and intermittent streams and nontidal wetlands on the property (692 acre parcel) outside of the RT&E Buffer areas. There will be no forest harvest activities within the non tidal wetlands or the 100 foot buffers adjacent to non tidal wetlands and streams.

INVASIVE PLANT CONTROL

Invasive plants have been documented on this tract. Japanese silt grass is present on the powerline right of way and petroleum pipeline. The Japanese stiltgrass should be controlled with herbicides. Invasive plants share some important growth characteristics that allow them to grow out of control. Listed below are several of these traits:

1. spreading aggressively by runners or rhizomes
2. producing large numbers of seeds that survive to germinate
3. dispersing seeds away from the parent plant through various means such as wind, water, wildlife and people.

Invasive plants impact the environment by growing and spreading rapidly over a large area displacing native plants, including some that maybe rare species. Invasive plant control is not needed at this time on the property.

BOUNDARY LINE MAINTENANCE

The boundary lines on this property have been painted to DNR standards. The boundary lines should be cut out and maintained annually to create visual breaks in the landscape for identification and easier access

MANAGEMENT PRACTICE SCHEDULE

Completion Date	Practice	Stand	Acres
June 2017	Regeneration Harvest	1	40.00
August 2017	Site Preparation (Rx Burn)	1	40.00
May 2018	Reforestation	1	40.00
June 2018	Regeneration Harvest	1	40.00
August 2018	Site Preparation (Rx Burn)	1	40.00
May 2019	Reforestation	1	40.00
June 2019	Regeneration Harvest	1	40.00
August 2019	Site Preparation (Rx Burn)	1	40.00
May 2020	Reforestation	1	40.00
June 2020	Regeneration Harvest	1	40.00
August 2020	Site Preparation (Rx Burn)	1	40.00
May 2021	Reforestation	1	40.00
June 2021	Regeneration Harvest	1	40.00
August 2021	Site Preparation (Rx Burn)	1	40.00
May 2022	Reforestation	1	40.00

MANAGEMENT PRACTICE SCHEDULE

Completion Date	Practice	Stand	Acres
Continuous	Monitor for Invasive Species	1-2	692.0
Continuous	Maintain Property Boundaries	1-2	692.0
Continuous	Maintain Roads And Trails	1-2	692.0
Continuous	Monitor for Insect And Disease Problems	1-2	692.0
December 2031	Re-examine to Update Management Recommendations	1-2	692.0

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

WHAT ARE FIDS?

Forest Interior Dweller species (FIDs) are an important component of Maryland forests. There are 19 species of birds found here in Maryland. These birds all have one thing in common in that they require large tracts of relatively undisturbed mature hardwood forests as breeding habitat. The loss of these forests and the fragmentation of the remainder due to agriculture and increasing urbanization is the leading threat to these birds. Competition from edge species which arrive earlier or are year round residents, parasitism by brown headed cowbirds, and predation by edge species like blue jays and raccoons take a heavy toll on the population. Critical habitat for these birds is the interior forest canopy where competition from edge species is limited. A large tract of woods does not guarantee FID species although it can encourage or promote them with good forest stewardship practices which encourage structural diversity in the forest and maintain a crown closure of 70%. Regeneration harvests on areas of 100 acres or more are not detrimental as long as the harvest is kept to the edges of the forest and is done in small areas (<25 acres).

Conservation of FID habitat is required within the Chesapeake Bay Critical Area and recommended in other areas also. The following are management recommendations for FIDs that should be considered when forest management operations are planned.

- 1) Minimize forest disturbances during the breeding season (May 1 - August 31) whenever possible.
- 2) The forest canopy should not be removed in excess of 70% crown closure with selective cutting or timber stand improvement practices.
- 3) Retain or encourage snags 10 inches diameter at breast height or greater. Cluster snags where possible. Snags which protrude above a closed forest canopy should be removed.
- 4) Maintain forested buffers along streams and shorelines. Day lighting (widening) of access roads in forest interiors should be discouraged.

If you have any questions concerning FID species or habitat or think they might be present on your property please call your local forester or biologist.