

POTOMAC / GARRETT STATE FOREST

ANNUAL WORK PLAN

DRAFT

FISCAL YEAR 2011



Prepared:

John R. Denwig 7/8/2009
(Forest Manager) Date

Reviewed:

(Regional Forester) Date

Reviewed:

(Public Lands Policy & Planning) Date

Approved:

(Environmental Specialist) Date

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Introduction

The Potomac-Garrett State Forests, situated in southwestern Garrett County in Western Maryland, have the distinction of being the birthplace of forestry conservation in Maryland. The generous donation of 1,917 acres by the Garrett Brothers in 1906 not only serves as the foundation of the Garrett State Forest, but is the root of both Maryland's present Public Lands system and Forest Service. Mountain forests, streams and valleys make up the nearly 19,000 acres of this State Forest. The forest cover is predominantly a second growth mixed hardwood forest dominated by mixed oaks, sugar and red maples, black cherry, basswood, ash and birch. The geography of this area provides for a wide range of growing conditions from the harsh, wind and ice swept ridge tops of Backbone Mountain to the deep rich slopes above the North Branch of the Potomac River. Much of the state forestland contains excellent quality hardwoods.

In addition to the routine operations of the State Forest, the FY-2010 Annual Work Plan for Potomac-Garrett State Forest details 16 management projects including:

-Two recreation area improvements; involving access/trail improvements to but submitted for National Recreation Trail Grant funding. One involving grading and erosion control work for the Maple Glade Road, the other involving the second phase of improvements to the Snaggy Mt. ORV Trail.

-Two wildlife habitat improvement projects; the first involving re-seeding several retired log landings, to re-establish a healthy cover of grass, forbs and legumes that is beneficial to a wide range of wildlife species. The second practice involves a form of Crop Tree Release where the few oak seedling/saplings found on the 2004 salvaged block cuts located on Backbone Mt. will be released from competition.

-One continued watershed protection project mitigating impacts of a harmful forest pest; Hemlock Woolly Adelgid mitigation / Red Spruce Restoration.

-Two continued ecosystem restoration projects; involving control of invasive, exotic plants in both Wallman/Laurel Run area and the Backbone Mt. area.

- Nine silvicultural projects including:

-Three projects addressing the salvage harvest and regeneration of insect and diseased timber stands on the Backbone Mountain. (These harvests will be brought forward into the FY-10 work plans in order to maximize regeneration potential and reduce losses in merchantability of this dead and dying timber.)

-Three projects addressing planned regeneration harvests. The first being the first stage of a 2-3 stage shelter wood system in the Brier Ridge area on Snaggy Mt.. The second being the 2nd stage of a 2 stage shelter wood system initiated in 2004 in the Kindness Demonstration Area, this being the regeneration harvest. The third will involve a thinning

that will serve as the initial stage of 2 stage shelter wood harvest in the Kindness Demonstration Area.

-Two commercial Timber Stand Improvement (TSI) practices. The first TSI will be carried out as a Crop Tree Release in a mixed oak/cherry/spruce pole timber stand along the CCC Camp Road. The work will be done as a commercial firewood sale. The second TSI will be carried out in a White Oak stand adjacent to the Fire Tower Road.

-One non – commercial Timber Stand Improvement (TSI) practice. This being a follow-up Crop Tree Release in a cherry pole stand also on the CCC Camp Road. The stand was initially cut as a Crop Tree Release 5 years ago, access and size of the material limited its use even for fuel wood. That is likely to be the case again, though with other work planned for the general area, it may be possible to include this in a commercial fuel wood sale.

Forest harvest operations are undertaken to utilize mature and dead/dying/diseased trees, to thin out overstocked stands, to improve and diversify wildlife habitat, to effectively correct public safety concerns and issues, to reduce the forests vulnerability to insect attack or wildlife hazard, to facilitate certain approved research needs, to improve certain aesthetic aspects of an area, and to improve the proportions of age class and species diversity within stands and management blocks. This forest has been intensively managed for over 100 years, utilizing both even and uneven-aged techniques via selective removals and regeneration harvests. Early records indicate that as cut over land was acquired, foresters ‘culled’ the forest, removing the poorly formed and damaged timber left behind in the wake of the cut and run practices employed by early timber speculators. By removing these undesirable trees, newly forming seedlings were released from competition and were thus cultured into the future growing stock of trees that we enjoy today. The benefits of this work have been significant; including improved wildlife habitat diversity, improved forest health and more abundant mast production, improved utilization of gypsy moth damaged trees, reduced forest fire hazard, and the considerable financial contribution of management to the state and local economies as well as to those employed in the forest products industry. The work plan calls for the harvest of approximately

1,059,000 bd.ft. of hardwood saw timber; of this, 412,000 bd.ft. will be from salvage harvests that I recommend being brought forward to FY-10 to reduce further losses. The remaining 647,000 bd.ft. will generate approximately \$177,500 in fiscal year 2011.

The cultural operations and management projects within this work plan are selected to provide significant contributions to sustainability of the forest resources found with the Potomac-Garrett State Forest and the ecosystems associated with it.

2010 NATIONAL RECREATIONAL TRAILS FUNDING APPLICATION

(DOT/SHA USE ONLY)

Project Sponsor (Applicant): Potomac- Garrett State Forest

Name of designated representative: John Denning – Forest Manager

Address: 1431 Potomac Camp Rd, Oakland MD 21550

Phone: 301- 334-4157

Fax: 301-334-3922

E-mail: jdenning@dnr.state.md.us

Project name: Grading and Erosion Control on SNAGGY MT. Multi.- use trail, ORV section.

Project location (describe the limits of the project, including City and County; may include location map): Snaggy Mt. Multi.Use/ORV Trail, within the Garrett State Forest. This grant will provide improvements to the 5,420 ft. section of Snaggy Mt. Multiple use/ORV trail that serves as a connection through several private land tracts and the Snaggy Mt. Trail system within the Garrett State Forest.

Project description: Maintenance and restoration of existing multi-use trail network. This request is being made to fund materials, and supplies to restore proper drainage to the one mile section of Snaggy Mt. Multiple Use Trail right-of-way that connects the county road to the State Forests Snaggy Mt. Trail. This trail section runs through the state owned right-of-way that crosses the private lands of: Mr. Kenneth Johns, Minnetoska Subdivision, and the Lone Wolf Hunt Club and then enters entirely onto the state forest lands. This trail right-of-way has been owned but minimally maintained by the state forest staff since 1906. The ROW is narrow and has restricted proper drainage controls. Forest manager has fostered relationships with adjoining landowners, and has received permission to carry drainage off the ROW as necessary to improve the stability of the trail bed, thereby getting the water off and away from the trail. Work will include replacing 15 culvert pipes and their stone headwall inlets/outlets, grading, reshaping, and filling the trail bed, and hardening the surface with crushed stone.

Multi- use trails, especially those offering access to motorized vehicles, horses, and bicycles such as the Snaggy Mt. Trail, require regular maintenance involving the use of heavy equipment. Heavy equipment is necessary to provide proper drainage, and to maintain the existing sediment and erosion control devices engineered into the trail system. As grading is completed on any stone trail surface, additional stone must be applied to reharden the newly disturbed road bed there-by preventing the otherwise inevitable soil erosion, and failure of the trail bed.

Project property ownership (project must be constructed on property owned by and/or on permanent easements held by the Project Sponsor): Potomac – Garrett State Forest, lands regulated and maintained by Maryland DNR, Forest Service Personnel.

Project length (linear feet of new trail, linear feet of existing/reconstructed trail; proposed surface material of trail): 5420 linear feet of existing/reconstructed trail with a surface of stone.

Project total cost: \$36,000

Federal funds requested and specific use: \$30,000

Culverts: 300 linear feet of pipe. (15 units)	\$4,500
Stone for bedding culverts:	\$2,100
Stoner for hardening / resurfacing:	\$17,700
Seed, mulch, lime and fertilizer for site stabilization:	\$3,200
Misc. supplies and materials:	\$2,500

Total Federal Funds requested: \$30,000

Matching funds to be provided by Sponsor (Please include information regarding how you will be documenting the value of your match, i.e. property appraisal, documentation of cash contributions, in-kind services, bond sale donations, other state grants, capital budget contributions, etc.):

In kind services, labor and heavy equipment operation including:
backhoe, grader, dumptruck, skid steer, dozer, loader, etc. as needed
to complete scope of work for this project.....\$4,125
Field stone for proper headwall construction: 1/2 ton/culvert – at \$250/ton 15 pipes = \$1,875

Total funding provided by Sponsor:.....\$ 6,000

AGENCY USE ONLY

Date Received: _____ **Review Date:** _____

Project Category: _____ (Education, Diversified, Motorized or Non-Motorized)

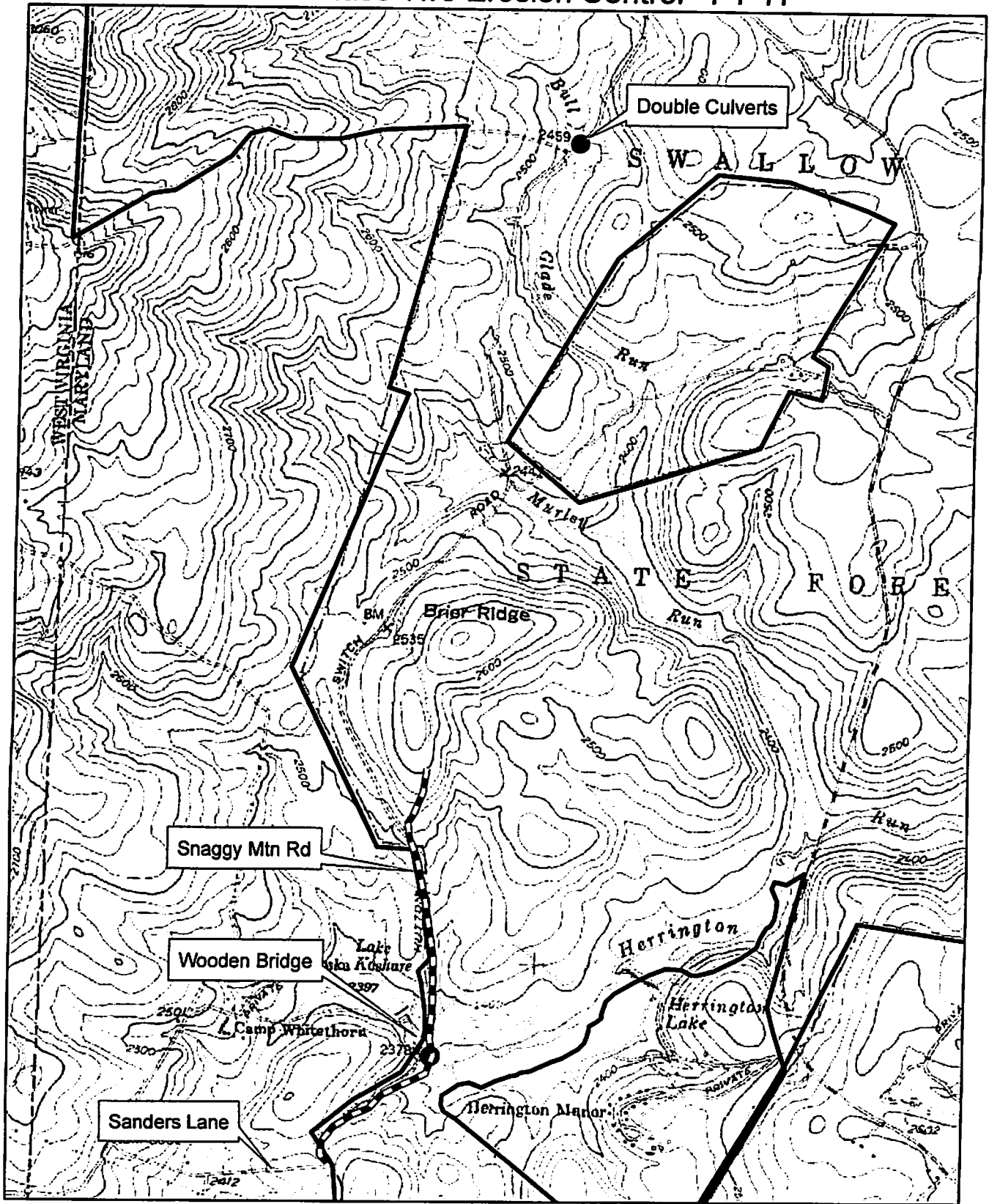
Recommendation: _____

Date Applicant Notified of Recommendation: _____

Environmental Review

	Y or N	Date Initiated	Date Completed
State Agency/Clearinghouse Review	_____	_____	_____
MDOT Federal	_____	_____	_____
Programmatic categorical exclusion	_____	_____	_____

Compartments 30, 32, 36 NRT Proposal Snaggy Mtn.
Phase Two Erosion Control FY-11

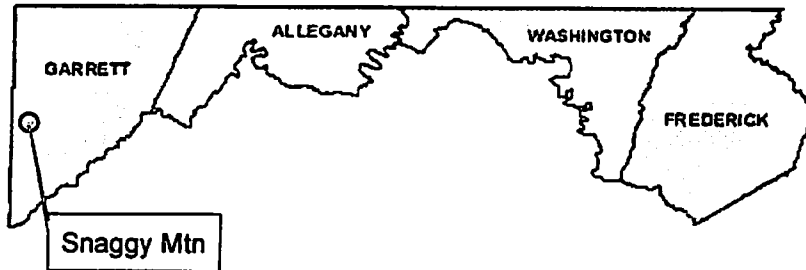


Compartments.....30, 32, 36
Quad.....Oakland

Scale = 1: 24000



Regional Location Map Snaggy Mtn NRT Grant



Map Not To Scale



Snaggy Mt. Multi Use Trail



Incised trail bed, water can not drain off.



Trail bed eroded below ditch line on right.



Incised trail bed, water runs down trail.



Trail bed eroded to bed rock.

2010 NATIONAL RECREATIONAL TRAILS FUNDING APPLICATION

(DOT/SHA USE ONLY)

Project Sponsor (Applicant): Potomac- Garrett State Forest

Name of designated representative: John Denning – Forest Manager

Address: 1431 Potomac Camp Rd, Oakland MD 21550

Phone: 301- 334-4157

Fax: 301-334-3922

E-mail: jdenning@dnr.state.md.us

Project name: Grading and Erosion Control on MAPLE GLADE Multi.- use trail.

Project location (describe the limits of the project, including City and County; may include location map): This trail is located in Garrett County MD, approx 3 miles north-east of Oakland. The Maple Glade Forest Access Trail is within the Garrett State Forest and connects the Garrett County Road's Cranesville Road with Swallow Falls State Park.

Project description: Maintenance and restoration of existing multi-use trail network. This request is being made to fund materials, supplies and equipment rental to restore proper drainage to a 9,930 ft. section of Maple Glade Forest Access Trail that connects the Cranesville Road with Swallow Falls State Park. Work will include: replacing 14 failing culverts along with their stone headwall inlets/outlets, grading, and reshaping of trail bed and finally hardening the traveled surface with crushed stone.

Multi- use trails, especially those offering access to motorized vehicles, horses, and bicycles such as the Snaggy Mt. Trail, require regular maintenance involving the use of heavy equipment. Heavy equipment is necessary to provide proper drainage, and to maintain the existing sediment and erosion control devices engineered into the trail system. As grading is completed on any stone trail surface, additional stone must be applied to reharden the newly disturbed road bed there-by preventing the otherwise inevitable soil erosion, and failure of the trail bed.

Project property ownership (project must be constructed on property owned by and/or on permanent easements held by the Project Sponsor): Potomac – Garrett State Forest, lands regulated and maintained by Maryland DNR, Forest Service Personnel.

Project length (linear feet of new trail, linear feet of existing/reconstructed trail; proposed surface material of trail): 9,930 linear feet of existing/reconstructed trail with a surface of stone.

Project total cost: \$36,000

Federal funds requested and specific use: \$30,000

Replacement of 280 linear feet of culverts: \$4,200
 Stone for bedding culverts: \$1,960
 Stoner for hardening / resurfacing: \$18,140
 Seed, mulch, lime and fertilizer for site stabilization: \$3,200
 Misc. supplies and materials: \$2,500

Total Federal Funds requested: \$30,000

Matching funds to be provided by Sponsor (Please include information regarding how you will be documenting the value of your match, i.e. property appraisal, documentation of cash contributions, in-kind services, bond sale donations, other state grants, capital budget contributions, etc.):

In kind services, labor and heavy equipment operation including: backhoe, grader, dump truck, skid steer, dozer, loader, etc. as needed to complete scope of work for this project.....\$4,250

Field stone for proper headwall inlet/outlets. 1/2 ton/culvert@\$250/ton= \$1,750

Total funding provided by Sponsor: \$6,000

AGENCY USE ONLY

Date Received: _____ **Review Date:** _____

Project Category: _____ (Education, Diversified, Motorized or Non-Motorized)

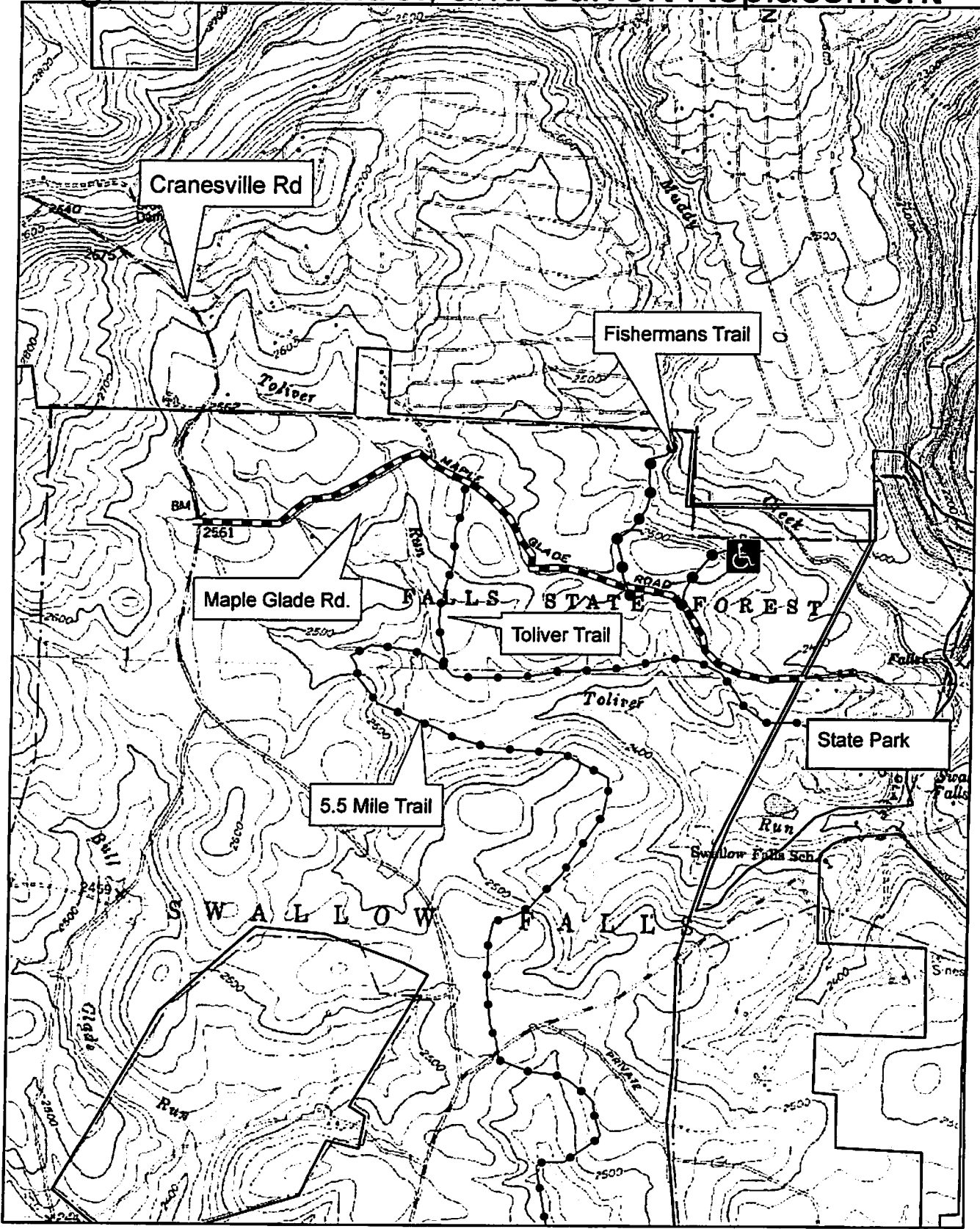
Recommendation: _____

Date Applicant Notified of Recommendation: _____

Environmental Review

	Y or N	Date Initiated	Date Completed
State Agency/Clearinghouse Review	_____	_____	_____
MDOT Federal	_____	_____	_____
Programmatic categorical exclusion	_____	_____	_____

Compartments 40, 41, 42 NRT Proposal Maple Glade Grading, Erosion Control, and Culvert Replacement FY-11

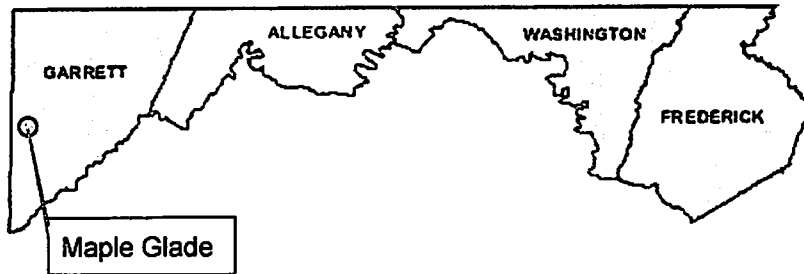


Compartment.....40.41.42
 Quad.....Sang Run

Scale = 1: 24000



Regional Location Map Maple Glade NRT Grant



Map Not To Scale

N



Maple Glade Multi-Use Trail



Failed culvert inlet.



Failed culvert outlet.



Rusted out culvert.



Eroded trail bed.

COMPARTMENT 25 – (Loop Road Habitat Improvements) FY-11

Description

Wallman's Loop Road area within compartment 25 of the Potomac State Forest contains a wide mix of habitat conditions ranging from early successional forest through mature forest and conifer cover. This area has been the scene of numerous timber harvests. Planned to hold forest disturbances to a minimum, many of these harvests were laid out to utilize the same landings, skid trails and haul roads. Upon completion of a harvest, landings, and skid trails are cleared of slash and bark piles, seeded, limed, fertilized and mulched to stabilize the exposed soil. These areas are seeded to a grass and legume mix that not only stabilizes the site, but also provides additional wildlife habitat values in the form of desirable grassy openings within an expansive forested tract. With the right mix of grasses and legumes, these stabilized trails and landings provide a protein rich source of food for various wildlife species. The rich grasses attract a variety of bugs; crickets, grasshoppers, beetle, etc. that are a further source of protein to bugging turkey and grouse. Without further maintenance, these heavily disturbed growing sites eventually revert back to weedy areas with limited grass and legumes, lessening their wildlife food value.

The Loop Road has 3 such landing areas that are approximately one third of an acre each. All of these landings have served more than one harvest. The vegetation on them is grass and weed mix, dominated by golden rod species. In 2009, a 1/2 mile section of the Loop Road was designated a Handicapped Hunter access area. These areas, provide specially permitted, disabled hunters, those restricted to hunting from a vehicle as they are dependant on a mobility aid (their vehicle), a quality hunting opportunity.

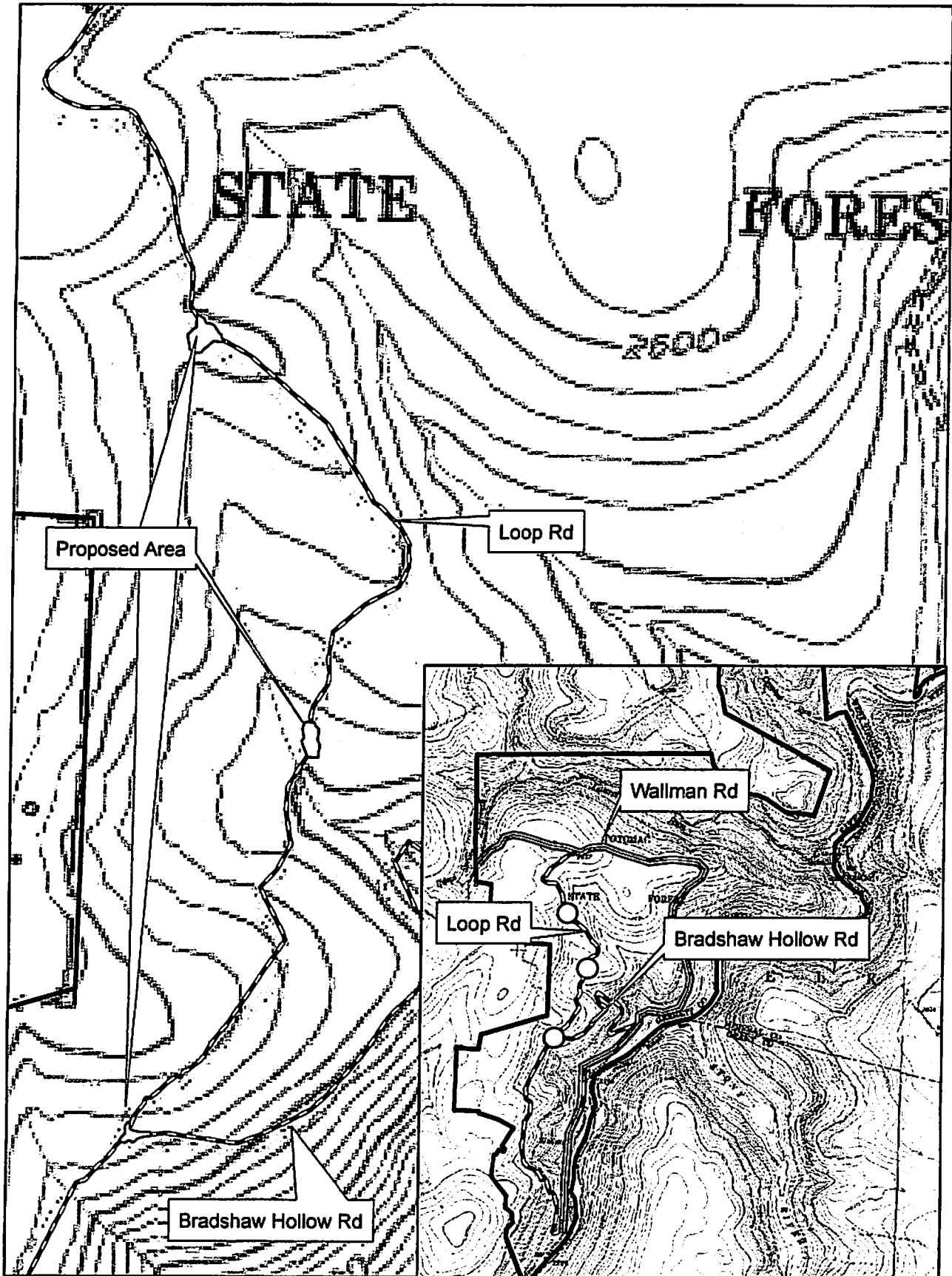
The landing sites generally have a south-eastern aspect and are within the Potomac River Watershed. The underlying soils include: "DeKalb and Gilpin very stony loams" on 5-15% slopes. These soils are moderately deep and well drained; they are not well suited to cultivation due to the abundance of larger sandstones 10 inches and greater. Though not well suited to cultivation, grasses and legumes maybe planted using minimum tillage methods, eg. frost seeding and no till methods. Equipment limits and erosion potential are slight.

Management Proposal:

The proposed treatment for these small landing clearings is to reseed them with a quality grass, forbs and legume mix that will serve as a quality food source that will be beneficial to a wide range of wildlife species. Surface preparation will include brush hogging, herbicide application, and re-grading to allow later mowing and tending. Suggested seed mix is a mix offered by the National Ruffed Grouse Society; "RGS Grouse Trail Mix", which contains 'Star Fires Red Clover', 'Hunt Club Brand White Clover', 'Plot Enhancer Brand Chicory', Alsike Clover', 'Birdsfoot Trefoil', and 'Crimson Clover'. This mix has been formulated especially for the harsh growing conditions found on log landings and skid trails. The newly formed RGS Chapter here in the county, has offered to purchase and apply the seed, lime, fertilizer and mulch to carryout this project.

The completed project will provide an important food source for a variety of wildlife species including grouse, turkey, deer and a variety of non game species. This project will also improve hunting opportunities for the handicapped hunters using this area.

Comp 25 Loop Rd Wildlife Habitat Improvement FY- 11



Scale: 1: 660

Scale: 1: 52,000

COMPARTMENT 6 (Oak Release)

FY-11

Description

This area is located within Compartment 6 of the Potomac State Forest. It consists of the 25 block/patch clear cuts harvested along the north side of MD Route 135, starting off the State Forest's 'Burkholder Road', across from the Backbone Mt. Boys Camp. These 25 one acre block cuts were regenerated in 2002. The initial stands harvested were dying mixed oak stands with developing sassafras and witch hazel understory. The densely stocked seedling/sapling stands contain over 7,000 stems per acre. However, nearly all of this is non-commercial species such as sassafras, black birch, and witch hazel. Regeneration plot samples indicate less than 100 mixed oak seedlings per acre.

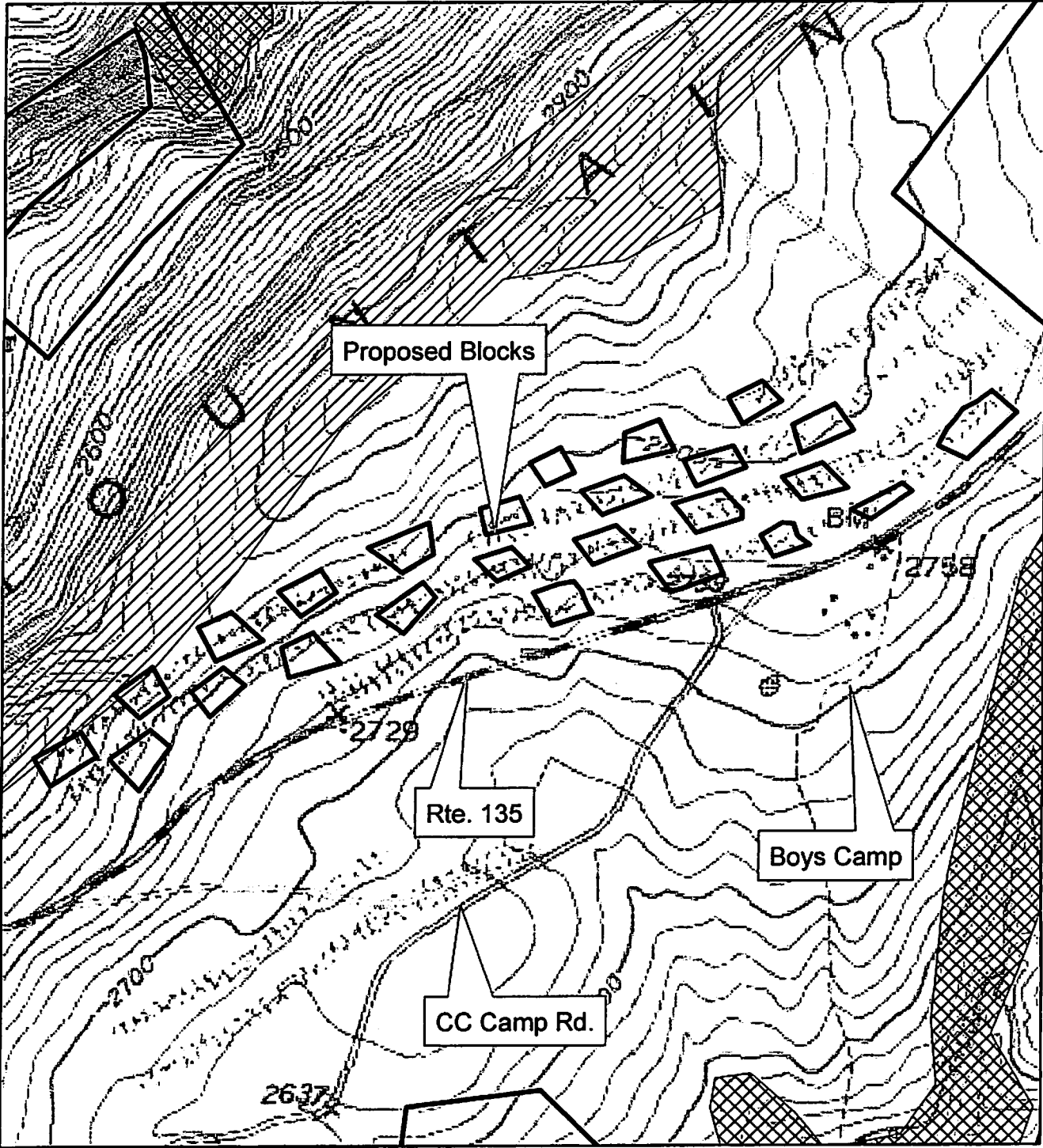
The site has a south-eastern aspect, drains toward unnamed tributaries of Folly Run and within the Potomac River drainage system. Underlying soils include 'Dekalb and Leetonia very stony and sandy loams' These soils are moderately deep and moderately well drained and do not retain moisture well. Seedling mortality is moderate to severe on these south facing slopes, especially during dry seasons. Equipment limits are slight to moderate based on slope. Degree of slope ranges from 0-25% through out the site. The productivity of the site is fair with site indexes ranging from 55-65 for upland oaks.

Management and Silvicultural Recommendations

In an effort to maintain species diversity and wildlife food values in these harsh developing young stands, a non-commercial, timber stand improvement (TSI) practice in the form of a Crop Tree Release (CTR) will be carried out. During this operation, approximately 30-60 saplings will be selected as future crop trees. These crop trees will be released from crown competition on all sides. In selecting potential crop trees, special emphasis will be given to the release of the few oaks and any other mast producers that are found in limited numbers throughout the stand. The majority of the crop trees will be Chestnut Oak, and Northern Red Oak. Big toothed Aspen will be released as well, in order to foster future aspen copses that may prove beneficial to improving grouse habitat. The saplings cut for this release work will be left on the forest floor to decay back into the soil.

This Crop Tree Release will improve the survival rate among the limited desirable hardwoods that have managed to survive and develop on this site and will provide a source of future oak seed from which later stands may further develop.


Compartment 6 Oak Release FY-11



39 28' 11.16" N 79 10' 36.53" W

Approx. Acres....25
 Age.....7
 Trees/Ac.....7900
 Site Index.....50 for N.R.O.

Scale = 1: 12000

Legend
management zones
ZONE_TYPE
 SPECIAL
 WATER



COMPARTMENT 19

(Lostland Run HWA Mitigation / Red Spruce Planting) FY-11

Description/Background:

In 2004, the significant forest pest, Hemlock Woolly Adelgid (HWA), was discovered in the Lostland Run drainage. This Asian, exotic, insect pest is a killer of Hemlock trees. It has been in the US since 1924. With no natural enemies in this country, it has left a trail of dead hemlock forests in its wake. MD Dept. of Agriculture and State Forest staffs have been monitoring the infestation in Lostland since its discovery. The population has remained at a low level; winter temperature extremes here in Garrett Co. appear to be keeping the population in check. Presently there are no readily available biological or chemical controls suitable for stand level control of this pest, though on going research is showing positive results with a number of biological controls including predatory insects.

Historically, stands infested with HWA have been relatively short lived, resulting in complete stand conversions often in the course of one decade. As hemlock stands on the state forest are generally associated with riparian forested stream buffers, the loss of these stands may have significant negative impacts to the water resources.

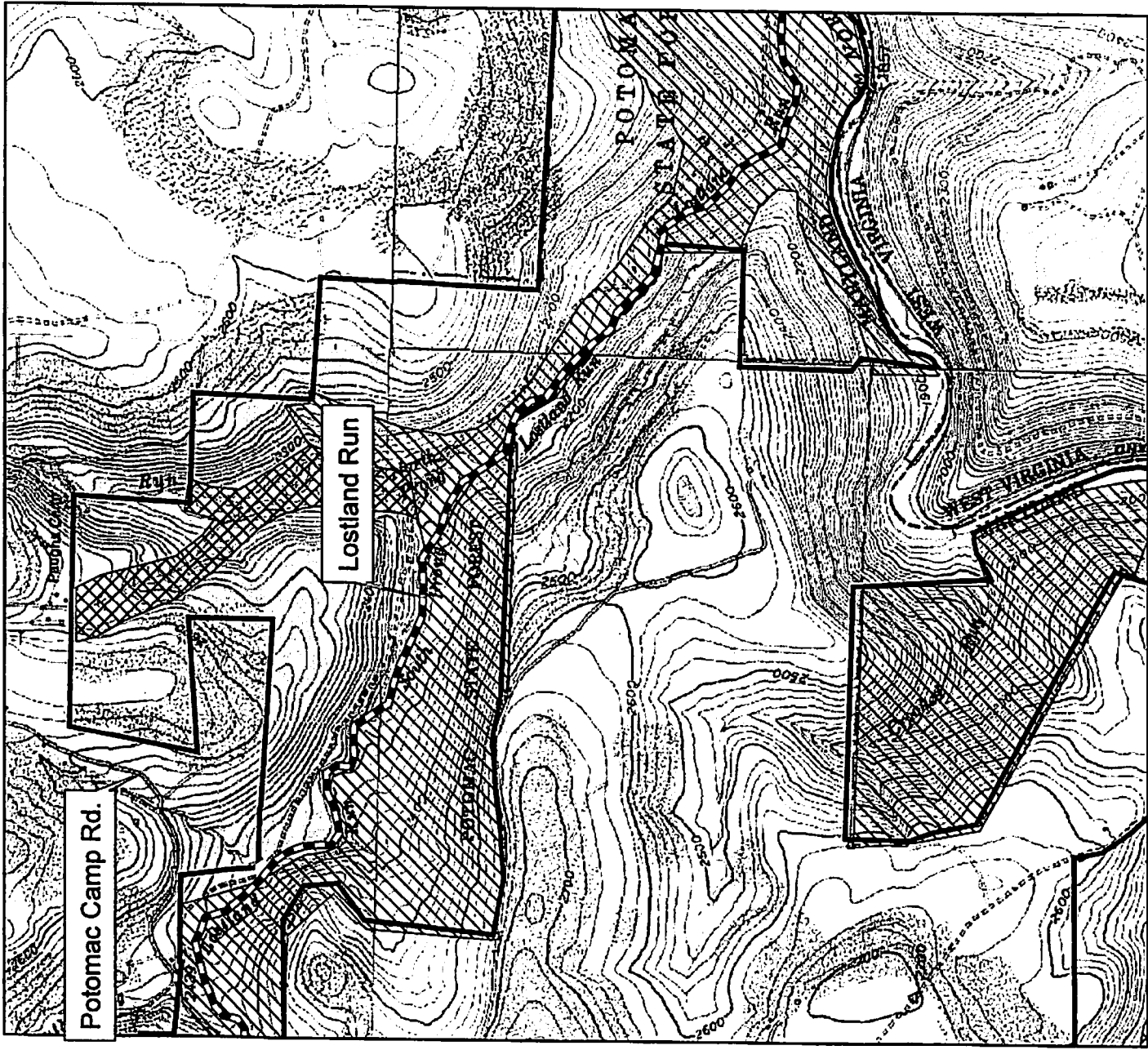
While the Lostland HWA population seems to be minor and somewhat stable, in order to provide further protection against the shocking loss of the hemlock trees, the state forest staff has initiated a project to mitigate the likely loss of the hemlock cover. In an attempt to establish a native conifer that will provide benefits similar to those offered by the hemlocks, test plots of Red Spruce seedling were planted beneath the hemlock canopy in both the spring of 2007 and 2008. In the spring of 2009, 500 Red Spruce seedlings were planted in the riparian buffer zone.

Planting sites have been monitored, and planting methods have been modified to insure the best possible survival in this difficult planting site. The test plantings indicate that under planting red Spruce may offer a successful means of off setting the negative impacts associated with the likely loss of the hemlock stands along this important brook trout stream.

Proposed management:

The plan for this site is to continue under planting Red Spruce seedlings beneath the hemlocks in the 100 ft. riparian zone along Lostland Run. The goal is to establish an equivalent area of spruce cover on the stream bank. If research and development in forest pest management does not provide the key to successful HWA eradication and hemlock protection in the next 10 years, the establishment of a healthy under story of Red Spruce will buffer the stream against the shock and likely inevitable loss of hemlock cover, further safeguarding the water quality of this mountain stream.


Compartments 18,19,20,21 Lostland Run HWA Mitigation/ Red Spruce Underplanting FY-11



Legend

management zones


ZONE_TYPE

 SPECIAL

 WATER

Compartments....18,19,20,21

Quad.....Deer Park/Gorman

 100' Buffer red spruce planted under existing hemlock



Scale: 1" = 24000"

Invasive Exotic Plant Control

Across the state, a biological invasion of non-native plants is spreading into our fields, forests, wetlands and waterways. Various referred to as exotic, nonnative, alien, or non-indigenous, invasive plants impact native plant and animal communities by displacing native vegetation and disrupting habitats as they become established and spread over time. Early detection and appropriate control of the spread of problematic species is important for the conservation of our native flora and fauna. Control efforts often require considerable resources (labor, time and money). As in many cases the introduction of these widespread and invasive plants cannot be prevented, it is important to evaluate and plan control efforts in order that such efforts contribute meaningfully to the success of forest conservation plans.

Populations of two invasive exotic plant species have been identified as being in need of control on PGSF, they are: Japanese knotweed (*Polygonum cuspidatum*) and garlic mustard (*Alliaria petiolata*). The following efforts are being taken to limit the impacts of these invasive species.

COMPARTMENTS 5&7

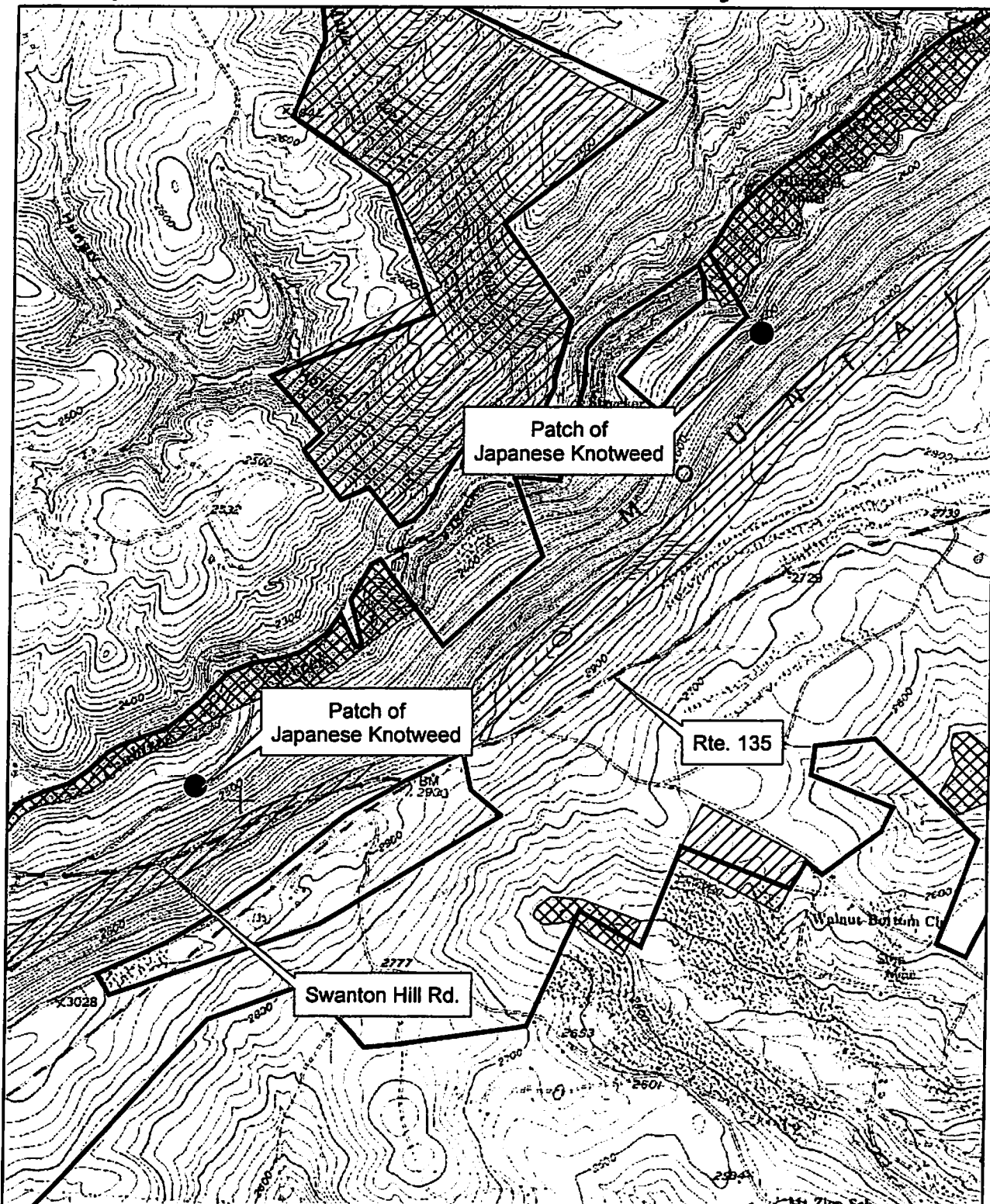
(Japanese Knotweed Control Project – Backbone Mt.)

Ongoing Project:

Within the Potomac State Forest, Japanese knotweed is well established along the base of Backbone Mountain following the railroad bed at the base of the mountain. It has overtaken much of the lower reaches of Crabtree Creek which runs along the railroad grade. However, within the state forest, its spread has been generally limited to the base of Backbone Mountain; the area associated with the railroad and Crabtree Creek. In recent years, two ‘patches’ have been found on the upper slopes of Backbone Mt. The first is located on the roadside edge of a section of the state forest access road that serves as the Backbone Mt. ORV trail. This road defines the upper boundary of the Crabtree Slopes Special Management Zone. The second, and smaller, population is located along a gated forest access on the east side of Swanton Hill Road. State forest staff has been working to restrict the spread of these populations by mowing the roadsides prior to seed development. In 2004, as an educational program for the Maryland Conservation Corp., an effort was made to eliminate the plant colony by strictly mechanical means including mowing and later grubbing out the plants roots and rhizomes. This effort was not successful. Mechanical controls alone cannot eliminate this aggressive plant invader.

In 2005 and 2006, in a cooperative effort between MD DNR Wildlife and Heritage Service, MDA Plant Protection and Weed Management Program, and Potomac Garrett State Forest staff, took an integrated pest management approach toward the control of these knotweed populations. Carefully timed mechanical and chemical treatments were applied to the plant colonies. The areas were mowed just prior to seed development, and later, following resprouting but just before the start of fall dormancy, the plants were sprayed with an appropriate herbicide (*glyphosate*). In 2009 only a few individual plants were present, and they are being treated with the same mechanical and herbicide treatments. These areas will be monitored annually and follow-up treatments will be applied as necessary to prevent reestablishment of these colonies.

Compartment 5 Backbone Mtn. Japanese Knotweed Control Project FY-11



Compartment.....5
 Quad.....Kitzmilller

Scale 1 : 24000

Legend

management zones

ZONE_TYPE

 SPECIAL

 WATER



COMPARTMENTS 21-26

(Garlic Mustard Control Project - Wallman/Laurel Run)

Background:

Garlic Mustard is one of the most prevalent invasive plants found in Maryland. It can be found throughout the Potomac-Garrett State Forest, where it frequently occurs in moist, shaded soil of river floodplains, forests, road sides, edges of woods and trail edges and forest openings. Disturbed areas are most susceptible to rapid invasion and quick establishment of dominance. Though invasive under a wide range of light and soil conditions, garlic mustard is associated with calcareous soils and does not tolerate high acidity.

Garlic mustard poses a severe threat to native plants and animals in forest communities in much of the eastern and Midwestern United States. Many native wildflowers that complete their life cycles in the springtime occur in the same habitat as garlic mustard. Once introduced to an area, garlic mustard out competes native plants by aggressively monopolizing light, moisture, nutrients, soil and space. Wildlife species that depend on these early plants for their foliage, pollen, nectar, fruits, seeds and roots, are deprived of these essential food sources when garlic mustard replaces them. Humans are also deprived of the vibrant display of beautiful spring wildflowers.

Garlic mustard also poses a threat to one of our rare native insects, the West Virginia white butterfly (*Pieris virginiensis*). Several species of spring wildflowers known as "toothworts" (*Dentaria*), also in the mustard family, are the primary food source for the caterpillar stage of this butterfly. Invasions of garlic mustard are causing local extirpations of the toothwort, and chemicals in garlic mustard appear to be toxic to the eggs of the butterfly, as evidenced by their failure to hatch when laid on garlic mustard plants. Natural Heritage biologists have conducted inventories of West Virginia White butterflies in this area, and will monitor the populations response to the control efforts.

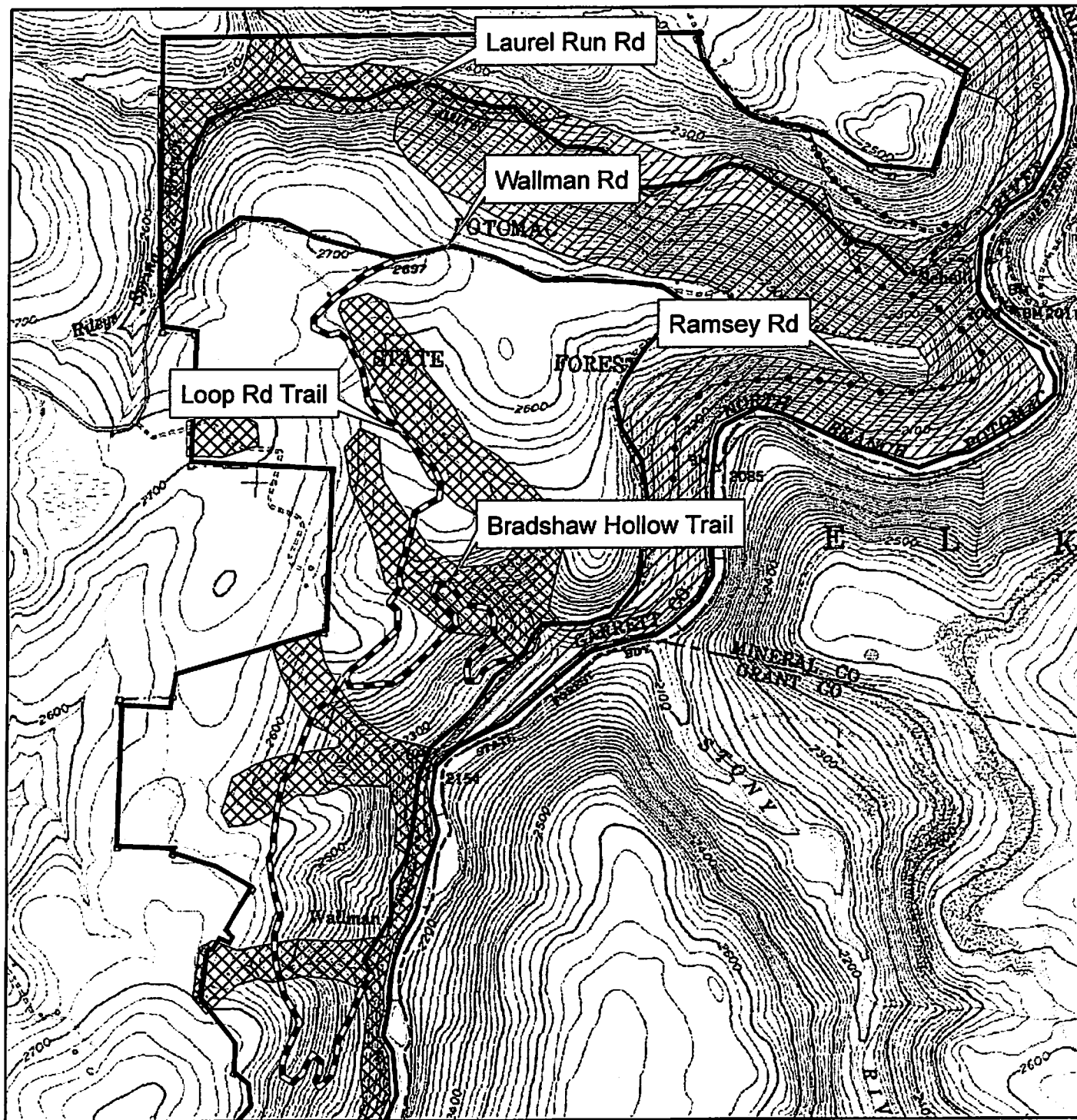
On an even larger scale, recent research indicates that garlic mustard may be allelopathic to important beneficial mycorrhizalfungi, and therefore may retard forest tree regeneration.

Proposed Action

As with most invasive plants, complete elimination is often neither practical nor possible, especially at a forest wide level. However, a management goal of protecting specific, ecologically sensitive areas (ESA) is often feasible using accepted control measures. A number of ESAs have been identified within the Wallman/Laurel Run area of the Potomac State Forest as being jeopardized by adjacent garlic mustard populations. These ESAs contain at least 9 known Maryland rare, threatened or endangered species that could be negatively impacted if garlic mustard overtakes these ESAs. Critical garlic mustard colonies have been mapped, and evaluated for control priority. Total acreage infested is approx. 1 acre, with this acre comprised of numerous small patches spread out along nearly 5 miles of road edge, and several pockets of infestation under closed canopy away from the roads.

Proposed treatment will involve an initial two year planned spray program in which glyphosate herbicide will be applied in 3 applications. The first application is planned for October of 2009, followed by an early spring 2010 application to catch any survivors of the Oct. 09 treatment and early spring germinants. A return visit will be required the following spring (2011) to treat any survivors or first-year plants newly recruited from the soil seedbank. Following treatment the area will be monitored for at least 3 more years to ensure exhaustion of the residual seed bank in the soil. Herbicide application will be done using a combination of backpack sprayers and a utility vehicle mounted spray rig, allowing target specific application.

Compartments 21, 22, 23, 24, 25, 26 Wallman/Laurel Run Garlic Mustard Control Project FY -11



Compartments.....21, 22, 23, 24, 25, 26
 Quad.....Gorman

Legend

management zones

ZONE_TYPE

 SPECIAL

 WATER



Scale: 1: 24000

COMPARTMENT 6 – (Backbone Mt. Blocks Salvage) FY-11

Description:

This area is located on the north side of MD Route 135 on either side of the state forest access road known as the Burkholder Road. The site includes the remaining uncut 'blocks' just above Rt. 135, as well as the larger tract of forest land extending north eastward below the 'Special Management Zone' that runs along the ridge top out to the state forest boundary.

In 2002 a series of block cuts was initiated in the portion of the tract lying to the west of Burkholder Rd. with the intent of harvesting the remaining blocks 10-15 years later in order to provide early succession conditions for wildlife and grouse habitat, over an extended period of time. These stands have been subjected to repeated defoliation by Gypsy Moths in both 2008 and 2009, subsequent mortality has been extremely high, with over 54% of the stand already dead, and most of the balance is dying. The stands contain very few healthy trees to date, thus prompting an early entry into the remaining blocks to carry out salvage, regeneration and fire hazard reduction.

This area contains a 100 acre hardwood stand comprised primarily of dead and dying mixed oaks including: DEAD Oak (54%), Chestnut Oak (12%), Red Oak (15%) and Red Maple (11%). Of the original 88 sq.ft. BA/ac. 54% is dead and much of the balance is dying. The stand is under stocked with only 41 sq.ft. of BA/ acre of live very stressed trees, which are not fully utilizing the growing space available. The under story is dominated by non-commercial species primarily Sassafras which comprise 90% of the 3,632 stems/acre of advanced regeneration.

The site has a south / southern aspect, and falls within the Potomac River drainage system. Underlying soils include 'DeKalb and Gilpin very stony loams'. These soils are moderately deep and moderately well drained; equipment limits are moderate to slight, due to surface rock; erosion potential is slight. The site productivity is fair-good, with site index of 55 for Red Oak.

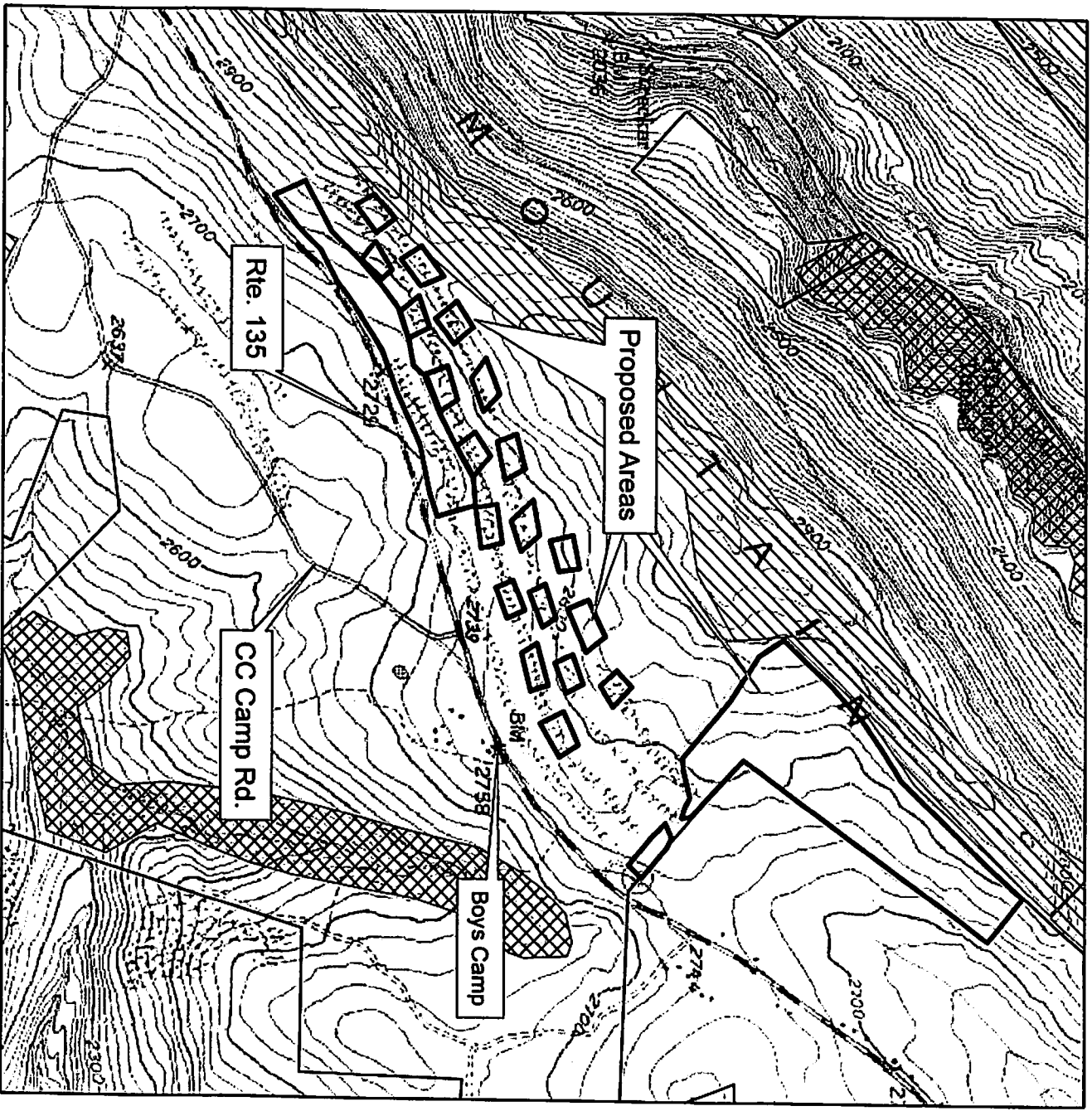
Management and Silvicultural Recommendations:

The proposed silvicultural treatment for this stand is to salvage the marginally merchantable timber using the 'clear-cut with dispersed retention' method. In this case, the present main stand shall be harvested. Where possible, 4-6 live, dominant or co-dominant trees shall be retained on each acre of this harvested area. It is recognized that live trees likely to survive beyond the harvest are limited; therefore particular emphasis shall be placed on retaining live and dead cavity/den trees, as well as both hard and soft mast producers. All other trees greater than 2 inches DBH shall be harvested to encourage vegetative reproduction from stump sprouts. Regeneration is presently made up of non-commercial Sassafras. As a result of the Gypsy Moth driven mortality, a dramatic stand conversion from mixed oak to Sassafras is occurring.

This practice will provide for the regeneration and salvage harvest of this stand of poor conditioned timber. Management objectives include the salvage of the limited financial value of these trees; removal of significant fuel loads and fire hazard resulting from the extensive dead and dying timber and most importantly to stimulate the remaining dying oak trees to produce stump sprouts to offer some established oak regeneration as a component of the future stand.

I propose this harvest be moved forward to the FY-10 AWP to allow for immediate harvest. As significant mortality is occurring, immediate harvest is recommended to avoid further loss of both important live stump sprout / regeneration potential and timber values.

Compartment 6 Backbone Blocks Salvage FY-11





39 28' 48.12" N 79 10' 36.53" W

Approx. Acres...	114
Age.....	100
Forest Type.....	Mixed Oak
Trees/Ac.....	80 Live 74 Dead
Basal Area.....	41 Live 47 Dead
Site Index.....	50 for NRO
Composition.....	Dead Oak 54%
	Red Oak 15%
	Chestnut Oak 12%

Legend

management zones

ZONE_TYPE

-  SPECIAL
-  WATER



Scale= 1:18000

COMPARTMENT 11 – (C.C.C. Snowmobile Trail Salvage “A”)FY-11

Description:

This area is located on the east side of CCC Camp Road within Compartment #11 of the Potomac State Forest. Access through the site is by way of a service road that serves as the Backbone Mt. Snowmobile Trail. The site contains 68-acre mature, mixed oak stand. This stand has been subjected to a number of significant stress factors in recent years including: ice damage in 2002, and Gypsy Moth defoliations in 2006, 2007 and 2008. The condition of the stand changes as you progress down slope, therefore the area has been divided into 2 management blocks for treatments.

The upper slope “Block A” (58 acres) has suffered considerable mortality. With over 70 % of the individual trees being dead, the stand is understocked (40%) with live trees. Of the few live trees, less than half are considered ‘acceptable growing stock’ as most are severely stressed. As such, trees of acceptable quality for future growing stock are inadequate to provide a fully stocked stand in themselves. The overall condition of the stand is poor, and accelerated mortality is underway. Dead oak trees make up over 60% of the trees on this site. The understory is well developed with approx. 2400 stems per acre, however the majority of the understory stems are non-commercial tree and shrub species including Sassafras (1261 stems/ac.), and Witch Hazel (333 stems/ac.) There are approx.800 stems/ac. of desirable Red Maple, Red Oak, Chestnut Oak and Scarlet Oaks in the understory.

The site has a south-eastern aspect and falls within the Folly Run watershed, part of the Potomac River drainage system. Underlying soils include: Dekalb and Gilpin very stony loams. These soils are moderately deep and well drained and some poorly drained soils, with moderate equipment limits because water table is close to the soil surface in winter and early in spring. Degree of slope ranges from 0-25% throughout the site. The productivity on the site is good, with a site index of 70+ for mixed oaks.

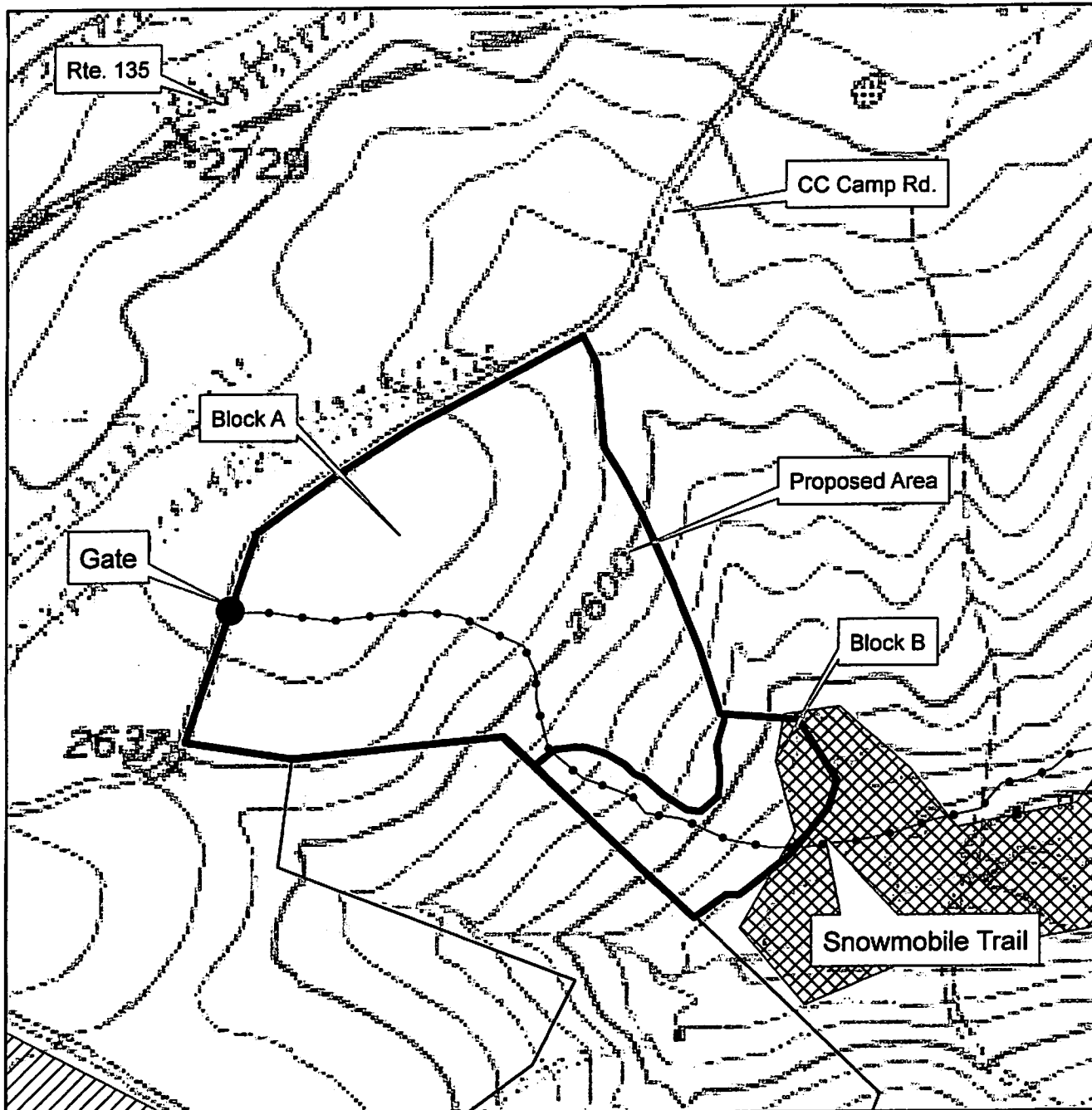
Management and Silvicultural Recommendations:

The proposed silvicultural treatment for this stand/block is to regenerate the stand while salvaging the merchantable timber. Regeneration will be accomplished through the use of the ‘clear-cut with both dispersed and group retention’, method. In this case, the present main stand shall be harvested; where possible, 8-12 healthy, dominant or co-dominant trees shall be retained on each 2 acres of this harvested area. Particular emphasis shall be placed on retaining live den trees, as well as both hard and soft mast producers. When possible, retention trees will be grouped in islands, though the extensive mortality in the stand will likely result in more of a dispersed arrangement of retained trees; all other trees greater than 8 (eight) inches DBH shall be harvested. Regeneration is accounted for in the form of existing seedling stock, and will be further supplemented through vegetative reproduction from stump sprouts most notably from the 24 sq.ft. BA/ ac live , unacceptable growing stock being harvested. This practice will provide for the salvage-harvest of the dying and dead trees damaged by the recent storms and insect infestations; as well as the subsequent regeneration of this stand of poor conditioned timber; and the reduction of forest fire hazard by removing heavy fuel loads.

To assure public safety, the snowmobile trail will be closed during the harvest. Signs will be posted directing snowmobile riders to other trails within the 25 mile ORV trail system with in the forest.

I propose this harvest be moved forward to the FY-10 AWP to allow for immediate harvest to avoid further loss of both important live stump sprout / regeneration potential and timber values.

Compartment 11 Salvage FY-11



Block A

Approx Acres...58
 Age.....100
 Forest Type...Mixed Oak
 Basal Area.....41
 AGS.....17
 Stocking.....40%
 Growth Rate..2%
 Site Index.....72 for Chestnut Oak
 Composition...Dead Oak 60%
 Red Maple 15%
 Black Gum 8%

Block B

Approx Acres...10
 Age.....100
 Forest Type...Mixed Oak
 Basal Area.....106
 AGS.....53
 Stocking.....95%
 Growth Rate..2%
 Site Index.....72 for Chestnut Oak
 Composition...Red Maple 38%
 Red Oak 23%
 Dead Oak 20%

Legend

management zones

ZONE_TYPE

 SPECIAL

 WATER

N



39 27' 48.12" N 79 10' 45.15" W

Scale: 1" = 660'

COMPARTMENT 11 – (C.C.C. Snowmobile Trail Salvage “B”)FY-11

Description:

This area is located on the east side of CCC Camp Road within Compartment #11 of the Potomac State Forest. The site contains 68-acre mature, mixed oak stand. This stand has been subjected to a number of significant stress factors in recent years including: ice damage in 2002, and Gypsy Moth defoliations in 2006, 2007 and 2008. The condition of the stand changes as you progress down slope, therefore the area has been divided into 2 blocks for management treatments.

The lower slope Block B (10 acres) is similar to Block A in species composition, though the condition of the stand is much better. Dead trees account for 20 % of the standing BA. This stand contains 106 sq.ft. of BA/ac. of live trees, primarily Red Maple (38%) and Red Oak (23%). The stand is fully stocked at 95%. Trees of acceptable quality for future growing stock are just short of providing what is traditionally considered a fully stocked stand by themselves. The overall condition of the stand is fair with accelerated mortality less evident, though dead oak trees make up nearly 20% of the trees on this site. The understory is well developed with approx. 2116 stems per acre, again, the majority of the understory stems are non-commercial tree and shrub species including Sassafras (617 stems/ac.), and Witch Hazel (833 stems/ac.); with the balance comprised of miscellaneous mixed hardwoods namely, Red Maple, Black Cherry, Black Birch and Black Gum.

The site has a south-eastern aspect and falls within the Folly Run watershed, part of the Potomac River drainage system. Underlying soils include: Cookport and Ernest very stony silt loams, as well as Dekalb and Gilpin very stony loams. These soils are moderately deep and well drained and some poorly drained soils, with moderate equipment limits because water table is close to the soil surface in winter and early in spring. Degree of slope ranges from 0-25% throughout the site. The productivity on the site is good, with a site index of 70+ for mixed oaks.

Management and Silvicultural Recommendations:

With the extensive mortality losses in this area of the state forest, and most notably the extensive loss of oak trees, it is important to manage this stand for retention of an oak component, largely for wildlife, ecological and future seed source values. As such, the proposed silvicultural treatment for this stand is to salvage/thin this stand. This harvest will remove dead and dying trees and will thin the live trees to improve their growing conditions. Harvesting some of the dying trees will maximize the regeneration potential for vegetative reproduction from stump sprouts furthering the potential to maintain an oak component in the future stand. When selecting trees for harvest, emphasis will be placed on the retention of healthy oak mast producing trees. The ‘live’ stand will be thinned from its present 106 sq.ft.BA/ac. to 50-60sq.ft. BA/acre, concentrating on retaining healthy, acceptable growing stock. This salvage / thinning will serve as a sort of forced shelter wood harvest, and should stimulate understory development, by releasing existing advanced regeneration and allowing for stump sprout development.

To assure public safety, the snowmobile trail will be closed during the harvest. Signs will be posted directing snowmobile riders to other trails within the 25 mile ORV trail system within the forest.

I propose this harvest be moved forward to the FY-10 AWP to allow for immediate harvest to avoid further loss of both timber values and important live stump sprout / regeneration potential

COMPARTMENT 32 – (Brier Ridge)

FY-11

Description:

This area is located approx. 2.2 miles south of the intersection of Cranesville Road and Snaggy Mt. Road, within Compartment #32 of the Garrett State Forest. The stand fronts on the Snaggy Mt. Road, and contains 3 roadside campsites. The lower slopes to the north of the tract extend into the Special Management Zone (SMZ) established around Murley Run which harbors: deer wintering areas, wetlands of special state concern, various threatened and endangered plants, and historic bobcat dens. The site consists of a 100 acre immature mixed hardwood stand made up primarily of Black Cherry (49%) and Red Maple (24%). This stand is well over stocked at 134% and contains 164 sq.ft. BA/acre. Much of the cherry in the stand is infected with 'Black Knot', a stem canker disease caused by the fungus *Dibotryon morbosum*. While this disease is not generally a killer of trees, the resulting cankers weaken the bole making trees susceptible to wind and snow damage. The cankers also degrade the timber value of the tree.

Due largely to overcrowded growing conditions, and the abundant black knot cankers, trees of acceptable quality for future growing stock are inadequate to provide a fully stocked stand in themselves. Typical of overstocked, mature stands, the understory is poorly developed, with less than 250 stems of advanced regeneration per acre, including Black Cherry (131 stems/ac.), Red Maple (97 stems/ac.), and Serviceberry (15stems/ac.) Hayscented fern and creeping dewberry are prominent on the forest floor, both of which have shown to be an impediment to seedling development.

This ridge top site has both northern and southern aspects and falls within the Murley Run watershed; part of the Youghiogheny River drainage system. Underlying soils include: 'Dekalb and Gilpin very stony loams' and 'Stony land'. These soils are moderately deep and well drained. Near the base of the slope can be found some poorly drained soils, with moderate equipment limits because water table is close to the soil surface in winter and early in spring. Degree of slope ranges from 0-25% throughout the site. The site has very good productivity for woodland management, with a site index of 80 for Black Cherry.

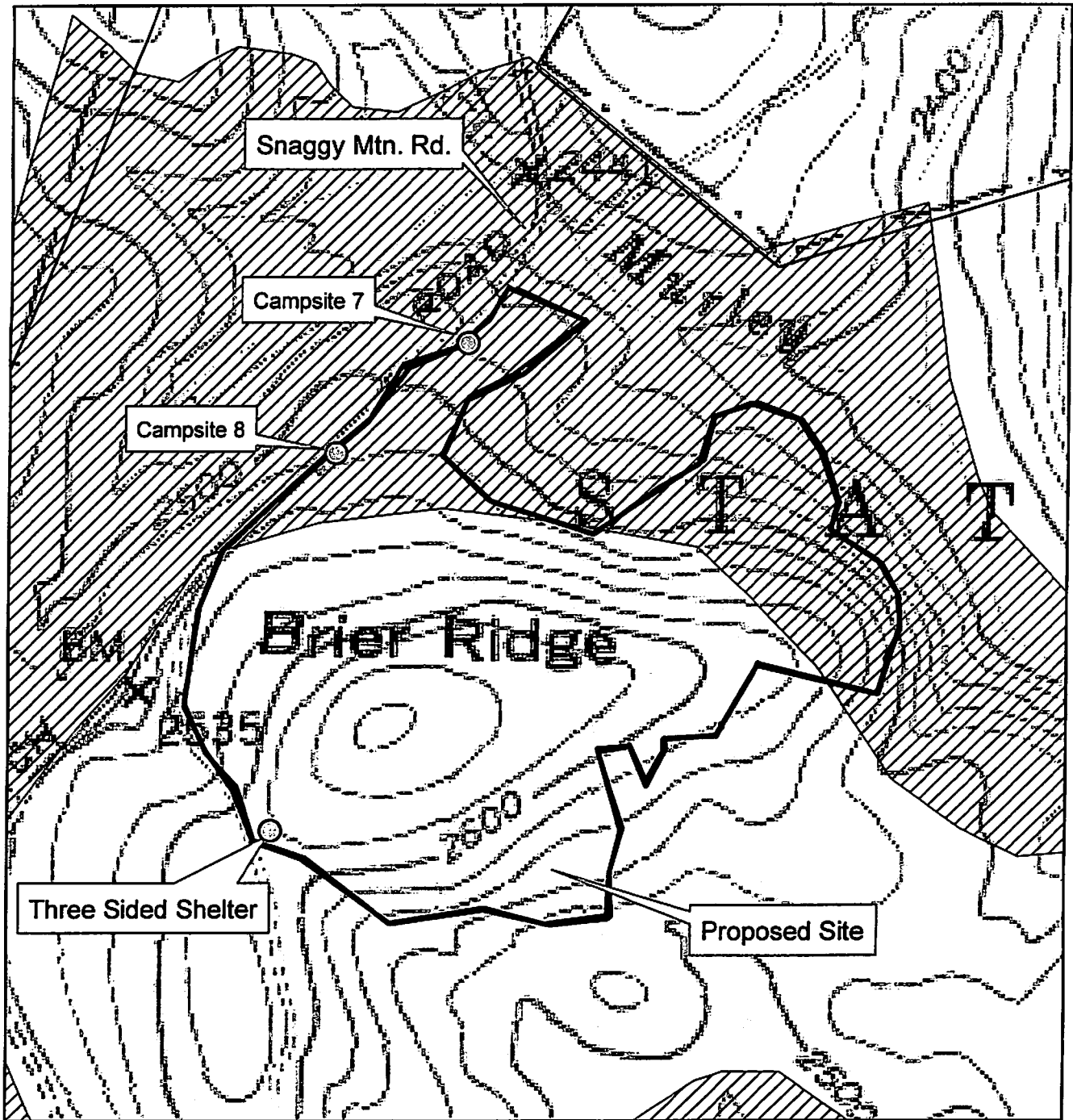
Management and Silvicultural Recommendations:

The proposed silvicultural treatment for this site is to regenerate it using a Two Stage Shelterwood System. Shelterwood systems are best used to regenerate mature stands that lack established regeneration. The first 'stage' of this regeneration system, will serve as a conditioning/seed cut in which the stand will be thinned to approx. 90 sq.ft. BA/ac. Emphasis will be placed on the harvest of heavily cankered cherry trees and other unacceptable growing stock. With retention of acceptable growing stock, as well as dominant and co-dominant oaks to serve as future seed source to further species diversity on the site. This initial conditioning/seed cut will remove those trees most susceptible to wind damage, while allowing sunlight to reach the forest floor, thereby producing

conditions suitable for seed germination as well as development of existing seedling stock. Once sufficient advanced regeneration is accounted for (approx. 5-10 years), the stand will be reevaluated, with the expectation of applying the 'second stage' of this system. The planned, second stage of this system would call for a "liberation cut" to release the newly developed seedling stand from overhead competition.

DNR Natural Heritage biologist will assist with field delineating the SMZ, to assure adequate protection of the resources within this zone. To assure public safety, the 3 roadside campsites adjacent to the site will be closed during the harvest; campers will be directed to use one of the 50 other sites available on the state forest. A 100 ft. buffer will be maintained around the campsites.

Compartment 32 Brier Ridge Harvest FY-11



Approx. Acres....	100
Age.....	95
Forest Type.....	Cherry, Maple
Trees/Ac.....	251
Basal Area.....	164
AGS.....	16
Stocking.....	134%
Growth Rate.....	2.3%
Site Index.....	81 for Black Cherry
Composition.....	Black Cherry 49%
	Red Maple 24%

39 28' 11.87" N 79 27' 52.19" W

Legend

management zones

ZONE_TYPE

 WATER

 SPECIAL

N



Scale: 1" = 660'

COMPARTMENT 43 – (“Block F” Kindness Demo. Area) FY -11

Description:

This area is located just beyond the entrance gate into the Kindness Demonstration Area off the Fingerboard Road within Compartment #43 of the Garrett State Forest. This site consists of an 8 acre immature mixed hardwood stand made up primarily of White Oak (47%), Red Oak (21%), and Red Maple (14%). The stand had been thinned in 2004 as the first stage of a planned Two Stage Shelterwood Regeneration System. The resulting stand is slightly understocked at 58% and contains 65 sq.ft. BA/acre. The initial harvest provided optimum conditions for the development of a fully stocked understory. This successful regeneration effort has resulted in an understory containing approx. 2,198 stems /ac. desirable hardwood, advanced regeneration with an additional 10,864 developing seedlings less than 4 ½ feet tall! This understory is comprised primarily of Red Oak (33%), Red Maple (24%), Black Cherry (21%) and White Oak (21%).

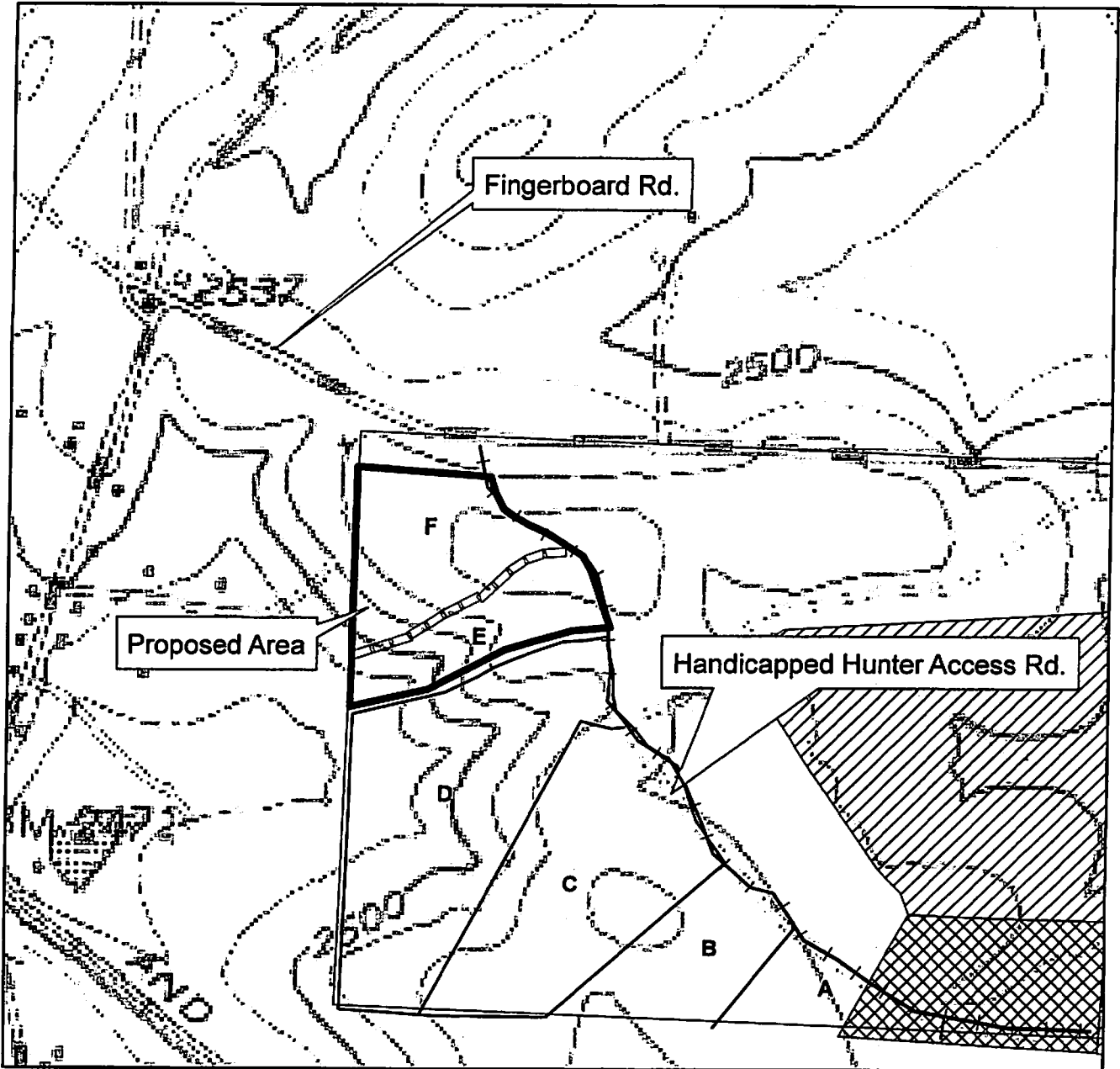
The site has a western aspect and falls within the Snowy Creek watershed, part of the Youghiogheny River drainage system. Underlying soils include ‘DeKalb and Gilpin very stony loams’ and ‘Cookport and Ernest very stony loams’. The DeKalb soils are moderately deep and well drained with only slight equipment limits due to slope. The Cookport soils are also moderately deep and moderately well drained to somewhat poorly drained. Equipment limits can be moderate due to seasonally perched water table. Degree of slope ranges from 5-25% through out the site. The productivity of the site is fair-good with site index of 55-60 for Red Oak.

Management and Silvicultural Recommendations:

The proposed silvicultural treatment is to carryout the second stage of the initial Two Stage Regeneration System as called for in the FY-04 AWP. The second stage of this system will involve a “liberation harvest”, in which the existing overstory trees shall be harvested in order to “liberate” the well established seedling understory from overhead competition. In this case, the present main stand shall be harvested using the clear cut with aggregate retention method. Where possible, ‘islands of 8-12 healthy, dominant or co-dominant trees shall be retained for each 2 acres of this harvested area. Particular emphasis shall be placed on retaining live den trees, as well as both hard and soft mast producers. All other trees greater than 2 inches DBH shall be harvested thereby releasing the established regeneration from competition, allowing them to grow freely into a healthy mixed hardwood stand. Regeneration is accounted for in the form of abundant, existing seedling stock, and will be further supplemented by vegetative reproduction from stump sprouts.

This practice will provide for the successful completion of the initial Two Stage Shelterwood Regeneration System. The “liberation” of the well established, advanced regeneration will result in a fully stocked stand of healthy and vigorously growing mixed hardwood trees with a solid mixed oak component. The end result will be a high quality demonstration of the application of a Two Stage Shelterwood Regeneration System within this forestry demonstration area.

Compartment 43 Shelterwood FY-11 (Kindness Demonstration Area) "F"



Block "F"
 Approx. Acres....8
 Forest Type.....Mixed Oak
 Trees/Ac.....119
 Basal Area.....65
 AGS.....26
 Stocking.....58%
 Growth Rate...2%
 Site Index.....60 for WO
 Composition....White Oak 47%
 Red Oak 21%
 Red Maple 14%

39 25' 18.34"N 79 28' 20.45"W

Legend

management zones

ZONE_TYPE

 SPECIAL

 WATER



Scale: 1" = 660'

COMPARTMENT 43 – (“Block E” Kindness Demo. Area) FY -11

Description:

This area is located 200 yards beyond the entrance gate into the Kindness Demonstration Area off the Fingerboard Road within Compartment #43 of the Garrett State Forest. This site consists of a 7 acre immature mixed hardwood stand made up primarily of Scarlet Oak (32%), White Oak (28%), Black Cherry (14%), Red Oak (11%) and Red Maple (11%). The stand is over stocked at 108% and contains 130 sq.ft. BA/acre. Trees of acceptable condition for future growing stock are not sufficient to provide a fully stocked stand in themselves. The understory contains little or no advanced regeneration. Management plans for the Kindness Demonstration Area called for this stand to serve as a demonstration of a Deferment Harvest, however as advanced regeneration is minimal, it will be better served by a Two Stage Shelterwood System, with the first stage to be initiated at the same time that Block F is ready for its second stage harvest, the ‘liberation cut’.

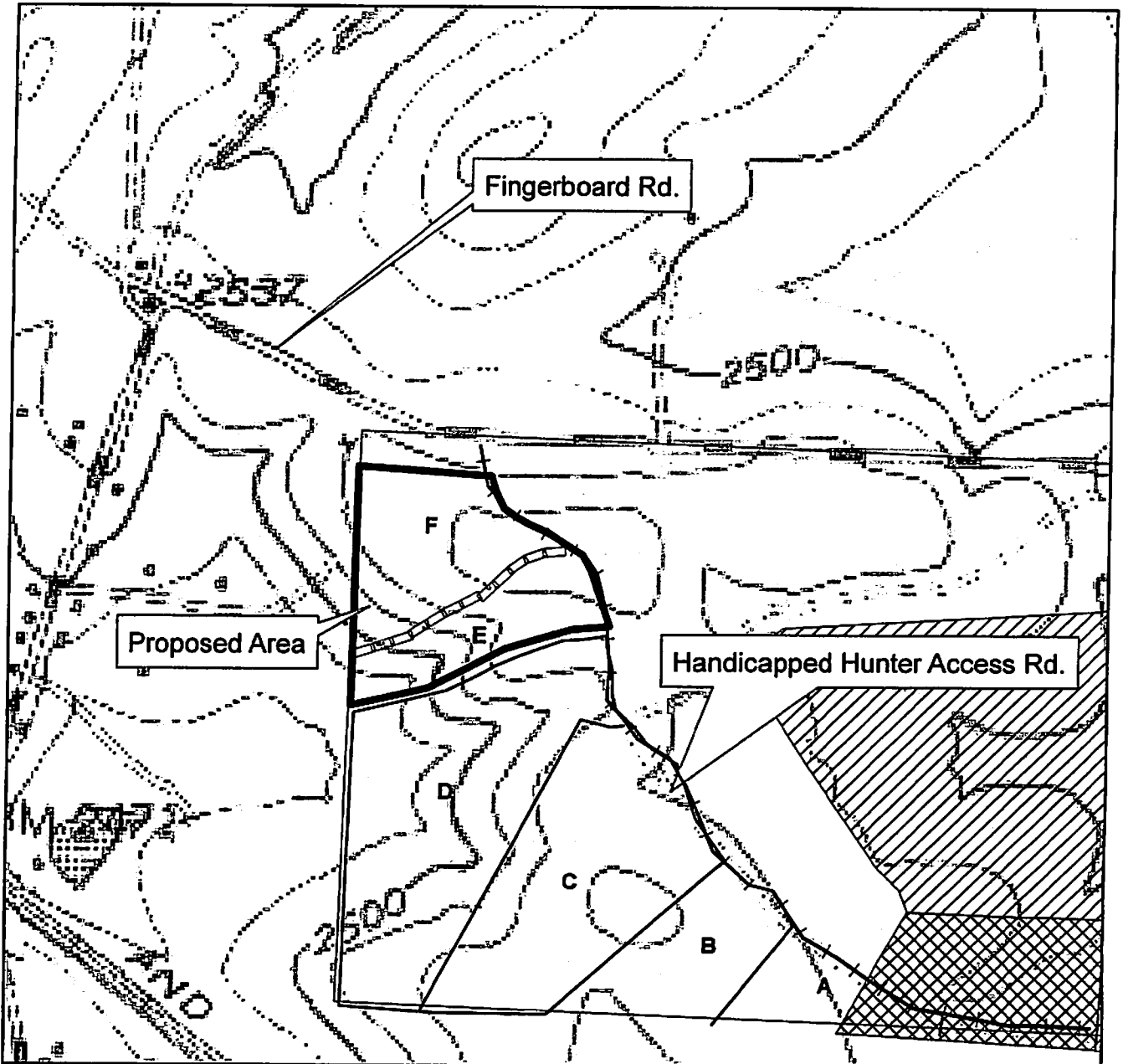
The site has a western aspect and falls within the Snowy Creek watershed, part of the Youghiogeny River drainage system. Underlying soils include ‘DeKalb and Gilpin very stony loams’ and ‘Cookport and Ernest very stony loams’. The DeKalb soils are moderately deep and well drained with only slight equipment limits due to slope. The Cookport soils are also moderately deep and moderately well drained to somewhat poorly drained. Equipment limits can be moderate due to seasonally perched water table. Degree of slope ranges from 5-25% through out the site. The productivity of the site is fair-good with site index of 55-60 for Red Oak.

Management and Silvicultural Recommendations:

The proposed silvicultural treatment for this site is to regenerate it using a Two Stage Shelterwood System. Shelterwood systems are best used to regenerate mature stands that lack established regeneration. The first ‘stage’ of this regeneration system, will serve as a conditioning / seed cut in which the stand will be thinned to approx. 65 sq.ft. BA/ac. Emphasis will be placed on the retention of acceptable growing stock, to serve as future seed source for the newly developing understory. This initial conditioning/seed cut will allow sunlight to reach the forest floor, thereby producing conditions suitable for seed germination as well as development of existing seedling stock. Once sufficient advanced regeneration is accounted for (approx. 5-10 years), the stand will be reevaluated to see how to best serve the goals of the Demonstration Area.

This initial practice will provide a high quality demonstration site showing the application of the first stage of a Two Stage Shelterwood Regeneration System within this forestry demonstration area. Interpretive signage will be adjusted to update the self guided interpretive wayside exhibits in the Demo Area.

Compartment 43 Shelterwood FY-11 (Kindness Demonstration Area) "E"



Block "E"
Approx. Acres....7
Age.....95
Forest Type.....Mixed Oak
Trees/Ac.....177
Basal Area.....130
AGS.....40
Stocking.....108%
Growth Rate...2%
Site Index.....60 for WO
Composition....Scarlet Oak 32%
White Oak 28%
Black Cherry 14%

39 25' 18.34"N 79 28' 20.45"W

Legend

management zones

ZONE_TYPE

 SPECIAL

 WATER



Scale: 1" = 660'

COMPARTMENT 10 (CCC-CTR)

Description

This 20 acre area is located within Compartment 10 of the Potomac State Forest. It is situated at the north-east corner at the intersection of Walnut Bottom and CCC Camp Roads. This stand was regenerated approx. 30 years ago, and has developed into 3 distinctly different stands. The 6 ac. frontage along Walnut Bottom Road was planted to Norway Spruce which provides valuable conifer cover which is relatively sparse in this area of the forest. The remaining 14 acres was naturally regenerated to mixed hardwoods. The 14 acres has a distinct stand split halfway up the slope, where the species mix changes from Cherry on the lower slope, to Oak on the upper slope. Most notably the 6 acres of oak is dead, as a result of 2006,07,08 Gypsy moth infestations in this area. Initial intent was to treat the 20 acres as one stand, however stand composition and condition warrant separate treatments for all 3 'stands' that have developed.

Stand 'A' is 6 acres of poletimber, dominated by Cherry (51%), Red Maple (13%) and Red Oak (12%). The stand is overstocked at 109% and contains 103 sq.ft. BA/ac. and 593 trees per acre. Due to the overstocked conditions, and the high stump sprout origins of many of the trees, there is only 29 sq. ft. BA/ac. of acceptable growing stock. The understory is moderately developed, with non commercial tree and shrub species including Sassafras, and Witch Hazel.

Stand 'B' is 6 acres of poletimber, dominated by Norway Spruce (26%) and Black Locust,(19%),Red Maple (12%) and Cherry (12%). This stand is overstocked at 125% and contains 108 sq.ft. BA/ac. and 885 trees per acre. Due to the overstocked conditions, there is only 40 sq. ft. BA/ac. of acceptable growing stock, most of this being the Norway spruce. As with stand 'A', the understory is moderately developed, with non commercial tree and shrub species including Sassafras, and Witch Hazel.

Stand 'C' is 8 acres of poletimber, dominated by Dead oaks (67%), Red Maple (10%) and Sassafras (10%). This stand is poorly stocked as 67% of the trees are dead. The understory is moderately developed, with non commercial tree and shrub species including Sassafras 708 stems per acre and Witch Hazel 139 stems/ac.

The entire site is has a south-eastern aspect, drains toward an unnamed tributary of Folly Run and is within the Potomac River drainage system. . Underlying soils include 'Cookport and Ernest very stony silt loams'. The Cookport soils are moderately deep and moderately well drained to somewhat poorly drained. Equipment limits can be moderate due to seasonally perched water table. Degree of slope ranges from 0-10% through out the site. The productivity of the site varies from good to excellent with site indexes ranging from 65+ for Red oak to 80 for Cherry on the lower slope.

COMPARTMENT 10 (CCC-CTR)

Management and Silvicultural Recommendations

Stand A: Conduct a timber stand improvement (TSI) practice in the form of a Crop Tree Release. During this operation, approximately 30-60 trees will be selected as future crop trees. These crop trees will be released from crown competition on all sides. In selecting potential crop trees, special emphasis will be given to the release of the few oaks and any other mast producers that are found in limited numbers throughout the stand. The majority of the crop trees will be Black Cherry. Due to the relatively small size of the trees to be removed, this practice may be carried out as a fire wood sale. If no commercial operator can be attracted, the work will be done as a non-commercial "timber stand improvement" (TSI) practice whereby the poles may be either cut and left on the forest floor to decay back into the soil or they will be killed and left standing dead.

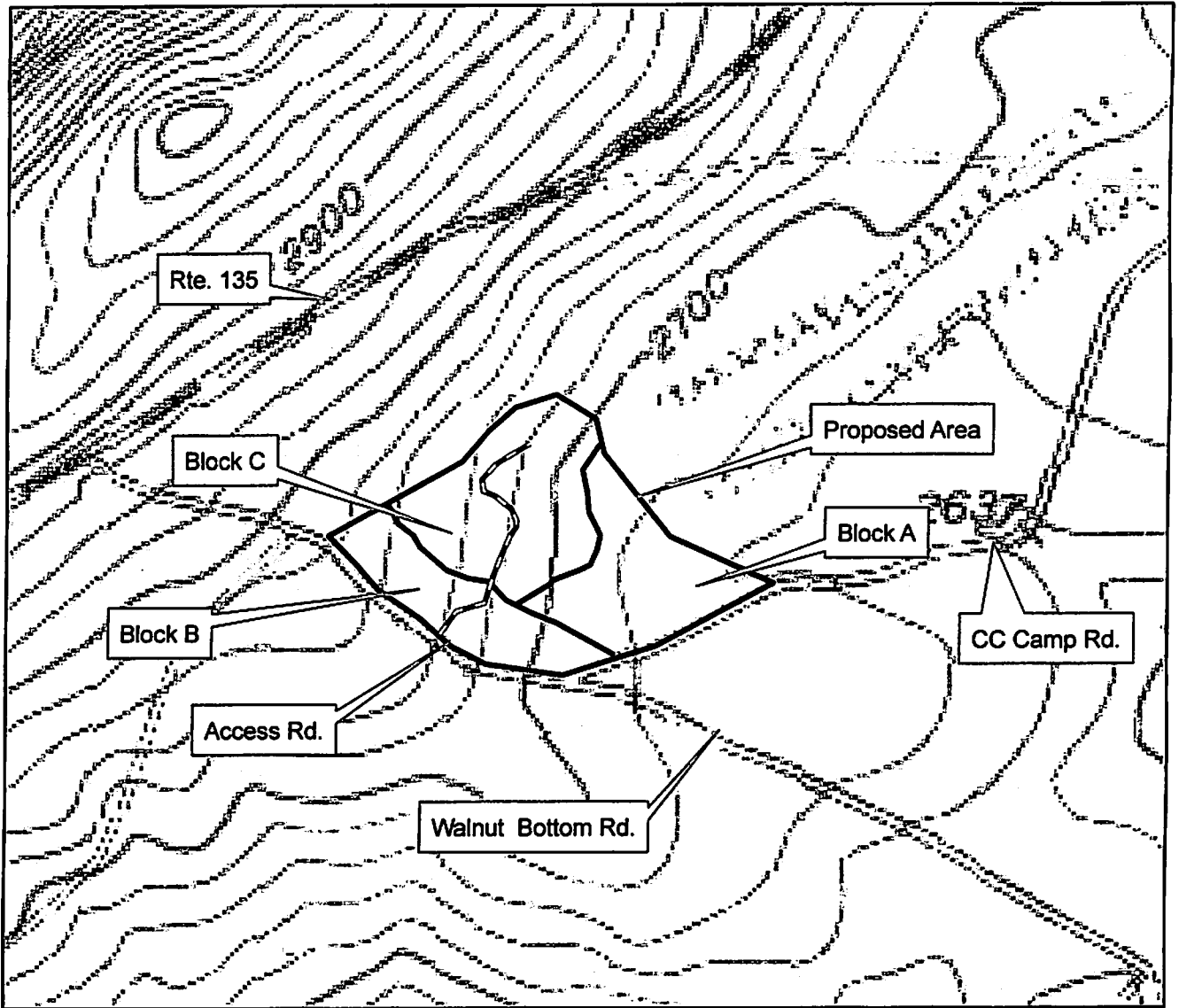
This Crop Tree Release will hasten the development of the dominant trees in the stand, stimulating the growth, vigor and development of the crop trees, as well as those trees indirectly released on one or two sides.

Stand 'B' Along with stand 'A', conduct a timber stand improvement (TSI) practice in the form of a crop tree release. During this operation, approximately 30-60 trees will be selected as future crop trees. These crop trees will be released from crown competition on all sides. In selecting potential crop trees, special emphasis will be given to the release of the few oaks and any other mast producers that are found in limited numbers throughout the stand. The majority of the crop trees will be Norway Spruce and Black Cherry. Due to the relatively small size of the trees to be removed, this practice may be carried out as a fire wood sale.

This Crop Tree Release will hasten the development of the dominant trees in the stand, stimulating the growth, vigor and development of the crop trees, as well as those trees indirectly released.

Stand 'C' As this 8 acres is dominated by dead and dying oak pole timber with little or no desirable regeneration present, there is little more that can be done here other than to salvage harvest the dead and dying oaks for firewood, with some hope of establishing some oak regeneration through the stimulation from stump sprouts. If no commercial operator can be attracted, the stand will be left to develop as is.

Compartment 10 T.S.I. FY-11



Block A

Approx. Ac.....	6
Age.....	27
For Type.....	Oak, Cherry
Trees/Ac.....	593
Basal Area.....	103
AGS.....	29
Growth	5.9%
Sl.....	80 for BC
Composition.....	Cherry 51%
.	R. Maple 13%
.	R. Oak 12%

Block B

Approx. Ac.....	6
Age.....	27
For Type.....	Oak, Cherry
Trees/Ac.....	885
B.A.....	108
AGS.....	40
Growth.....	5.9%
Sl.....	80 for BC
Composition.....	N Spruce 26%
.	Locust 19%
.	Sass. 16%

Block C

Approx. Ac.....	8
Age.....	27
For Type.....	Oak, Cherry
Trees/Ac.....	583
B.A.....	100
AGS.....	20
Growth.....	5.9%
Sl.....	80 for BC
Composition.....	Dead Oak 67%
.	R. Maple 10%
.	Sass. 10%

39 27' 35.73" N 79 11' 8.66" W



Scale: 1" = 660'

COMPARTMENT 36 – (Fire Tower Road)

FY-11

Description:

This area is located south of the intersection of the Snaggy Mt. Road and Fire Tower Road, within Compartment #32 of the Garrett State Forest. The stand is surrounded by roads and trails on all 4 sides; with Fire Tower Rd. to the north, Snaggy Mt. Road to the east, private hunting camp access road to the south, and an old skid trail/fireline along the western edge that is the boundary between the state forest and the adjacent private land. Nearly 2/3 of the site, the lower slopes, fall within the Special Management Zone (SMZ) established around Bull Glade Run Natural Area. This SMZ provides habitat for one State Endangered Species and one State Threatened Species; habitat for several State Rare and uncommon plants and animals; and is the site of an exemplary wetland community example. Management needs for this natural area, indicate that maintaining early succession in certain areas would be beneficial to two of the rare animals.

The site consists of a 26 acre immature mixed hardwood stand made up primarily of Red Maple (37%), White Oak (31%), Scarlet Oak (10%) and Black Cherry (8%). This stand is fully stocked at 94% and contains 108 sq.ft. BA/acre. Condition of this stand is rather poor, much of the oak shows signs of stress, including significant epicormic branching; much of the Scarlet Oak is dying out. Possible stressors include the heavy wet snow storm early in October 2003. The trees had not dropped their leaves and the heavy wet snow tore off considerable amounts of branches, especially from the oaks which still had most all of their leaf cover to collect snow on. Another stressor would be the 3 days of killing frosts that occurred in mid May this spring. This frost event occurred at the critical point where the oak leaves had just begun to emerge. The frost killed off this first set of leaves. The trees have set a second set of leaves, but this does come at a cost to the trees health. There is also, considerable evidence of some defoliating insect damage; as seen in the extensive 'shot hole' patterning on most of the white oaks in the stand. To date, we have been unable to collect pest samples for identification.

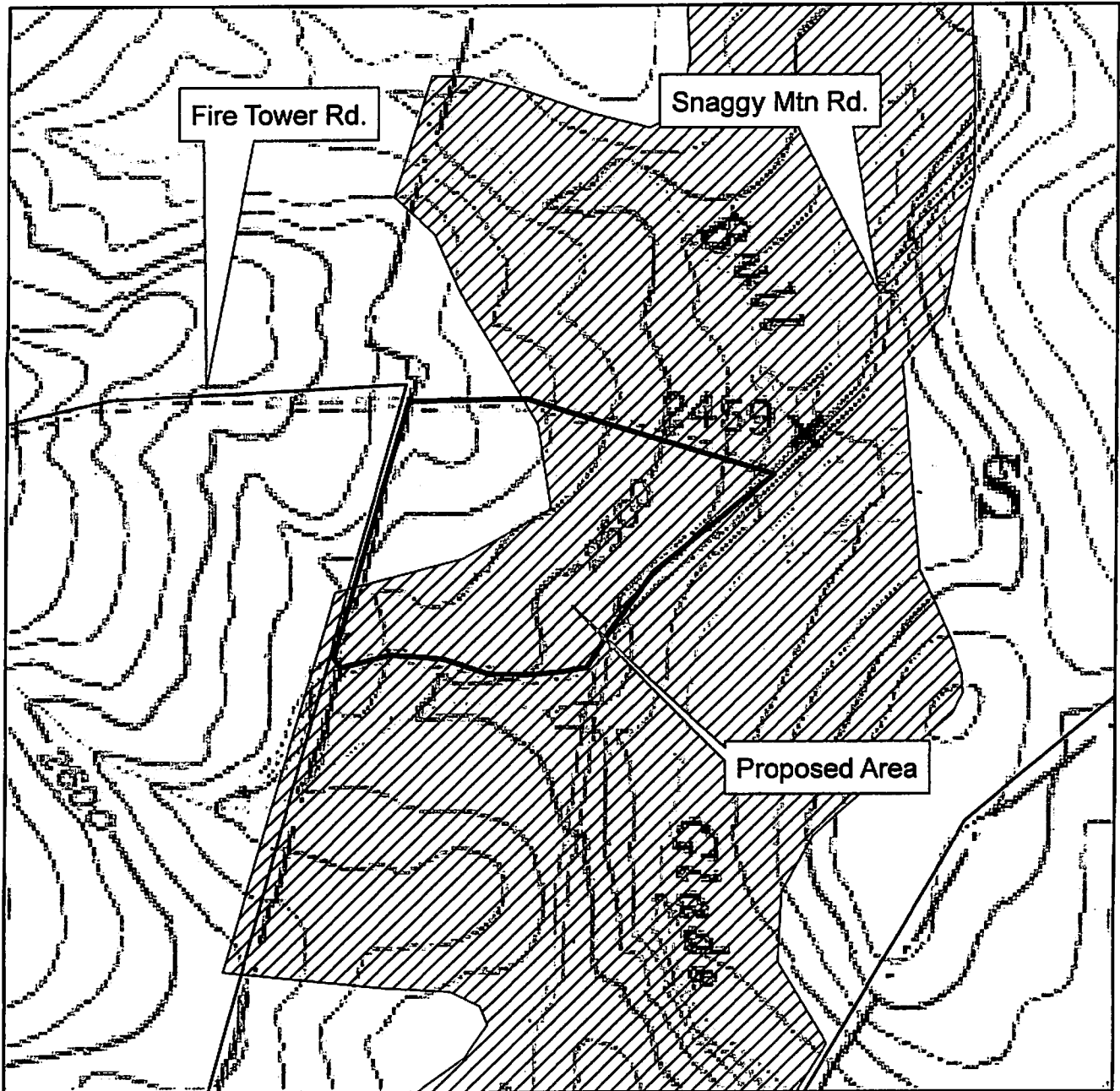
Overall the stand appears to be in poor health; this further evidenced by the significant amounts of large coarse woody debris on much of the upper slope of the stand; dead and down trees likely from some early insect or disease event. Trees of acceptable condition for future growing stock are not sufficient to provide a fully stocked stand in themselves. Regeneration is light to moderate with 659 "advanced" seedlings (greater than 4.5 feet tall) per acre, with Red Maple being most prominent at (71 %) and White Oak making up only another (16%); there are a considerable amount of White Oak seedlings less than 4.5 feet tall that could be stimulated for future stand development.

This site has a south-eastern aspects and falls within the Bull Glade Run watershed and Natural area; part of the Youghiogheny River drainage system. Underlying soils include: 'DeKalb and Gilpin very stony loams' and 'Stony land'. These soils are moderately deep and well drained and some poorly drained soils, with moderate equipment limits because water table is close to the soil surface in winter and early in spring. Degree of slope ranges from 0-25% throughout the site. The site has good productivity for woodland management, with a site index of 60 for White Oak.

Management and Silvicultural Recommendations:

The proposed silvicultural treatment for this site is to carry out a commercial Timber Stand Improvement (TSI) practice. In this case, the TSI will be in the form of a thinning. The stand will be thinned to approx. 65 sq.ft. BA/ac. with management objectives of improving the overall health and growing conditions in the stand; and providing improved wildlife habitat by retaining a healthy mast producing mixed oak component in this stressed stand of trees. This thinning will serve in part as a shelter-wood harvest as it will release the abundant, small (<4.5 feet tall), white oak seedlings from dense overhead competition, allowing them to further develop to a size capable of surviving into the next rotation. Finally, this practice will also providing some early successional conditions in the form of increased seedling/understory development that may be beneficial to two of the rare animal species being protected in this Special Management Zone. Emphasis will be placed on the harvest of over mature and poor conditioned trees, 'unacceptable growing stock'(UGS), while recognizing that the overall poor condition of the stand will require retention of trees that are considered UGS in order to reach the stocking level desired for optimum tree growth.

Compartment 36 Fire Tower Rd FY-11



Approx. Acres....26
 Age.....83
 Forest Type.....Mixed Oak
 Trees/Ac.....216
 Basal Area.....108
 AGS.....34
 Stocking.....94%
 Growth Rate....2%
 Site Index.....60 for WO
 Composition.....Red Maple 37%
 White Oak 31%
 Scarlet Oak 10%

39 29'20.85" N 79 27' 36.62" W

Legend

management zones

ZONE_TYPE

 SPECIAL

 WATER



Scale: 1" = 660'

COMPARTMENT 10 (CCC-CTR Revisit)

FY-11

Description

This area is located within Compartment 10 of the Potomac State Forest. It is situated along the north side of the CCC Camp Road. This 2 (two) acre site is a portion of a larger 54 acre stand that was clear cut in strips in 1985, with alternating strips having been cut in 1979. While the entire area contains a healthy and vigorous small poletimber stand, this small area appears to be developing on an inclusion of richer more fertile soil, than the surrounding area. The predominant cover type in this compartment is an oak-hickory type, dominated by mixed upland oaks. However, the small area proposed for management is comprised primarily of Black Cherry. In 2004, this stand was comprised of Black Cherry (68%) and Scarlet Oak (20%) with trees from both stump sprout and seed origin. The original stand was overstocked at 125%; and contained 110sq.ft. BA/acre. The stand contained considerable acceptable growing stock from which to further manage this stand.

In 2004 approximately 30 trees per acre were selected and released as "crop trees". The Scarlet oak has been all but eliminated by the Gypsy Moth, and the stand is now over 95% Cherry. The present stand is fully stocked at 70 sq.ft.BA /acre. These trees have responded as expected and have nearly fully occupied the growing space by closing in the canopy opened up by the crop tree release.

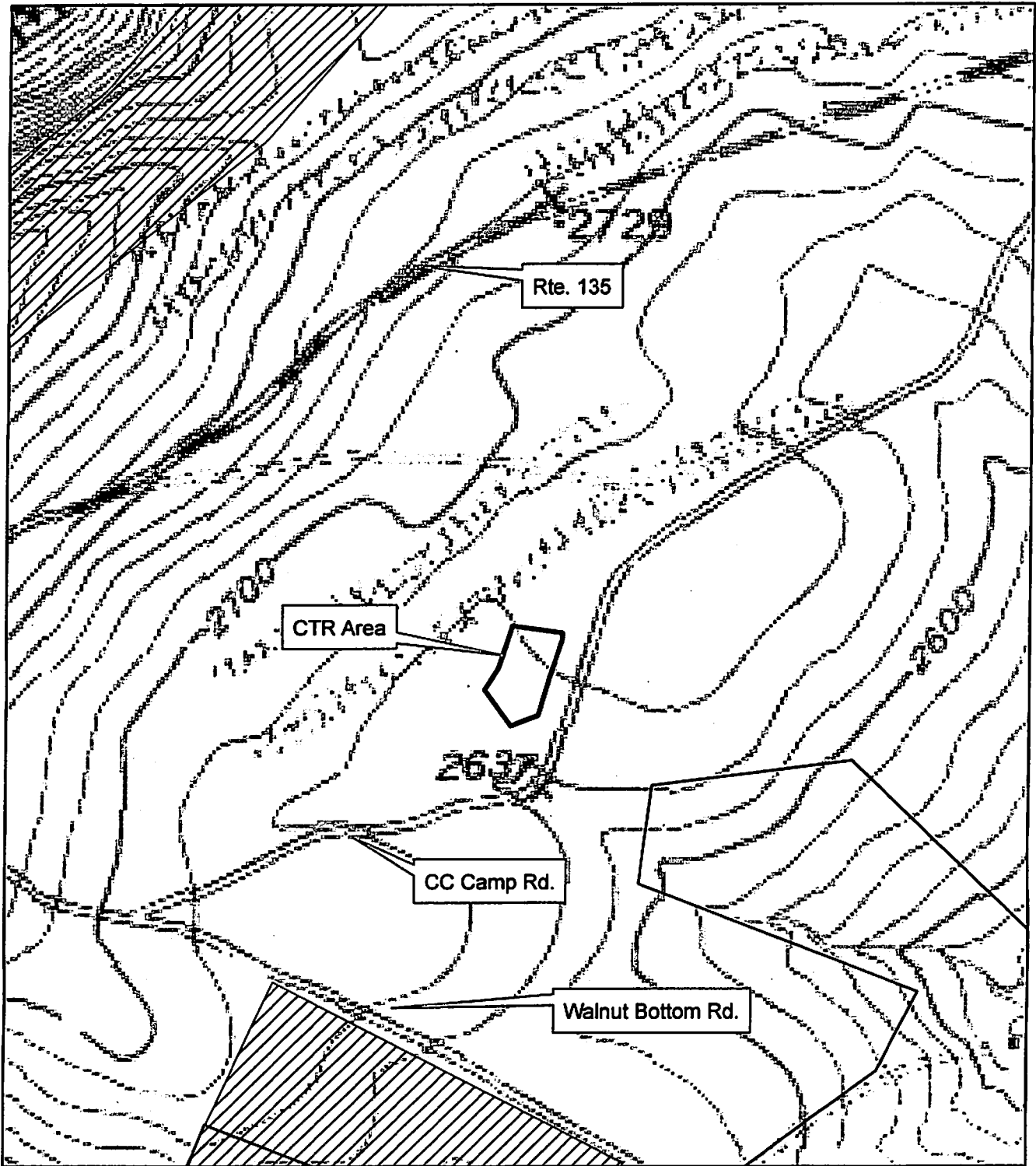
The site has a south-western aspect, drains toward an unnamed tributary of Folly Run and is within the Potomac River drainage system. . Underlying soils include 'Cookport and Ernest very stony silt loams'. The Cookport soils are moderately deep and moderately well drained to somewhat poorly drained. Equipment limits can be moderate due to seasonally perched water table. Degree of slope ranges from 0-5% throughout the site. The productivity of the site is good with site index of 60 for Red Oak.

Management and Silvicultural Recommendations

The proposed silvicultural treatment for this stand is to follow-up the initial 2004 CTR with a second release as the canopy has closed. During this operation, the initial 30 crop trees per acre will be released from crown competition on all sides. In selecting the potential crop trees, special emphasis will be given to the release of the few oaks and any other mast producers that are found in limited numbers throughout the stand. The majority of the crop trees selected were Black Cherry. The initial CTR was carried out as a non-commercial practice where the trees to cut in this operation were laid low on the forest floor and allowed to decay back into the soil. This second entry will have slightly larger trees removed, and with the planned TSI at the intersection of CCC Camp and Walnut Bottom Roads, this project may be included as a firewood sale as well.

This practice will hasten the development of the dominant trees in the stand, stimulating the growth, vigor and development of the crop trees, as well as those trees indirectly released on one or two sides.

Compartment 10 CCC-CTR (Revisit) FY-11



Compartment.....10
 Area.....2 Acres
 Species Mix.....Cherry/ Maple
 Size Class.....Poletimber

Legend

management zones

ZONE_TYPE

 SPECIAL

 WATER

Scale: 1" = 660'



Other work projects and activities:

Aside from the detailed cultural work planned for the state forests, the following is a partial list of projects that are often on-going from year to year and are an integral part of state forest operations.

***Interpretation and education.**

PGSF staff have regularly provided interpretive programs to school groups, scout groups, and visitors to the state forests and parks. Most recently, interpretive efforts have been focused on developing interpretive materials for the "Kindness Demonstration Area". Grant monies had been secured through the Appalachian Forest Heritage Program for the production of the interpretive signage and accompanying brochures, that are to be installed. Interpretive efforts will focus on the use and promotion of this educational area.

***General maintenance of roads and trails throughout the state forests.**

PGSF staff maintains 37mi. of improved road, 21 miles of unimproved road and 22 mi. of multi use trails. This work is ever ongoing. A lack of sufficient road maintenance equipment makes the upkeep of this road and trail system a considerable challenge. In order to attempt to meet this challenge, alternative funding sources are continuously sought to provide the necessary equipment and materials required for such maintenance and improvements. In 2009-2010, a National Recreational Trail Grant will allow for road and trail improvements to the Laurel Run multi-use trail system. This work will include grading, erosion control, ditch work and replacement of approx. several failing culverts thereby improving public access throughout the Potomac State Forest. A grant proposal has been submitted for improvements to the Piney Mt. ORV Trail to be carried out in 2010 pending receipt of the grant funding. Grants have been developed for work on both Maple Glade and Snaggy Mt. access trails, as seen within this AWP document.

***Boundary line maintenance.**

PGSF has 130 miles of boundary line, including interior lines, exterior lines, and road frontage. Boundary maintenance is critical to the management of all public lands. In order to keep up with this effort, PGSF maintains approximately 30 miles of line each year. In addition to routine marking/painting, considerable effort is spent on researching relocating or establishing missing and/or new line, as well as addressing boundary conflicts. As conflicts arise, every effort is made to resolve the issue

in a timely and professional manner. Often, this work leads to the need for a licensed surveyor and legal recourse in order to resolve the issue.

***Campsite maintenance, cleaning, and site evaluation**

PGSF offers year round, primitive camping in 5 separate areas of the State Forest; Lost Land Run Area, Laurel Run / Wallman Areas, Snaggy Mt. Area and Piney Mt. Area. Within each area is a 'group site', a rustic trail shelter and several primitive campsites offering a picnic table, lantern post/table and fire ring. Between 2003-2009 vault toilets were installed in each of the 5 areas to improve sanitary conditions for campers and forest visitors. Campsites and trail shelters are available on a first come first serve basis; a self registration kiosk is available at the entrance to each area.

***Maintenance and management of 3-D archery range**

PGSF offers the only 3-D Archery Range in the States Public Lands System. The facility is located behind the State Forest Headquarters. The range offers a 30 target course, with 4 separate skill levels at each target. The facility is open April 1st - Oct. 1st, dusk to dawn. The State Forest hosts a summer fun league, an annual tournament shoot, as well as a fall 'hunters special' shoot.

Development of Rifle Range per FY-09 AWP

With site approvals obtained internally, plans for a public rifle range to be located along the Snaggy Mt. Road continue to be pursued. Initial noise testing has been carried out with these results indicating that expected sound impacts to adjacent private properties will fall safely below acceptable levels. State forest manager will meet with range safety experts to discuss layout and design options with respect to both on and off site safety. With noise and safety impacts investigated, forest manger will meet with adjacent property owners to discuss project plans. Assuming all safety and noise issues can be addressed, a site design and plans will be developed, along with associated budget from which funding sources will be pursued.

Operational Management and Budget Summary

1. INTRODUCTION

This section of the plan is designed to cover the annual cost and revenues associated with the operational management of Potomac-Garrett State Forest (PGSF). It is the Department's intent that all revenues generated from PGSF will be used to pay for the management and operation of the Forest. The numbers expressed in this section are only estimates and averages of annual expenses and revenues. These numbers will fluctuate each year based on management prescriptions, economic conditions and public use of the forest.

The following information is a breakdown of Funding Sources and Operational costs associated with PGSF. These figures are only estimates that are based on projected revenues and operational expenses. Yearly changes in timber markets and weather conditions can severely affect revenues. Operational expenses will vary from year to year. The numbers below are based on the budget request submitted for FY-2010, as the FY-11 request has not been prepared at the time this document is being released for initial review.

2. PGSF FUNDING SOURCES: Estimated - \$569,347

- General Fund: \$269,234

State Forests in Maryland are funded from several sources. The first is the **General Fund**. This is money generated from taxes. It is used in state forests primarily to fund classified (permanent) employee salaries and benefits.

- Special Fund: \$231,113

The second source is the **Special Fund**. This is money generated from revenue. The state forests generate revenue through the collection of service fees, as well as the sale of timber and forest products as detailed within the annual work plan and deposited in the Department of Natural Resources Forest or Park Reserve Fund. These funds must be appropriated by the General Assembly through the annual budgeting process before being spent. It is used in state forests to fund operational costs. The state forest budget is prepared approximately one year before the beginning of the fiscal year in which it will be spent. The budget then goes through the legislative approval/review process along with all other state operating budgets. Once adopted, the budget goes into effect the first day of the fiscal year (July 1st). The Special Fund contribution of revenue generated by PGSF for FY-10 is expected to be \$114,524 of the \$231,113.

- ORV Fund: \$39,000

In addition, PGSF is included in the Maryland Forest Service's Off Road Vehicle (ORV) Budget. This separate budget is based on **revenue generated from ORV permit sales** statewide and is allocated back to the state forests through the budgeting process. ORV funds are a restricted special fund and can only be spent for ORV Trail related expenditures.

- Recreational Trail Grant: \$30,000

Another source of funding at PGSF is **Recreational Trail Grants**. These grants are competitive and are generally limited to \$30,000 per year per grant. The source of this funding is the Federal Department of Transportation administered through the Maryland Department of Transportation, State Highway Administration. These funds are designated reimbursable funds and are applied to various trail related projects as detailed in specific grant requests.

3. OPERATIONAL COST: Estimated Annual Expenses - \$569,347

Operational expenses are those costs paid directly out of the PGSF operational budget by the State Forest Manager and vary based on approval of operational budgets. The Forest Manager prepares a proposed operational budget for the forest based on instructions provided approximately one year in advance of the fiscal year. The FY-2010 budget proposal was prepared in July of 2009.

- Classified Salaries, Wages and Benefits: \$269,234

This cost is associated with General Funds which are state tax revenues provided annually. These funds are used to pay PGSF Maryland Classified Employee Salaries responsible for the management, operations and maintenance of the state forest.

- Contractual Staffing: \$94,090

This cost is associated with contractual personnel hired to assist the classified staff in conducting work outlined in the annual work plan, managing the daily activities on the forest, including boundary line work, maintenance of trails, forest roads, maintaining primitive campsites, a public shooting range, overlooks, wildlife habitat areas, and implementing all maintenance, recreational, silviculture, and ecosystem restoration projects.

- Land Management and Operation Cost: \$86,023

This includes expenses for office and field equipment, vehicles, gravel, signs, boundary paint, roadwork contracts and construction, trash removal from illegal dumping, boundary line work & surveying, tree planting, site preparation, control of invasive species, non-commercial thinning and other forest management practices. These costs vary greatly from year to year based on the activities identified in the Annual Work Plan.

- County Payments: \$51,000

These are revenue payments to local county governments which will vary every year. Payments are made on an annual basis to Garrett County based on 25% of the gross revenue generated from PGSF. These payments come out of revenue generated from timber sales and recreation. These payments are used to help the counties offset the loss in property tax revenues which are not paid on state owned lands.

- ORV Funds: \$39,000

ORV funds are a restricted special fund and can only be spent for ORV Trail related expenditures.

- Recreational Trail Grants: \$30,000

These funds are designated for trail improvements to Piney Mtn. trail.

4. SUMMARY

This is the general breakdown on Revenues and Operational Costs associated with the PGSF. As described, these figures will vary from year to year. A more detailed picture on revenues and operational cost will be reviewed quarterly as the actual picture develops within implementation of Annual Work Plan and as operating budgets are approved.