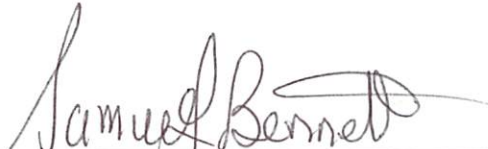
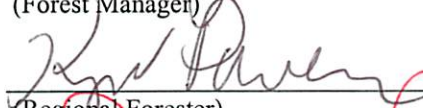


# POCOMOKE STATE FOREST

## ANNUAL WORK PLAN

FISCAL YEAR 2008

Prepared:	 _____ (Forest Manager)	<u>10-24-07</u> _____ Date
Reviewed:	 _____ (Regional Forester)	<u>10/14/07</u> _____ Date
Reviewed:	 _____ (Public Lands Policy & Planning)	<u>10/16/07</u> _____ Date
Approved:	 _____ (Environmental Specialist)	<u>10-23-07</u> _____ Date

POCOMOKE STATE FOREST  
PROPOSED ANNUAL PROGRAM OF WORK  
FISCAL YEAR 2008

Prepared by:  
Samuel J. Bennett, Forest Manager

## **INTRODUCTION**

Pocomoke State Forest (15,163) is located in Worcester County Maryland, generally between Snow Hill and Pocomoke City. The State Forest is noted for the native loblolly pine stands and cypress swamps that border the Pocomoke River.

The State Forest is managed for a variety of resources including recreation; water; wildlife; timber; and natural beauty. Of the forests 15,163 acres, 53% (7,997 acres) is reserved for multiple use management with an emphasis on forest management; 35% (5,286 acres) is for preservation and protection of special habitat, historical areas, research areas and threatened or endangered species; 12.0% (1,880 acres) for the protection of water quality.

There are several important features of this forest that affect the management of its nature resources:

- When the majority of the State Forest was required (1930s & 1940s) much of it was in a cutover condition and abandoned farmland.
- Soil associations are level or nearly level, well drained to poorly drained, and have subsoil dominantly of sandy clay loam or silty clay loam.
- More than 50% of the forest is dominated by loblolly pine. Loblolly pine is a very fast growing southern pine; therefore, it is fully mature at 50 – 60 years of age. It is well adapted to moist, sandy soils and will invade abandoned fields and cutover areas.
- As a southern pine, it is very susceptible to the southern pine bark beetle (especially once it reaches maturity.) This insect thrives in the warm climate of the Lower Eastern Shore. Cyclic infestations explode into full-scale epidemics every six to eight years. These (epidemics) have a significant effect on normal harvesting schedules.

Pocomoke State Forest will harvest 171.5 acres within seven different sales. The regeneration harvest method will be used on five sites totaling 114.5 acres. Two sites totaling 57.0 acres will be commercially thinned. Total volumes estimated from these sales include 1,700,000 board-feet of pine sawtimber and 825 cords of pine pulpwood.

## **STANDARD HARVEST REQUIREMENTS**

The following requirements are pertinent to all timber sales. In effect, these are “Best Management Practices” (BMP) and are accounted for when preparing the sale, supervising the logging operation, closing the sale or otherwise embodied within the contract itself. These requirements were applied to each sale area when the Interdisciplinary Team conducted on-site reviews.

- Continue to drain, regenerate and stabilize all haul roads, skid trails and landings where appropriate.

- Provide scenic “buffers” along main travel roads and trails as deemed appropriate.
- Provide sediment control buffers adjacent to streams and wetlands.
- Provide buffers adjacent to rare and endangered natural communities.
- Prohibit cutting within “buffers.”
- Provide timbered wildlife corridors between sale areas.
- Feature and retain pine within the sale areas.
- Retain wildlife trees (mast and den trees,) when available.

Pocomoke State Forest proposes the following activities to be implemented during fiscal year 2008:

1. Forest Improvements and Enhancements
  - A. Timber Sales
  - B. Reforestation
  - C. Salvage Removal
  - D. Pre-commercial Thinning
2. Construction / Maintenance Projects
  - A. Parking Lot / Gate Construction / Bulletin Board
  - B. Road & Trail
  - C. Nesting Boxes
  - D. Boundary Line
3. Other
  - A. Seed Orchard Assistance
  - B. Information & Education Programs
  - C. Research
  - D. Insect Monitoring / Survey
  - E. Reintroduction of the Northern Pine Snake

#### 1. Forest Improvements and Enhancement

##### A. Timber Sales

- 1) **Compartment #4 – Nazareth Church Tract – 19.5 Acres**  
 A regeneration harvest is proposed for this 19.5-acre pine / hardwood stand located in the General Management Zone of the Nazareth Church Tract. Access is off Old Furnace Road. No new roads will be established. No wetlands or streams have been identified in the sale area. Soils present include the very poorly drained Mullica and the moderately well drained Klej. Site index is 77. Average age of the stand is 75. Last 10-year radial growth is 0.5 inches. Current basal area is 85 for pine and 35 for

hardwoods. The stand will be allowed to seed in naturally and supplemented by hand planting if necessary. Dominant and co-dominant oaks within the stand will be retained.

- 2) **Compartment #5 – Nazareth Church Tract – 20.0 Acres**  
A regeneration harvest is proposed for this 20-acre pine stand located in the General Management Zone of the Nazareth Church Tract. Access will be off Old Furnace Road. No new roads will be established. No streams or wetlands have been identified in the sale area. Soils present include the moderately well drained Klej and the poorly to very poorly drained Askecksy, Berryland and Mullica. Average age of the stand is 76. Site index is 83. Last 10-year radial growth averages 0.5 inches. Current basal area is 86 for pine and 34 for hardwoods. The stand will be allowed to seed in naturally and supplemented by hand planting if necessary. Dominant and co-dominant oaks within the stand will be retained. The sale area is adjacent to the Furnace Road Power-line Special Management Zone. No equipment will be allowed in the right-of-way and extra care will be taken to prevent any slash from falling into the Special Management Zone.
- 3) **Compartment #10 – Nazareth Church Tract – 12.0 Acres**  
A regeneration harvest is proposed for this 12.0-acre pine/hardwood stand located in the Nazareth Church Tract. Approximately 7.5 acres is in the General Management Zone and 4.5 acres is in the Water Management Zone (Sub-Zone “C”). Access will be off Old Beech Road. No new roads will be established. No streams are present. Approximately 4.5 acres of the sale area is classified as Palustrine Forested Needle-Leaved Evergreen/Broad Leaved Deciduous Temporarily Flooded wetland. Soils present include the well drained Runclint and Rosedale and the very poorly drained Berryland. Average age of the stand is 76. Site index is 78. Last 10-year radial growth averages 0.5 inches. Current basal area is 70 for pine and 40 for hardwoods. The stand will be allowed to seed in naturally and supplemented by hand planting if necessary. Dominant and co-dominant oaks within the stand will be retained.
- 4) **Compartment #26 – Milburn Landing Tract – 31.0 Acres**  
A regeneration harvest is proposed for this 31-acre pine stand located in the General Management Zone of the Milburn Landing Tract. Access will be off Camp Road. No new roads will be established. No streams or wetlands have been identified in the sale area. Only soil present is the moderately well drained Mattapex. Average age of the stand is 56. Site index is 88. Last 10-year radial growth averages 0.9 inches. Current basal area is 93 for pine and 40 for hardwoods. The stand will be regenerated naturally and supplemented by hand planting if necessary. Dominant and co-dominant oaks within the stand will be retained.

- 5) **Compartment #34 – Tarr Tract – 32.0 Acre**  
A regeneration harvest is proposed for this 32-acre pine/hardwood stand located in the General Management Zone of the Tarr Tract. Access will be off Route 113. No new roads will be established. No streams or wetlands have been identified within the sale area. Soils present include the moderately well drained to excessively drained Klej, Runclint and Evesboro soils and the poorly to very poorly drained Hurlock and Mullica soils. Average age of the stand is 78. Site index is 82. Last 10-year radial growth averages 0.4 inches. Current basal area is 47 for pine and 43 for hardwoods. The stand will be regenerated naturally and supplemented by hand planting if necessary. Dominant and co-dominant oaks within the stand will be retained. The Tarr Tract Bike Trail is located along the southern and western boundaries of the sale.
  
- 6) **Compartment #22 – Dividing Creek Tract – 19.0 Acres**  
A commercial thinning is proposed for this 19.0-acre pine plantation located in the Dividing Creek Tract. Approximately 8.5 acres is in the General Management Zone and 10.5 acres is in the Water Management Zone (Sub-Zone “C”). The stand was harvested in 1979, site prepared in 1981 (drum chopped) and planted in 1982. Access will be off Flemming Mill Road. No new roads will be established. No streams are present. Approximately 2.0 acres is classified as Palustrine Forested Scrub Shrub Broad-Leaved Deciduous Seasonally Flooded (PSS1C) wetland and 8.5 acres is classified as Palustrine Forested Needle-Leaved Evergreen Temporarily Flooded wetland. The PSS1C wetland will be excluded from the sale area. Soils present include the well drained Woodstown sandy loam and Sassafras sandy loam, and the poorly drained Fallsington sandy loam. Basal area will be reduced to 70 sq. ft. per acre.
  
- 7) **Compartment # 37- Hudson Tract – 38.0 Acres**  
A commercial thinning is proposed for this 38-acre pine plantation located in the General Management Zone of the Hudson Tract. This thinning involves two stands. One stand (33.3 Ac.) was harvested in 1979, site prepared (drum chopped) in 1979, and planted in 1980. Residual hardwoods were also frilled and poisoned in 1980. The other stand (4.7 Ac.) was harvested in 1981, site prepared (drum chopped) in 1982 and planted in 1983. Access will be of Route 113. No new roads will be established. No streams or wetlands have been identified in the sale area. Basal area will be reduced to 70 sq. ft. per acre.

## 2. Reforestation

This work will involve planting recently cutover areas with loblolly pine seedlings. Planting will be done on a 10' X 10' spacing. Natural regeneration will also be favored. In addition to pine, other plants and grasses will be allowed to regenerate the sites. Regeneration surveys will be performed to determine stocking levels prior to planting.

### 3. Salvage Cutting

In the event of trees being killed or damaged by various injurious agents (insects, fire, weather related damage, etc.) an emergency salvage timber sale procedure will be performed to utilize the injured trees while minimizing the loss. The severity of the cutting depends upon the proportion of the stands occupied by the damage trees. While carrying out the process of timber evaluation, the DNR interdisciplinary team and the Pocomoke State Forest Advisory committee will be notified of the event and given two weeks to review and comment on the sale. Upon completion of the timber evaluation and review of comments, the timber sale will be advertised, mailed to prospective bidders, and submitted for pre-approval if no adverse effects are acknowledged.

### 4. Pre-commercial Thinning – Hudson Tract - Compartment #37

A pre-commercial thinning is proposed for this 20.5 acre pine stand located in the General Management Zone of the Hudson Tract. The stand was harvested in 1997 and regenerated naturally. Thinning the stand at this time will reduce the stocking to an acceptable level, improve the growth rate of the remaining trees and shorten the time interval to the first commercial thinning. Hard mast producing trees will be retained for wildlife and species diversity. This project will be contracted out and residual trees will be left on a 10'X10' spacing.

## 2. Maintenance / Construction Projects

### A. Parking Lots / Gates / Bulletin Boards

This work will involve maintenance of existing lots, gates and bulletin boards.

### B. Road & Trail Maintenance

General road maintenance and improvement work is proposed for roads throughout the Forest. This will involve mowing, grading, filling holes, cleaning culverts, and removal of sapling and pole size trees. Herbicides may also be utilized to control invasive plants and improve road access.

General trail maintenance work is proposed for the Pusey Branch Hiking Trail, Milburn Landing Hiking Trail, Tarr Tract Bike Trail and Chandler Tract Off Road Vehicle Trail.

### C. Nesting Box Maintenance

Artificial nesting boxes (wood duck, bluebird, and osprey) will be checked for needed repairs and if necessary, removed or replaced.

### D. Boundary Line Maintenance

Boundary lines are maintained on a 6-8 year cycle. This involves removal of brush and small trees, and marking boundary lines with yellow paint.

## 3. Other

### A. Seed Orchard Assistance

The Tree Improvement Program will be provided assistance with management and maintenance of four seed orchards.

**B. Information and Education Programs**

Forest personnel will provide and assist with local and regional tours, and environmental programs such as nature hikes, arbor day, earth day, canoe trips, etc.

**C. Research**

The Forest will continue to provide areas for research. Current and past projects include seed source study, reptile and amphibian abundance and distribution, gypsy moth impacts in mixed pine / hardwood stands, songbird population and breeding success in loblolly pine ecosystems, sediment and nutrient deposition in forested floodplain's, hydric soils and associated vegetation, summer roost selection of forest bats, survey of land snails and slugs, lichen survey, old growth inventory, beetle collection and survey, investigation of the northern pine snake and other faunal communities within sand ridge complexes, collection and study of ticks, genetic study of yellow – throated Warblers, and the effects of temporal and spatial factors on population structure.

**D. Insect Monitoring**

Forest personnel will make routine ground and aerial surveys to observe the presence of damaging insects throughout the Forest. Once an outbreak area is observed, it will be assigned a control priority and the Maryland Department of Agriculture (MDA) would be advised.

**E. Reintroduction of the Northern Pine Snake**

The DNR- Wildlife & Heritage Service will be conducting an experimental reintroduction of the northern pine snake at two sites located on the Nazareth Church Tract. See attached for description of project.



**Title:** An experimental reintroduction of the northern pine snake (*Pituophis m. melanoleucus*) to the Eastern Shore of Maryland.

**Statement of Needs:** The northern pine snake (*Pituophis m. melanoleucus*) is a species of Greatest Conservation Need in Maryland (G4 SH). It is a large (48 - 66 in.) stout-bodied non-venomous snake. It inhabits flat sandy pine-barrens and sand ridges, usually in or near pinewoods. There are six historical records for this snake in Maryland (Fig. 1) and three for Delaware (Grogan and Heckscher 2001). Five of the Maryland records are from the Eastern Shore; four of these are from Worcester County. Various earlier authors (Kelly et al. 1936, McCauley 1945, Wright and Wright 1957) considered it a species whose range included the Delmarva Peninsula. Most of the pine snake records for Maryland and Delaware are from inland dunes or sand ridges, typically composed of Parsonsburg sands (Denny and Owens 1979). No new pine snake records have been reported for Maryland since 1972 (Grogan 1973). Pine snakes are uncommon throughout their highly disjunct geographic range (Fig. 2), which includes the mid-Atlantic and southeastern U.S. to the Mississippi River. They were a candidate species (C2) for federal listing by the Fish and Wildlife Service up until discontinuation of the C2 designation in 1996 (Jordan 1998).

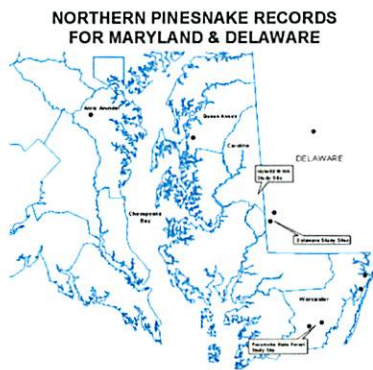


Figure 1

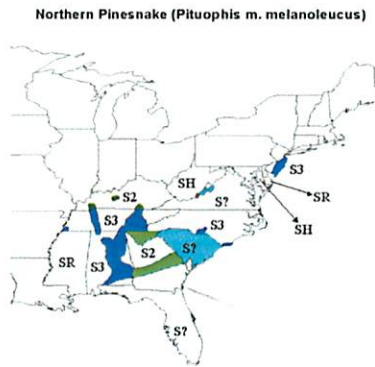


Figure 2

It is highly likely that in the recent historical past, the northern pine snake inhabited suitable habitat all along the mid-Atlantic coastal plain from southern New Jersey to southeastern North Carolina (Stull 1940). This species probably persisted in small, isolated colonies wherever its preferred pine/mixed hardwood forests and suitable soil types were present (i. e., the James River basin, VA; Carroll 1950) until the late 1800's when these forest types began to be heavily exploited for lumber and turpentine. This practice continued unabated until the early-mid 20th Century until much of the original pine forests were replaced with Loblolly pine plantations in a pulpwood rotation of every 20-25 years. Such intensive deforestation with resulting removal and burning of stumps and scraping and plowing of the remaining surface soils have also been the major cause of decline in the black pine snake (*P. m. lodingi*) in most of southern Mississippi (Duran 1998), and the Louisiana pine snake (*P. ruthveni*) in Louisiana and eastern Texas (Reichling 1995). On Delmarva, the northern pine snake probably suffered a similar fate as the timber rattlesnake (*Crotalus horridus*), which also survived here at least until the 1920's in riverine swamps (Brown 1987, W. H. Martin pers. commun., Mitchell 1994, White and White 2002).

In recent years, a number of efforts have been conducted to determine if pine snakes are still extant on the Delmarva Peninsula. In 2003, pine snake expert Robert Zappalorti of Herpetological Associates, Inc. was contracted by Maryland DNR and Delaware NREC to conduct habitat evaluations and ranking of 6 sand ridge sites in Maryland (Worcester, Wicomico and Caroline Cos.) and 5 sites in Delaware (Sussex Co.). He concluded that the forest types, elevation, soils and habitat structure at all sites were suitable to support a population of pine snakes (Zappalorti unpubl. report); however 2 sites in each state were ranked highest. He recommended intensive presence/absence surveys be conducted at the highest ranked sites using visual observation surveys, shelter board placement, and drift fences with traps. Visual observation surveys were conducted in 2003 (Grogan unpubl. data), 2004, and 2005 (Smith unpubl. data) at these and other potential sites in both states. No pine snakes were found. In 2004 and 2005, an intensive drift fence trapping effort was conducted at 5 sites in Maryland (2 at Idylwild Wildlife Management Area and 3 at Pocomoke State

Forest; both sites rated highest by Zappalorti) and 3 sites in Delaware (2 at Nanticoke State Wildlife Area, 1 on nearby private land; Zappalorti's highest rated sites). A total of 3886 individual reptiles and amphibians of 39 species were captured in the Maryland study sites during this effort, as well as 11 species of small mammal. No pine snakes were observed or captured in either state (Smith, unpubl. data; Kalasz and Grogan, unpubl. data). In 2005, shelter boards were also placed in a number of areas within the Maryland and Delaware study areas and checked with regularity. No pine snakes were discovered.

These results are further supported by no pine snake captures during intensive drift fence trapping and time-constrained surveys conducted at 8 sites within Pocomoke State Forest in 1995 and 1996 (Foley and Smith 1999). Also, various other Delmarva herpetofaunal studies over the past 15 years have failed to capture pine snakes while using similar techniques that should have recorded them, if present (Mitchell et al. 1993, Link 1997, Orr 1997, Toadvine 2000, Lee 2005, D. Brotherton, unpubl. data). Finally, no road-killed pine snakes have been reported. Most of our Maryland records for some other rare snakes are from road kills (e.g., scarletsnake, *Cemophora coccinea copei*; red-bellied watersnake, *Nerodia e. erythrogaster*; rainbow snake, *Farancia e. erytrogramma*) (Heritage biological conservation database).

Dodd and Siegel (1991) identified 3 criteria to be met before reintroductions or repatriations should be attempted: 1) reintroduction sites should not have extant populations of the species; 2) sites should have harbored the species in the past, which demonstrates site suitability; and 3) the cause of extirpation must have been reversed prior to reintroduction.

Based on our study results, and inferred from other Delmarva studies, it seems that the first criterion has been met. Pine snakes appear to be extirpated from Maryland.

The second criterion has been met for Pocomoke State Forest. Two historical records exist for this general area (Grogan and Heckscher 2001). While we have no records of Idylwild WMA ever supporting pine snakes, the habitat there most closely resembles occupied pine snake habitat observed at The Nature Conservancy's 3500-acre Manumuskin River Preserve, in Cumberland County, New Jersey visited by the author in July 2004. It is likely that pine snakes historically were found on the coastal plain wherever Parsonsburg sands and suitable forest cover existed. Also, 2 of 3 Delaware records are relatively close to Idylwild WMA (~15 km).

The third criterion, cause of extirpation, can only be hypothesized. Extensive clear cutting of most of the Eastern Shore's forests and conversion to agriculture or loblolly pine plantation by the early 1900's had reduced and fragmented available pine snake habitat, such that small, isolated populations only remained. These in turn succumbed due to island biogeography dynamics (MacArthur and Wilson 1967) and pervasive persecution by humans. Today, much of the lower Eastern Shore is once again forested; pulpwood rotations of loblolly pine plantations are being replaced by longer saw timber rotations on most commercial forestry lands; a significant proportion of these latter forests are being restored to their former diverse species compositions; and more forested acreage is conserved by public lands, conservation easements, and private conservation organizations that at any time in the state's history (~10-15% of the lower Eastern Shore). The time is right to be proactive and restore a former member of our native biota, before it becomes another federally-listed endangered species.

#### **Objectives:**

- 1) Reestablish viable populations of northern pine snakes at Pocomoke SF using an experimental reintroduction technique employed successfully in New Jersey for 20 years (R. Zappalorti pers. commun.).
- 2) Test this experimental reintroduction method. If successful this protocol could be used for other species.
- 3) Educate the public, both local and regional, about the ecological role of pine snakes, the reintroduction effort, and the importance of restoring native biodiversity.

Permission and permits will be obtained from New Jersey Division of Fish and Wildlife (NJ DFW) to collect entire clutches of eggs from pine snake nests in New Jersey during 2007 and 2008. It should be



noted that predators destroy many clutches of pine snake eggs each year. Coyote, red fox, gray fox, skunk, raccoon, king snakes, and scarlet snakes have all been documented to dig up and eat pine snake eggs and hatchlings (Burger et al. 1992). Additionally, illegal collectors often remove pine snake eggs from nesting sites and sell hatchlings on the black market (R. Zappalorti pers. commun.). Incubating pine snake eggs in the laboratory will protect them from predators and collectors. Dozens of hatchlings that would otherwise have been predated or collected illegally will be available for translocation to Maryland.

Eggs will be incubated and hatched in captivity in New Jersey (by R. Zappalorti) and neonates will be held until first shedding (Aug./Sept.). Half of the neonates will be returned to donor New Jersey populations. Removing only half the clutch will not have an adverse impact on New Jersey pine snake populations, because many of these eggs would not hatch in the wild due to predation. Mean clutch size for New Jersey pine snakes is 9.5 +/- 2.0 eggs (Burger and Zappalorti 1986, 1991; Zappalorti et al. 1983). Each brood will be held separately to enable later mixing of genetic material upon release.

Two of three potential reintroduction sites will be used for the reintroduction. These sites correspond to the three study areas in Pocomoke SF (Fig. 3). At the two sites selected, a 100 X 300 foot area will be cleared of vegetation during summer 2006. Two artificial hibernacula (Frier and Zappalorti 1983; Zappalorti and Reinert 1994) will be constructed within 6 foot deep pits excavated at the center of the cleared area (Fig. 4). Pits will be filled with logs, stumps, other woody debris and sand after hibernacula construction. Snake-proof fences will be installed in spring 2007 to encircle entire artificial hibernacula and some of the surrounding forested habitat at a distance of 500 feet from the hibernacula or about 1/4 to 1/3 acre around the den. This much space around the dens is desirable to prevent crowding, reduce competition for prey, and allow the snakes to use as much habitat as possible during the crucial imprinting period.

Potential Pinesnake Reintroduction Sites

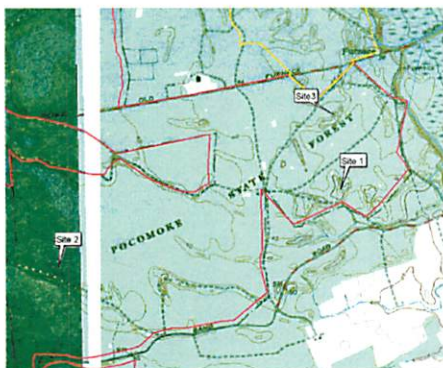


Figure 3

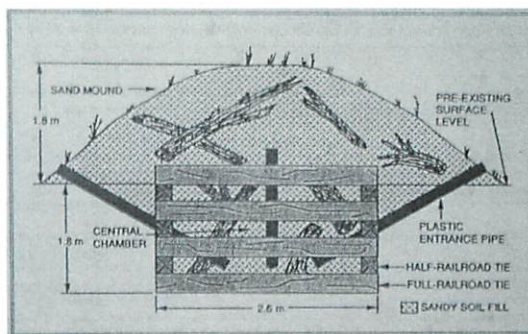


Figure 4

All neonates will be PIT tagged, weighed and measured prior to release. Approximately 30 snakes from about 6 different broods will be released at each artificial hibernaculum in 2007 and 2008. Pine snake eggshells and shed skins will be placed in and around the artificial hibernacula to help establish site fidelity. Neonates will be released in September and visually monitored until they hibernate. Supplemental feeding within the fenced enclosure may be required prior to hibernation, which could include wild-caught small mammals and lizards. Snakes emerging from hibernation will be trapped at the fence, weighed and measured. A sub-sample of snakes will be captured and implanted with transmitters at each release site. Snakes will be tracked over the year. Fences will be removed after all snakes have emerged or determined to have died. Fences will be reinstalled prior to the 2008 release. Snakes from this second cohort will be handled similarly to the 2007 cohort. The population will be monitored in subsequent years to determine survival and evidence of reproduction.

Concurrent with these activities, DNR and the Salisbury Zoo will develop a public outreach strategy for the local area and region, about the ecological role of pine snakes, the reintroduction effort, and the importance

of restoring native biodiversity. The Salisbury Zoo is applying for an American Zoo and Aquarium Association (AZA) grant to fund this and other aspects of the reintroduction project.

**Expected Results & Benefits:** This project will result in reestablishment of an extirpated snake species in Maryland; something only attempted twice before in North America (Irwin et al. 2003, King et al. 2004). If successful, this effort can be expanded to other areas of appropriate habitat until northern pine snakes once again become an integral component of the ecology of lower Delmarva sand ridge communities. Ultimate success will be measured by observed recruitment into the breeding population by the progeny of reintroduced animals. Thus, it will likely require a decade or more to determine ultimate success. This project will also highlight the enormous success public and private partners have had in securing and restoring viable ecosystems on the lower Eastern Shore of Maryland, and the importance of conserving native biodiversity. Finally, the experimental techniques used successfully here could be applied to other species recovery efforts.

**Approach:** This project will require three field seasons to complete the reintroduction, and annual monitoring for at least 10 years. This proposal covers funding for fiscal year 2007 (July 1, 2006 to June 30, 2007), however the timeline below encompasses the entire study period. Parentheses denote responsible partner(s) for completing an item.

#### **July – December 2006**

- 1) Submit project proposal to MD DNR for internal environmental review to gain permission to conduct reintroduction on state lands. (DNR)
- 2) Partner with Salisbury Zoo to develop and implement public outreach strategy (they are submitting an AZA grant proposal for this). (Salisbury Zoo and DNR)
- 3) Contract with Herpetological Associates, Inc. as technical advisors on reintroduction and to assist or lead various phases of the project. (DNR)
- 4) Purchase materials for constructing two artificial hibernacula and snake-proof fencing to encircle release area and hibernacula. (DNR)
- 5) Scout New Jersey pine snake nesting areas to develop list of potential sites to collect eggs and gravid females in 2007. (NJ DFW and/or Herpetological Associates)
- 6) Select sites for reintroduction. (DNR and Herpetological Associates)
- 7) Clear 100 X 300 foot areas at 2 sites in Pocomoke SF (DNR)
- 8) Construct 2 artificial hibernacula. (Herpetological Associates, DNR, Salisbury Zoo, NC State)
- 9) Submit requests to NJ DFW for scientific collecting permits to collect/transport eggs (DNR)
- 10) North Carolina State graduate student develops MS research project

#### **January – June 2007**

- 1) Install snake-proof fencing 500 feet from both artificial hibernacula, encircling them. (Herpetological Associates, DNR, Salisbury Zoo, NC State)
- 2) Search for nests and collect gravid females and eggs in NJ. Need ~120 eggs/neonates – 60 for release in MD, 60 for NJ (Herpetological Associates, NJ DFW, NC State, DNR)
- 3) Set-up gravid females in cages, eggs in incubation chambers in NJ, and monitor progress. (Herpetological Associates, NC State)
- 4) Continue public outreach efforts (Salisbury Zoo and DNR)

#### **July-December 2007**

- 1) Continue to collect eggs and gravid females in NJ until ~120 eggs collected. (Herpetological Associates, NJ DFW, DNR, NC State)
- 2) Continue to set-up gravid females in cages, eggs in incubation chambers in NJ, and monitor progress. (Herpetological Associates, NC State)
- 3) Sex, measure, weigh and PIT Tag hatchlings (Herpetological Associates, NC State)
- 4) Keep neonates in NJ until 1<sup>st</sup> shed, then transport half (60) to Maryland (Herpetological Associates)

- 5) Release half (60) of young at NJ collection sites (Herpetological Associates and NJ DFW)
- 6) Place pine snake egg shells and shed skins in and around hibernacula at both MD release sites (Herpetological Associates and DNR)
- 7) Release half (60) of young at MD release sites: 30 per site. (Herpetological Associates, DNR, Salisbury Zoo, NC State)
- 8) Monitor neonates daily until hibernation, including trapping small mammals and lizards to augment diet (NC State)
- 9) Monitor neonates daily until hibernation, including trapping small mammals and lizards to augment diet (NC State)
- 10) Prepare preliminary progress report (Herpetological Associates, NC State)

#### **January 2008-June 2008**

- 1) Capture neonates upon spring emergence in MD. Weigh, assess health (NC State)
- 2) If large enough, surgically implant radio-transmitters in 10 snakes per site. (NC State, Herpetological Associates)
- 3) Remove snake-proof fencing (DNR, NC State, Herpetological Associates, Salisbury Zoo)
- 4) Monitor all pine snakes in MD through radio tracking and trapping (NC State)
- 5) Search for nests and collect gravid females and eggs in NJ for 2008 release. (Herpetological Associates, NJ DFW, NC State, DNR)
- 6) Set-up gravid females in cages, eggs in incubation chambers in NJ, and monitor progress. (Herpetological Associates, NC State)
- 7) Continue public outreach efforts (Salisbury Zoo and DNR)

#### **July 2008-December 2008**

- 1) Continue to collect eggs and gravid females in NJ until ~120 eggs collected. (Herpetological Associates, NJ DFW, DNR, NC State)
- 2) Continue to set-up gravid females in cages, eggs in incubation chambers in NJ, and monitor progress. (Herpetological Associates, NC State)
- 3) Re-install snake-proof fencing at 2 MD release sites. (Herpetological Associates, DNR, Salisbury Zoo, NC State)
- 4) Set up traps to recapture returning 2007 cohort to place within snake-proof enclosure around hibernacula. (NC State)
- 5) Sex, measure, weigh and PIT Tag hatchlings (Herpetological Associates, NC State)
- 6) Keep neonates in NJ until 1<sup>st</sup> shed, then transport half (60) to Maryland (Herpetological Associates)
- 7) Release half (60) of young at NJ collection sites (Herpetological Associates and NJ DFW)
- 8) Place pine snake egg shells and shed skins in and around hibernacula at both MD release sites (Herpetological Associates and DNR)
- 9) Release half (60) of young at MD release sites: 30 per site. (Herpetological Associates, DNR, Salisbury Zoo, NC State)
- 10) Monitor 2008 neonates daily until hibernation, including trapping small mammals and lizards to augment diet (NC State)
- 11) Continue to monitor 2007 cohort and radioed animals.
- 12) Continue public outreach efforts (Salisbury Zoo and DNR)
- 13) Prepare annual progress report (Herpetological Associates, NC State)

#### **January 2009-June 2009**

- 1) Capture neonates upon spring emergence in MD. Weigh, assess health (NC State)
- 2) If large enough, surgically implant radio-transmitters in 10 snakes per site. (NC State, Herpetological Associates)
- 3) Remove snake-proof fencing (DNR, NC State, Herpetological Associates, Salisbury Zoo)
- 4) Monitor all pine snakes in MD through radio tracking and trapping (NC State)
- 5) Continue public outreach efforts (Salisbury Zoo and DNR)

## July 2009 and beyond

- 1) Complete radio-tracking of 2007 and 2008 cohorts (NC State)
- 2) Prepare final project report (Herpetological Associates, NC State)
- 3) Annual monitoring of pine snakes in MD. May include trapping. Search for nests in year 5 of 2007 cohort (e.g., in 2012), when females will first become sexually mature. (DNR)

Submitted by: Scott A. Smith, Maryland DNR-Natural Heritage Program

## Literature Cited:

- Brown, W. S. 1987. Hidden life of the timber rattlesnake. *National Geographic* July: 128-138.
- Burger, J., and R. T. Zappalorti. 1986. Nest site selection by pine snakes, *Pituophis melanoleucus*, in the New Jersey pine barrens. *Copeia* 1986:116-121.
- Burger, J., and R. T. Zappalorti. 1991. Nesting behavior of pine snakes (*Pituophis m. melanoleucus*) in the New Jersey Pine Barrens. *J. Herpetol.* 25:152-160.
- Burger, J., R. T. Zappalorti, J. Dowdell, J. Hill, T. Georgiadis, and M. Gochfeld. 1992. Subterranean predation on pine snakes (*Pituophis melanoleucus*). *J. Herpetol.* 26:259-263.
- Carroll, R. P. 1950. Amphibians and Reptiles. Pages 195-211 in James River Project Committee (eds.), *The James River basin: past, present and future*. VA Academy of Science, Richmond, 843 pp.
- Denny, C. S., and J. P. Owens. 1979. Sand dunes on the central Delmarva Peninsula, Maryland and Delaware. *Geo. Surv. Prof. Paper 1067-C*, US Printing Office, Wash., D.C. 15 pp.
- Dodd, C. K. and R. A. Siegel. 1991. Relocation, repatriation, and translocation of amphibians and reptiles: are they conservation strategies that work? *Herpetologica* 47:336-350.
- Duran, C. M. 1998. Status of the black pine snake (*Pituophis melanoleucus lodingi*). Final report of the U. S. Fish and Wildlife Service. 32 pp.
- Foley, D. H., III and S. A. Smith. 1999. Comparison of two herpetofaunal inventory methods and an evaluation of their use in a volunteer-based statewide reptile and amphibian atlas project. Final Proj. Rep., BRD Coop. Agreement #1445-CA-09-95-0029, Maryland Department of Natural Resources, Wye Mills, MD. 68 pp.
- Frier, J. A. and R. T. Zappalorti. 1983. Reptile and amphibian management techniques. *Trans. N. Am. Wildl. Soc.* 40:142-148.
- Grogan, W. L., Jr. 1973. A northern pine snake, *Pituophis m. melanoleucus*, from Maryland. *Bull. Md. Herp. Soc.* 9:27-30.
- Grogan, W. L., Jr., and C. M. Heckscher. 2001. Are northern pine snakes, *Pituophis m. melanoleucus*, indigenous to Delaware? *Md. Naturalist* 44:20-36.
- Jordan, R. A. 1998. Species profile: pine snake (*Pituophis melanoleucus* spp.) on military installations in the southeastern United States. Tech. Rep. SERDP-98-5, U.S. Army Corp of Engineers, Washington, DC. 24 pp.
- Kelly, H. A., A. W. Davis, and H. C. Robertson. 1936. *Snakes of Maryland*. Md. Nat. Hist. Soc., Baltimore. 103 pp.
- King, R., C. Berg, and B. Hay. 2004. A repatriation study of the eastern massasauga (*Sistrurus catenatus catenus*) in Wisconsin. *Herpetologica* 60: 429-437.
- Irwin, K. J., T. E. Lewis, J. D. Kirk, S. L. Collins, and J. T. Collins. 2003. Status of the eastern indigo snake (*Drymarchon couperi*) on St. Vincent National Wildlife Refuge, Franklin County, Florida. *J. Kansas Herpetol.* 7:13-20.
- Lee, C. J. 2005. Home range and habitat use of conservation buffer strips by black rat snakes (*Elaphe obsoleta obsoleta*) and northern black racers (*Coluber constrictor constrictor*) on Tudor Farms in Dorchester County, Maryland. M. S. Thesis, University of Maryland-Eastern Shore, Princess Anne, Md.
- Link, C. E. 1997. Amphibian colonization and use of constructed ponds on Maryland's Eastern Shore. M. S. Thesis, Frostburg State University, Frostburg, Md.
- MacArthur, R. H. and E. O. Wilson. 1967. *The theory of island biogeography*. Princeton Univ. Press, Princeton, NJ.

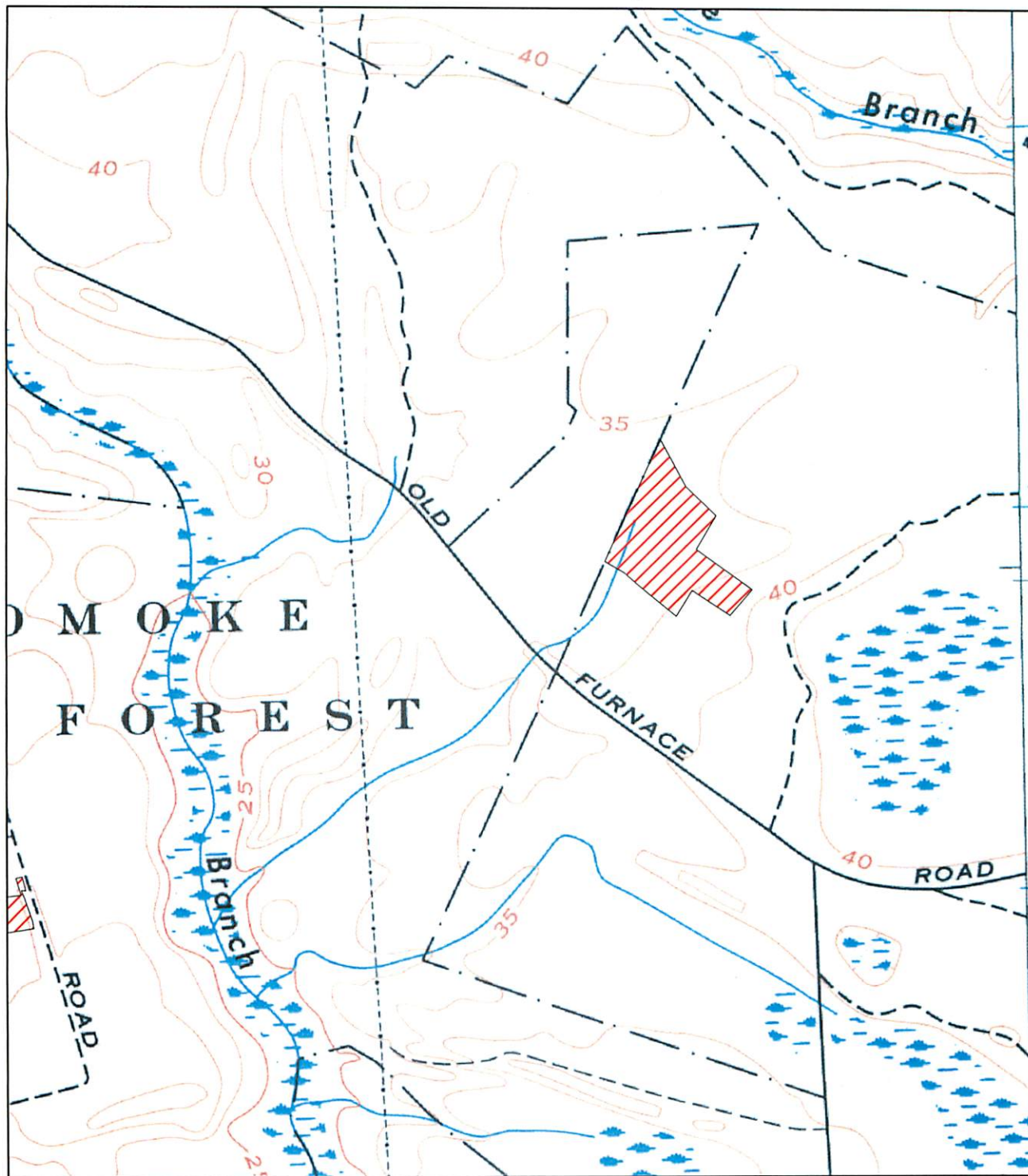


- McCauley, R. H., Jr. 1945. The Reptiles of Maryland and the District of Columbia. Publ. by author, Hagerstown, Md. 194 pp.
- Mitchell, J. C. 1994. The Reptiles of Virginia. Smithsonian Institution Press, Washington, D. C. 352 pp.
- Mitchell, J. C., J. M. Anderson, and T. D. Schwaner. 1993. The amphibians and reptiles of Assateague Island National Seashore. Final Report, VA Mus. Nat. Hist., Martinsville, VA.
- Orr, D. K. 1997. Diversity of herpetofauna among three forest communities in Dorchester County, Maryland. M.S. Thesis, Frostburg State University, Frostburg, Md.
- Reichling, S. B. 1995. The taxonomic status of the Louisiana pine snake (*Pituophis melanoleucus ruthveni*) and its relevance to the evolutionary species concept. *J. Herpetol.* 29: 186-198.
- Stull, O. G. 1940. Variations and relationships in the snakes of the genus *Pituophis*. *Bull. U. S. Nat. Museum* 175: 1-225.
- Toadvine, H. A. 2000. Comparison of six monitoring techniques for the reptiles and amphibians at Chincoteague National Wildlife Refuge, M. S. Thesis, Univ. Md. Eastern Shore, Princess Anne, Md.
- White, J. F., Jr., and A. W. White. 2002. Amphibians and reptiles of Delmarva. Tidewater Publishers, Centerville, Md.
- Wright, A. H., and A. A. Wright. 1957. Handbook of Snakes. Vol. II. Comstock Publ., Ithaca, NY. Pp. 565-1105.
- Zappalorti, R. T., E. W. Johnson, and Z. Leszcynski. 1983. The ecology of the northern pine snake, *Pituophis melanoleucus melanoleucus*, in southern New Jersey, with special notes on habitat and nesting behavior. *Chicago Herpetol. Soc.* 18:57-72.
- Zappalorti, R. T. and H. K. Reinert. 1994. Artificial refugia as a habitat improvement strategy for snake conservation. Pages 369-375 in Murphy, J. B., K. Adler, and J. T. Collins (eds.), Captive management and conservation of amphibians and reptiles. SSAR Contrib. Herpet. Vol. II, Ithaca, NY.



Photos by John White

Pocomoke State Forest  
Nazareth Church Tract  
Compartment # 4  
Dividing Creek Quadrangle

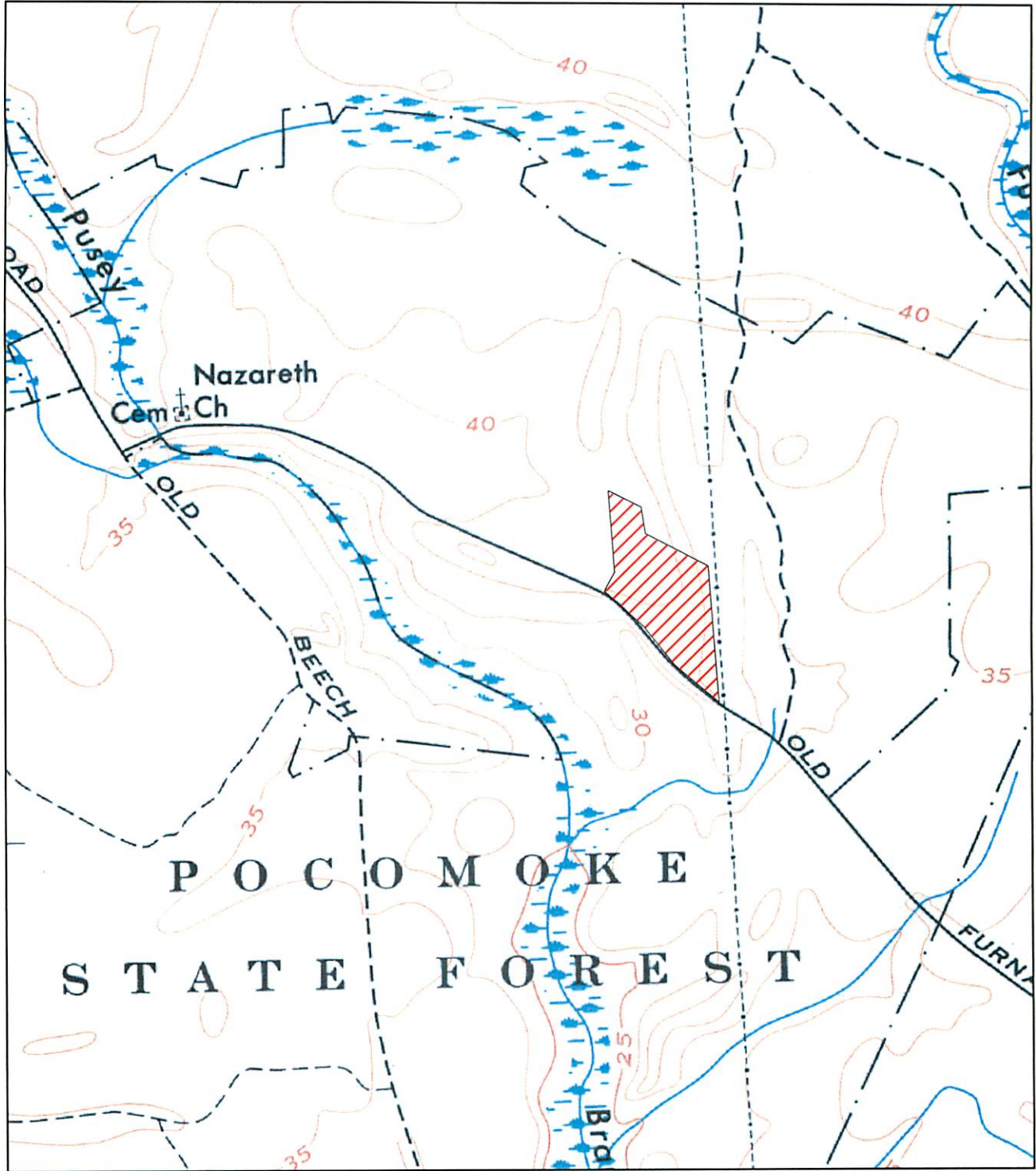


Area - 19.5 acres  
Forest Type - Pine/Hardwood  
Harvest Method - Regeneration  
Age - 75  
Site Index - 77  
Pine Basal Area - 85  
Hardwood Basal Area - 35  
Growth Rate - .5" last ten years  
Soil Type - Mullica and Klej

1 inch equals 1,320 feet



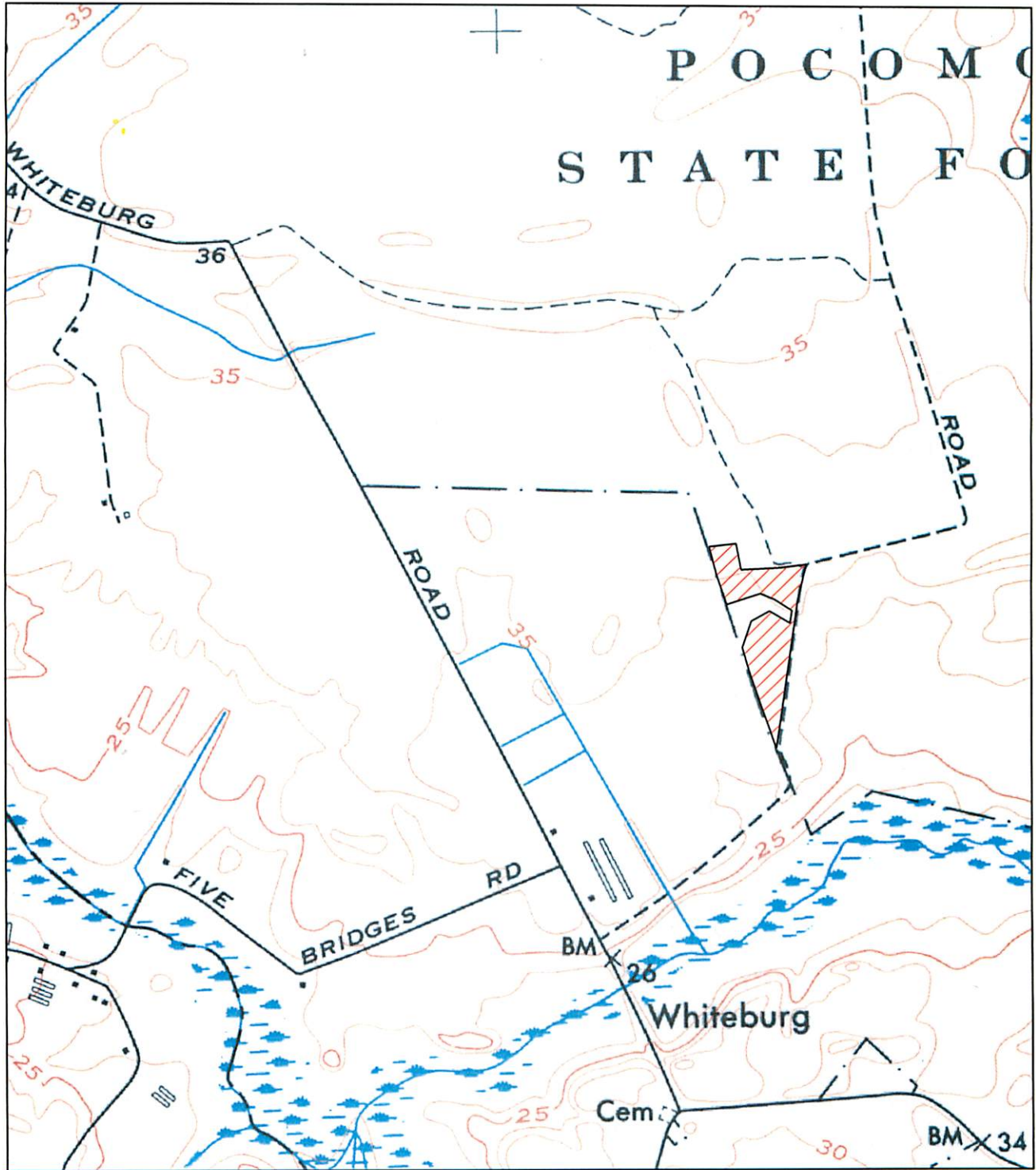
Pocomoke State Forest  
Nazareth Church Tract  
Compartment # 5  
Dividing Creek Quadrangle



Area - 20.0 acres  
Forest Type - Pine  
Harvest Method - Regeneration  
Age - 76  
Site Index - 83  
Pine Basal Area - 86  
Hardwood Basal Area - 34  
Growht Rate - .5" last ten years  
Soil Type - Berryland, Mullica, Klej  
and Askecksy

1 inch equals 1,320 feet

Pocomoke State Forest  
Nazareth Church Tract  
Compartment # 10  
Dividing Creek Quadrangle

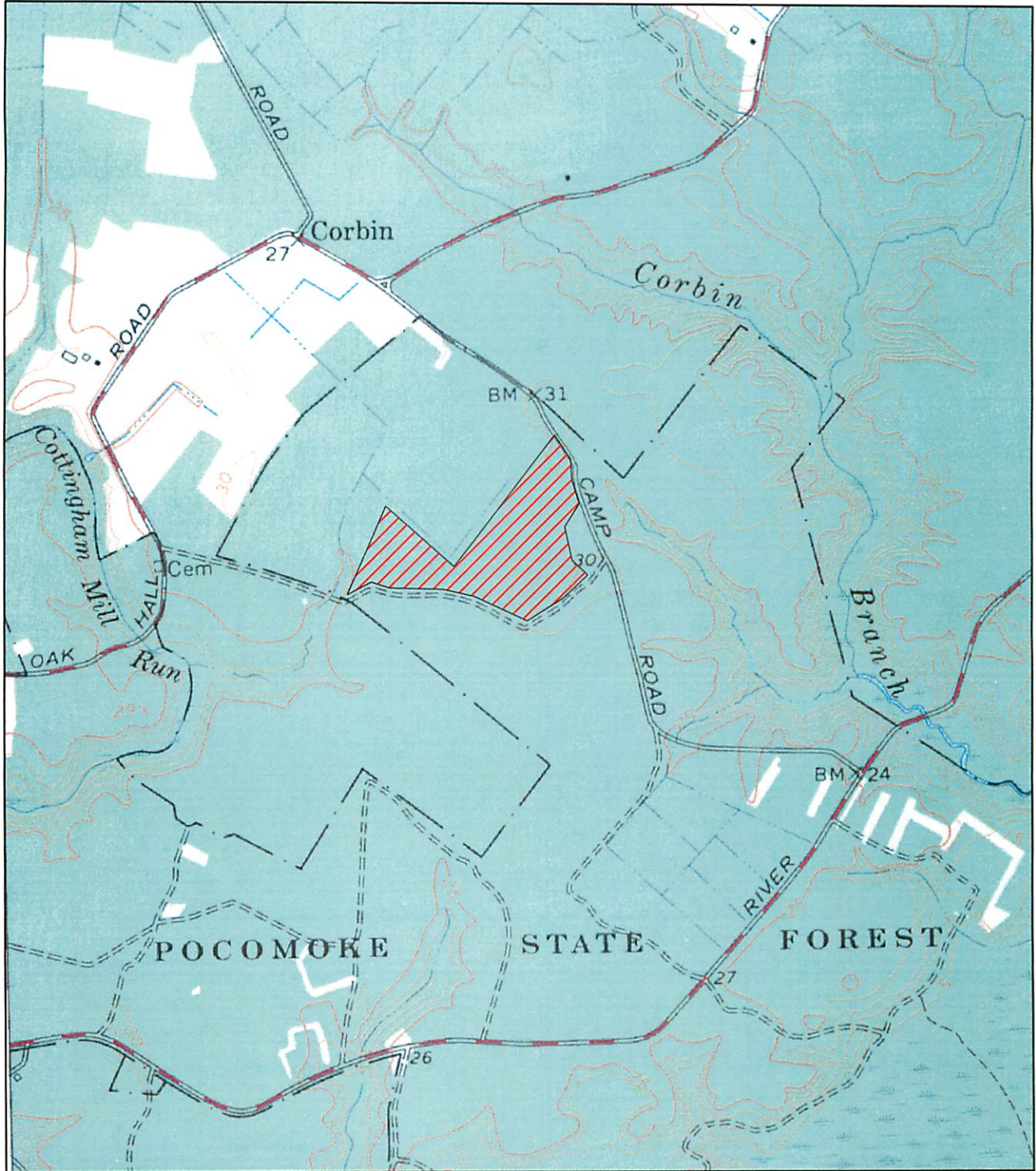


Area - 12.0 acres  
Forest Type - Pine/Hardwood  
Harvest Method - Regeneration  
Age - 76  
Site Index - 78  
Pine Basal Area - 70  
Hardwood Basal Area - 40  
Growth Rate - .5" last ten years  
Soil Type - Runclint, Rosedale and Berryland

1 inch equals 1,320 feet



Pocomoke State Forest  
Milburn Landing Tract  
Compartment # 26  
Snow Hill Quadrangle

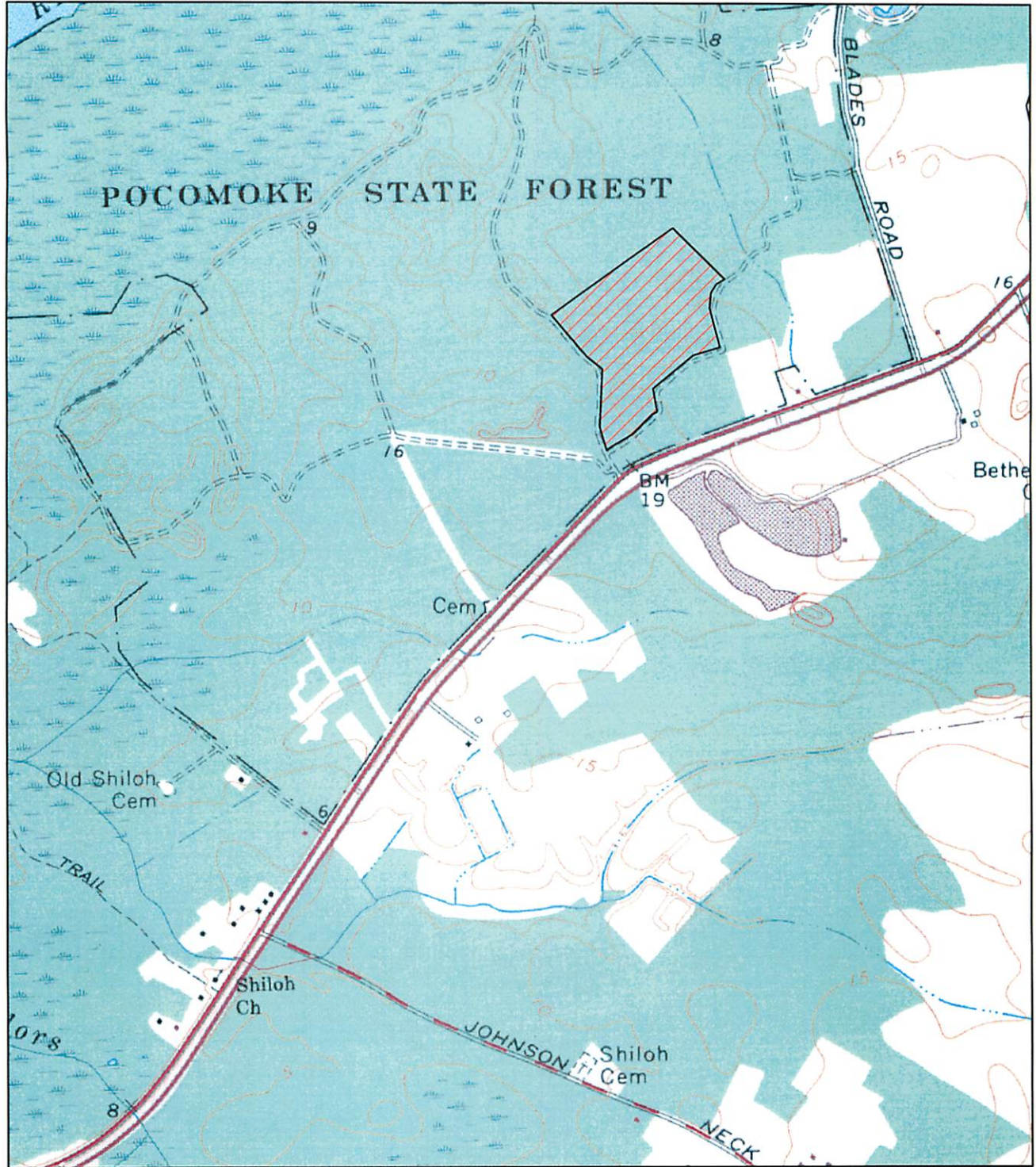


Area - 31.0 acres  
Forest Type - Pine  
Harvest Method - Regeneration  
Age - 56  
Site Index - 88  
Pine Basal Area - 93  
Hardwood Basal Area - 40  
Growth Rate - 9" last ten years  
Soil Type - Mattapex fine sandy loam

1 inch equals 1,320 feet



Pocomoke State Forest  
Tarr Tract  
Compartment # 34  
Girdletree Quadrangle

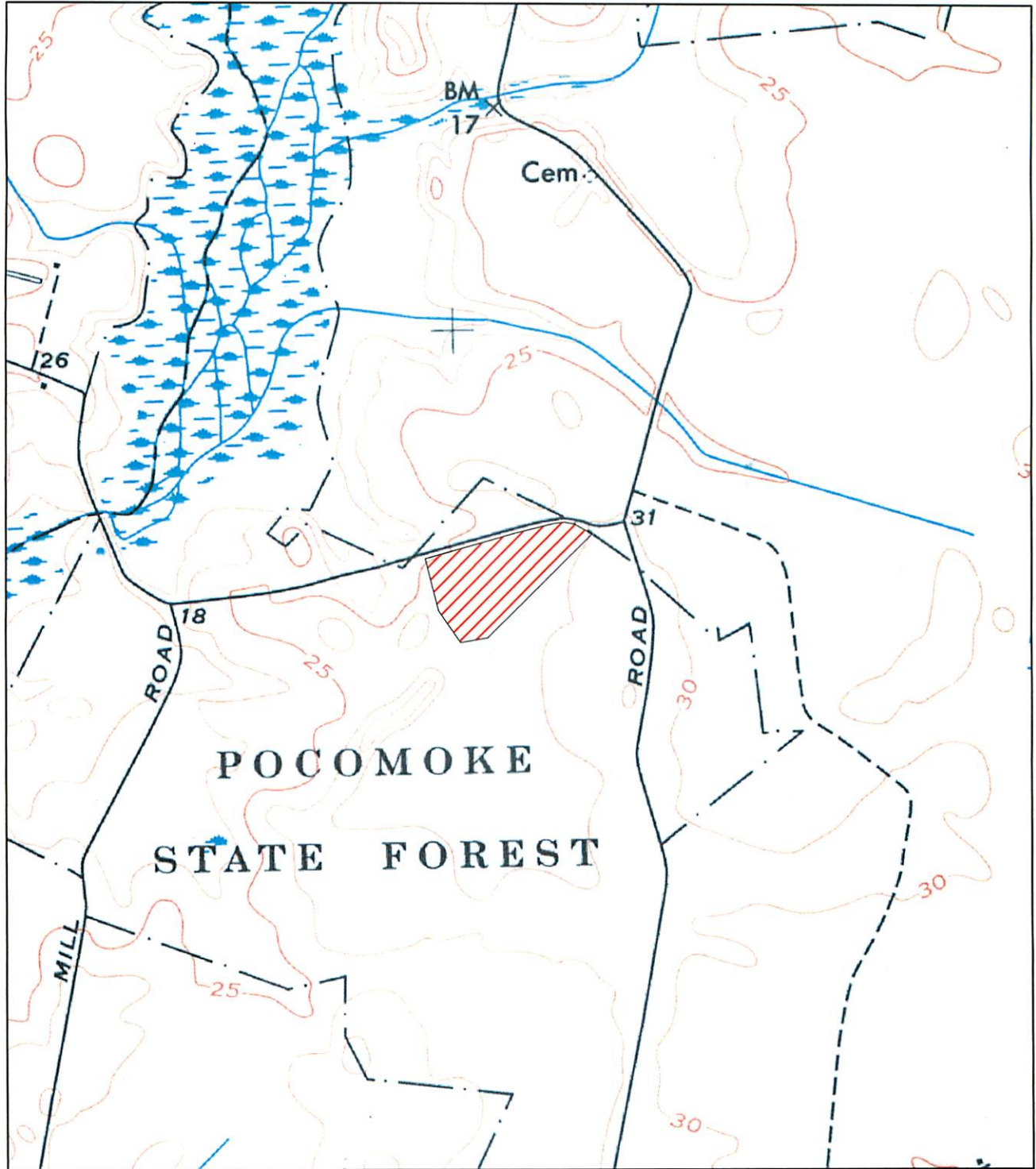


Area - 32.0 acres  
Forest Type - Pine/Hardwood  
Harvest Method - Regeneration  
Age - 78  
Site Index - 82  
Pine Basal Area - 47  
Hardwood Basal Area - 43  
Growth Rate - 4" last ten years  
Soil Type - Runclint, Evesboro, Hurlock,  
Klej and Mullica - Berryland

1 inch equals 1,320 feet



Pocomoke State Forest  
Dividing Creek Tract  
Compartment # 22  
Dividing Creek Quadrangle

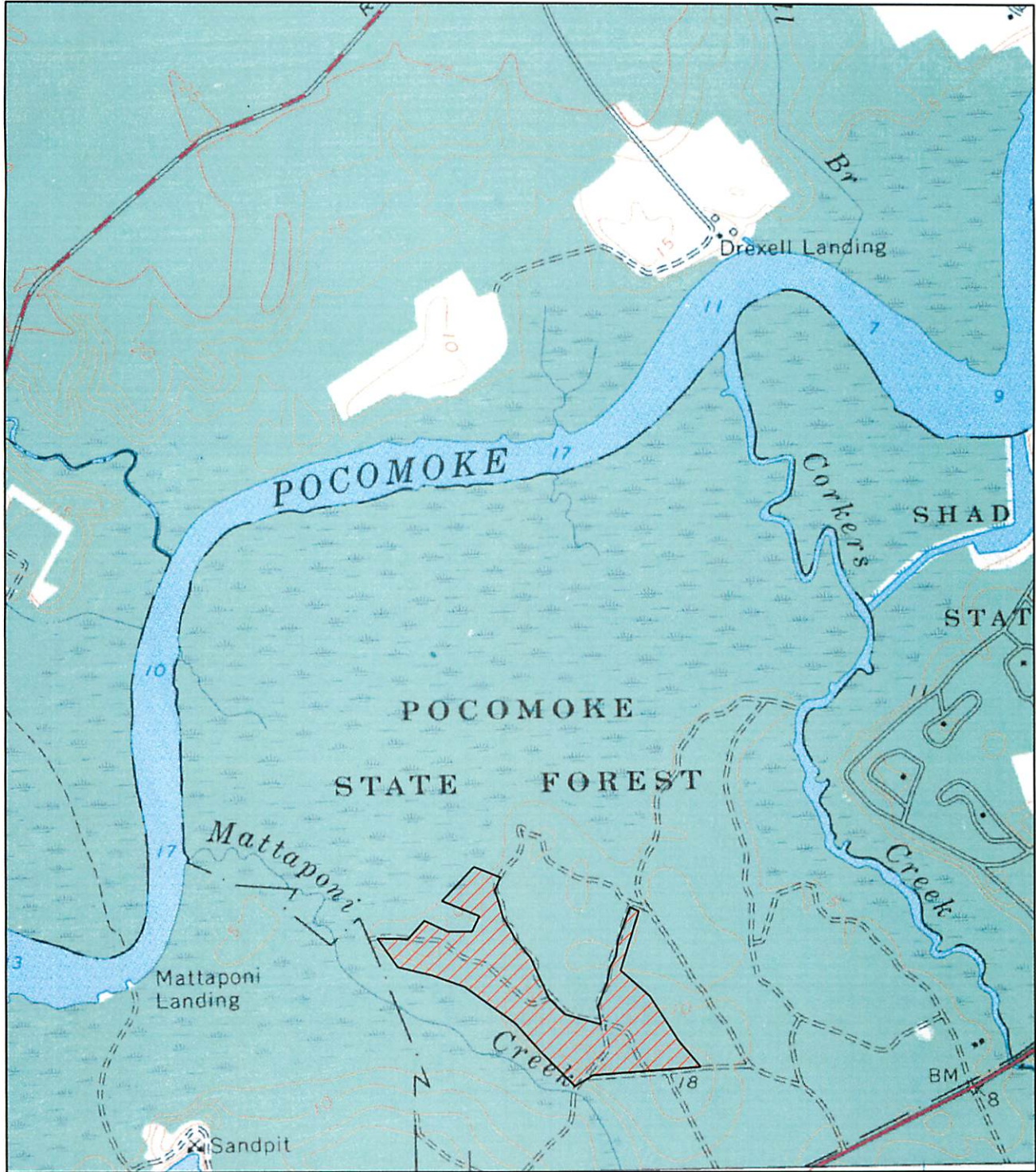


Area - 19 acres  
Forest Type - Pine Plantation  
Harvest Method - Commercial Thinning  
Age - 24  
Basal Area to be reduced to 70 sq. ft. per acre.  
Soil Type - Hurlock, Hambrook and Mullica

1 inch equals 1,322 feet



Pocomoke State Forest  
Hudson Tract  
Compartment # 37  
Snow Hill Quadrangle

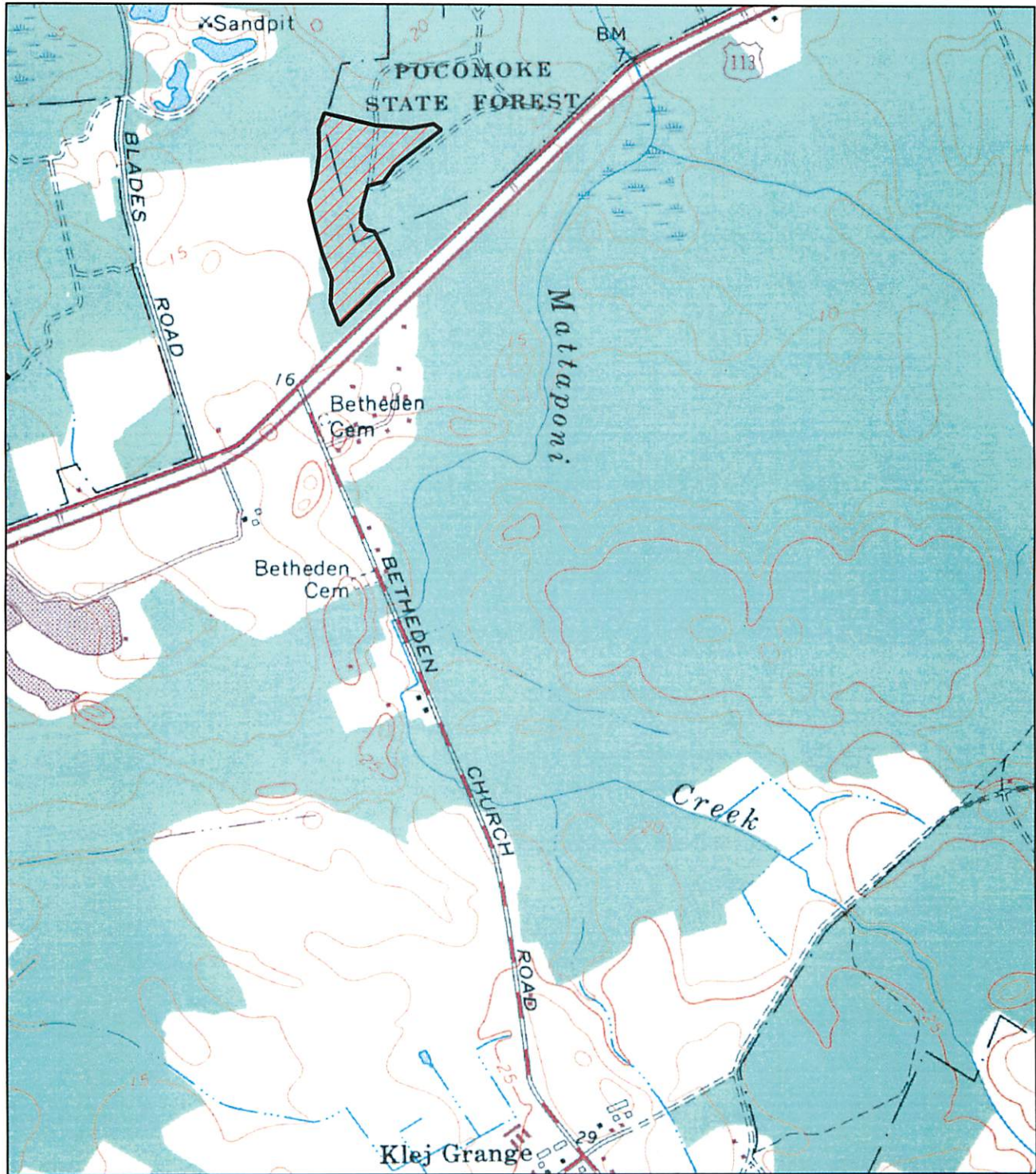


Area - 38.0 acres  
Forest Type - Pine Plantation  
Harvest Method - Commercial Thinning  
Age - 26  
Basal Area to be reduced to 70 sq. ft. per acre

1 inch equals 1,320 feet



Pocomoke State Forest  
Hudson Tract  
Compartment # 37  
Girdletree Quadrangle



A pre-commercial thinning is proposed for this 20.5 acre pine stand.

1 inch equals 1,320 feet

## SUMMARY OF ANNUAL WORK PLAN FY 08 REVIEW PROCESS

### A. Timber Sales

#### **Compartment #4 – Nazareth Church Tract**

A 19.5-acre regeneration harvest off Old Furnace Road.

*ID Team:* Suggested to retain the dominant and co-dominant oaks with the sale area, allow for natural regeneration and spraying for hardwood control should be a last option.

*Advisory Committee:* One member was opposed others were in support.

*Public Review:* No specific comments were expressed regarding this proposal.

*Final Proposal:* Same as original. ID Team comments will be adopted.

#### **Compartment #5 – Nazareth Church Tract**

A 20.0-acre regeneration harvest off Old Furnace Road.

*ID Team:* Recommended leaving the pond pine in the wetter areas and retain larger hard mast producing hardwoods. No equipment should be allowed under the powerline right-of-way and no roadside buffer is necessary. Landing should be located along Old Furnace Road on the higher ground.

*Advisory Committee:* One member was opposed others were in support.

*Public Review:* No specific comments were expressed regarding this proposal.

*Final Proposal:* Same as original. ID Team comments will be adopted.

#### **Compartment #26 – Milburn Landing Tract**

31.0-acre regeneration harvest off Camp Road.

*ID Team:* Remove invasive Japanese stilt grass (*Microstegium*) found along Camp Road before beginning the harvest; retain hard mast producing trees and leave a few trees along the road as a visual buffer.

*Advisory Committee:* Supported

*Public Review:* No specific comments were expressed regarding this proposal.

*Final Proposal:* Same as original. ID Team comments will be adopted.



**Compartment #10 – Nazareth Church Tract**  
12.0-acre regeneration harvest off Old Beech Road

*ID Team:* Retain oaks within the stand and utilize natural regeneration by leaving a few seed trees.

*Advisory Committee:* One member was opposed others were in support.

*Public Review:* No specific comments were expressed regarding this proposal.

*Final Proposal:* Same as original. ID Team comments will be adopted.

**Compartment #34 – Tarr Tract**  
32.0-acre regeneration harvest off Route 113.

*ID Team:* Retain larger hard mast producing trees. No other comments were expressed.

*Advisory Committee:* One member was opposed others were in support.

*Public Review:* No specific comments were expressed regarding this proposal

*Final Proposal:* Same as original. Larger hard mast trees will be retained.

**Compartment #22 – Dividing Creek Tract**  
19.0-acre commercial thinning off Flemming Mill Road.

*ID Team:* Remove invasive Japanese stilt grass (*Microstegium*) found along Flemming Mill Road pre harvest.

*Advisory Committee:* No specific comments were expressed regarding this proposal.

*Public Review:* No specific comments were expressed regarding this proposal.

*Final Proposal:* Same as original.

**Compartment #37 – Hudson Tract**  
38.0-acre commercial thinning off Route 113.

*ID Team:* Retain a forested 100 foot buffer along Mattaponi Creek.

*Advisory Committee:* No specific comments were expressed regarding this proposal.

*Public Review:* No specific comments were expressed regarding this proposal.

*Final Proposal:* Same as original. Maintain 100 foot forested buffer along Mattaponi Creek.

**Compartment #37 – Hudson Tract**  
20.5-acre pre-commercial thinning off Route 113.

*ID Team:* No concerns or comments were expressed regarding this proposal.

*Advisory Committee:* No specific comments were expressed regarding this proposal.

*Public Review:* No specific comments were expressed regarding this proposal.

*Final Proposal:* Same as original.

**Reforestation – Planting of superior loblolly pine seedling**

*ID Team:* No concerns. Heritage Service expressed an interest in assisting with regeneration surveys to determine stocking level prior to planting.

*Advisory Committee:* No specific comments were expressed regarding this proposal.

*Public Review:* No specific comments were expressed regarding this proposal.

*Final Proposal:* Same as original. The “genetically superior” seedlings are from a local seed source.

**Reintroduction of Northern Pine Snake**

*ID Team:* Follow recommended guidelines developed by Heritage and Forestry staff.

*Advisory Committee:* Some members supported others opposed.

*Public Review:* Received one comment which was opposed to proposal.

*Final Proposal:* Project has been canceled.

### **Insect Monitoring**

*ID Team:* Supported

*Advisory Committee:* Supported; encouraged aggressive monitoring for invasive pest species.

*Public Review:* No specific comments were expressed regarding this proposal.

*Final Proposal:* Same as original.

### **Research**

*ID Team:* Supported.

*Advisory Committee:* Supported; continue to give research a high level of consideration.

*Public Review:* No specific comments were expressed regarding this proposal.

*Final Proposal:* Same as original.

### **Maintenance**

*ID Team:* No concerns.

*Advisory Committee:* No specific comments were expressed regarding this proposal.

*Public Review:* Additional personnel need to be hired to keep-up with maintenance projects.

*Final Proposal:* Same as original.

No other comments or concerns regarding the work plan projects were expressed during the review process.

**POCOMOKE STATE FOREST  
ANNUAL WORK PLAN FY 08  
FIELD REVIEW AGENDA  
October 11, 2006**

9:00 A.M. Meet at Nassawango

9-9:30 Review FY 08 AWP Projects

10:00 Comp.#5 – Nazareth Church Tract – Final Harvest

10:30 Comp.#10 – Nazareth Church Tract - Final Harvest

11:00 Comp.# 22 – Dividing Creek Tract – 1<sup>st</sup> Thinning

11:30 Comp. #26 – Milburn Landing Tract – Final Harvest

Noon Lunch at Milburn Landing

1:00 Comp. #16–Nazareth Church Tract–Final Harvest/Cut 06

1:30 Open discussion/site visit

3:00 Return to Nassawango

Jack L. Perdue

MD DNR Forest  
Service

410.260.8505

[jperdue@dnr.state.md.us](mailto:jperdue@dnr.state.md.us)

## Pocomoke SF FY08 AWP Review Details...

Project	Location	Date	Time
StFor	Snow Hill MD	10/11/2006	9:00 AM - 4:00 PM

### Note(s)

#### 1. Heritage Service Preliminary Comments

Comp. # 4, Nazareth tract - 19.5 acre proposed clearcut:

This is primarily a natural pine stand (*P. serotina* & *P. rigida*) with some large hardwoods. We recommend that all large hard-mast producing hardwoods be retained, natural regeneration be allowed to occur, and no Arsenal spraying or other hardwood control measures. A prescribed burn should be conducted after the first growing season post-harvest. If hand planting is used to supplement natural regeneration, natural genotype pines (*P. serotina/rigida*) should be used. Heritage should be contacted to help determine if the stand should be planted before hand planting occurs.

Comp. # 5, Nazareth tract - 20.0 acre proposed clearcut:

This is primarily a natural pine stand (*P. serotina* & *P. rigida*) with some large hardwoods. We recommend that all large hard-mast producing hardwoods be retained, natural regeneration be allowed to occur, and no Arsenal spraying or other hardwood control measures. A prescribed burn should be conducted after the first growing season post-harvest. If hand planting is used to supplement natural regeneration, natural genotype pines (*P. serotina/rigida*) should be used. Heritage should be contacted to help determine if the stand should be planted before hand planting occurs. Additionally, this stand is located in the Furnace ESA. No logging trucks should be allowed under the powerline right-of-way due to the location of rare plant and animal species.

Comp. # 10, Nazareth Church tract - 12.0 acre proposed clearcut:

This is primarily a natural pine stand (*P. serotina* & *P. rigida*) with some large hardwoods. We recommend that all large hard-mast producing hardwoods be retained, natural regeneration be allowed to occur, and no Arsenal spraying or other hardwood control measures. A prescribed burn should be conducted after the first growing season post-harvest. If hand planting is used to supplement natural regeneration, natural genotype pines (*P. serotina/rigida*) should be used. Heritage should be contacted to help determine if the stand should be planted before hand planting occurs.

Comp. # 26, Milburn Landing tract - 31.0 acre proposed clearcut:

This is primarily a loblolly pine stand with few individuals of other pines (*P. serotina* & *P. rigida*) with some hardwoods. We recommend that all large hard-mast producing hardwoods and native pines be retained, natural regeneration be allowed to occur, and no Arsenal spraying or other hardwood control measures. A prescribed burn should be conducted after the first growing season post-harvest. If hand planting is used to supplement natural regeneration, natural genotype pines (*P. serotina/rigida*) should be used. Heritage should be contacted to help determine if the stand should be planted before hand planting occurs.

Comp. # 34, Tarr tract - 32.0 acre proposed clearcut:

This is primarily a pine plantation with some hardwoods. Our only comments are to retain large hardwoods located in the stand.

Comp. # 22, Dividing Creek tract - 19.0 acre proposed commercial thinning:

This is a young pine plantation, so we have no concerns. There is a problem with *Microstegium* in the roadside here, also. This should be sprayed before the harvest occurs.

Comp. # 37, Hudson tract - 38.0 acre proposed pre-commercial thinning:



This is a young pine plantation with portions located within 100-feet of the Mattaponi WSSC. A forested 100-foot buffer should be retained from the edge of Mattaponi Creek.

Comp. # 37, Hudson tract - 20.5 acre proposed pre-commercial thinning:  
This is a young pine plantation, so we have no concerns.

#### Heritage & Reforestation

Under "Reforestation" - Heritage would like to review any and all areas where planting loblolly pine seedlings are to occur. A few years ago an area along Forest Road that had been primarily pond and pitch pine was replanted with loblolly pine seedlings, after we had been told that natural regeneration would be allowed to occur. We need to be able to review and discuss these types of forest composition conversions before they occur, not after the fact.

## Attendee(s)

1. Kip Powers [kpowers@dnr.state.md.us](mailto:kpowers@dnr.state.md.us)
2. Raj Williams [rwilliams@dnr.state.md.us](mailto:rwilliams@dnr.state.md.us)
3. Sam Bennett [sbennett@dnr.state.md.us](mailto:sbennett@dnr.state.md.us)
4. Kenneth Jolly [kjolly@dnr.state.md.us](mailto:kjolly@dnr.state.md.us)
5. Jeff Horan [jhoran@dnr.state.md.us](mailto:jhoran@dnr.state.md.us)
6. Deidra Brace [dbrace@dnr.state.md.us](mailto:dbrace@dnr.state.md.us)
7. Scott Smith [sasmith@dnr.state.md.us](mailto:sasmith@dnr.state.md.us)
8. Wesley Knapp [wknapp@dnr.state.md.us](mailto:wknapp@dnr.state.md.us)
9. Jack Perdue [jperdue@dnr.state.md.us](mailto:jperdue@dnr.state.md.us)
10. Ann Carlson [agcarlson@dnr.state.md.us](mailto:agcarlson@dnr.state.md.us)
11. Gary Adelhardt [gadelhardt@dnr.state.md.us](mailto:gadelhardt@dnr.state.md.us) - *Absent*
12. Russ Hill [rhill@dnr.state.md.us](mailto:rhill@dnr.state.md.us) - *Absent*
13. Brett Coakley [bcoakley@dnr.state.md.us](mailto:bcoakley@dnr.state.md.us) - *Absent*

## Note(s)

1. General Comments

Smith/Knapp stated that if there are natural pine stands present, they would not like to see these stands converted to pine plantations. Pone pine is probably mis-identified as loblolly pine. Regarding short leaf, we aren't giving these stands enough time to get native pines to regenerate. The Forest Service response is that these stands need to be planted before they are converted to hardwood and then have to spray arsenal to control the hardwood. It was decided that the Forest Road proposal in Compartment 14 of the Nazareth Church Tract would serve as a good example.

It was also noted during the field review, that natural regeneration seems to be best when harvesting occurs in the late fall and winter due to the viable cones still being on the trees and released as the trees fall. They are then ready for germination the next growing season.

2. Nazareth Church Tract - Compartment #5

Heritage suggested to leave the pond pine that is naturally occurring at the back of the site. It is wetter there. This is a natural stand and would give natural regeneration a chance to succeed.

It was agreed to leave the mast-producing hardwood component. Also, there will not be a roadside buffer left since the road is not regularly used.

The landing will be along Furnace Branch Road on the higher ground.

3. Milburn Landing Tract - Compartment #26

This is a proposed regeneration harvest. There is some Japanese stilt grass (*Microstegium*) found along the roadside. It was recommended that it be sprayed before beginning the harvest. It was also suggested to leave a few native pines along the road as a visual buffer to the harvest site.

4. Nazareth Church Tract - Compartment #10

There could be one or two landings at this harvest operation. It was suggested to use a seedtree type of retention to assist in regenerating pond pine, rather than an island retention. There also should be a good seed source from neighboring pine stands to help populate the next stand after harvest.

5. Dividing Creek Tract - Compartment #22

This will be a first thinning. It was suggested to treat the Japanese stilt grass (*Microstegium*) along the road before the harvest begins to keep it from moving into the interior of the site.

There were no other comments.

6. Northern Pine Snake

**Recommended Forest Management Guidelines for Reintroduced Northern Pinesnakes  
At Pocomoke State Forest & Other Public Lands**

The following forest management guidelines for public lands are recommended:

1) The actual release sites (100 x 300 foot cleared openings) for the young pinesnakes plus the fenced in enclosure (~1 acre area/site) shall be areas where the only timber harvest conducted is for managing dens and nesting areas. Note that two of the proposed release sites are already within sensitive management areas with no harvesting; the third is in the general management zone. However, about 3 years ago these sand ridges were excluded from harvest at DNR Heritage Service's request due to the unique sand ridge community. Thus, they have already been treated by DNR Forest Service as a sensitive area.

2) If successful with the reintroduction, these snakes and subsequent wild-produced cohorts will expand and occupy new areas within Pocomoke River State Forest, on private land, and perhaps on other public lands, including Chesapeake Forest. Protection from forest management operations shall be limited to 1/4 - 1/2 acre areas around new den sites and nesting areas. There will be no new nesting areas for about 5-7 years until the snakes become sexually mature. New dens could occur during the first winter after release. Many of the new dens and nesting sites will be discovered through telemetry. They will typically be in openings with little or no canopy cover, so they should be easy to identify and will have little if any harvestable timber on them. The biggest threat around these sites will be from heavy equipment during winter. Therefore, no heavy equipment shall be used within these small areas. It will be the responsibility of DNR Heritage Service to identify den and nesting areas being used by pinesnakes.

3) Pinesnakes feed primarily on small mammals, with ground-nesting birds, bird eggs and lizards also part of their diet. A diverse forest composition results in overall diversity and ecological complexity within forest ecosystems, and support diverse prey populations. Currently, annual work

plans for Pocomoke State Forest include the following wording for non-pine plantation stands: "The stand will be allowed to seed in naturally and supplemented by hand planting if necessary. Dominant and co-dominant oaks within the stand will be retained". Thus, guidelines for reforestation recommended for pinesnake-occupied stands are consistent with the natural regeneration that is standard for Pocomoke SF annual work plans. Replanting existing pine plantations, where appropriate, would also be consistent with current management practices. Conversion of natural pond and/or shortleaf pine stands to planted loblolly stands should not occur.

4) Herbicide spraying should not occur within the fenced release sites, herbicide spraying in areas adjacent to release sites will be reviewed by Heritage during the annual Work Plan Review process.

5) Recreational restrictions would be similar to those for timber harvest. No ATVs should be allowed in the small areas around dens and nesting sites. In areas where these are intersected by existing ATV trails, signage should be placed, such as "Slow, Sensitive Species Area" or something to that extent. In extreme cases, temporary fencing or some other obstruction might need to be installed to limit vehicular access into a nest/den area. Signage and fencing would be the responsibility of DNR Heritage Service. We cannot foresee other issues with current recreational activities on public lands on the Eastern Shore.

6) Unauthorized individuals should be restricted from the limited areas of the experimental release sites for the few years of the releases.

7) Site specific issues and/or new threats to pinesnakes can be addressed through the Annual Work Plan review process.

8) It has been illegal to take any snake in Maryland by lethal methods since DNR passed regulations in 1993 (COMAR 08.03.11.09), so they are already protected from people killing them.

9) We are not proposing any restrictions on private lands. If they den or nest on private property we will seek cooperation from landowners to protect these areas, but not require it.

Note: These guidelines were initially prepared by Heritage staff and modified slightly by Forestry staff with no objections by Heritage staff.

2Action Meeting



## **Bennett, Sam**

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**From:** Coakley, Brett  
**Sent:** Wednesday, November 08, 2006 3:22 PM  
**To:** Bennett, Sam  
**Cc:** Perdue, Jack  
**Subject:** Pocomoke Plan

Sorry I was unable to attend the meeting. As usual, we have very little in the way of comments. The emphasis on keeping oaks within the sale areas favorable for water quality. No streams appear to be impacted, no problems here.

Brett Coakley  
Fisheries Biologist  
MDDNR Freshwater Fisheries  
Eastern Region  
410-928-3643

**Bennett, Sam**

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**From:** Williams, Raj  
**Sent:** Monday, October 16, 2006 4:25 PM  
**To:** Bennett, Sam  
**Cc:** Powers, Kip  
**Subject:** FW: Heritage Comments for Pocomoke SF FY08 Annual Work Plan

Sam:

Based on a review of the Annual Work Plan for Pocomoke State Forest as well as the site visit (including the chigger attack!), I do not have any comments on your proposal. It appears that the proposals for tree thinning and harvesting are in keeping with the Pocomoke State Forest Plan. Further, the additional proposed activities such as reforestation, salvage cutting, and pre-commercial thinning are in keeping with the plan. Thanks for the opportunity to provide comments.

- Raj

Mrs. Raj Williams, AICP  
Eastern Region Planning Chief  
Public Lands Policy and Planning  
Tawes Office Building E-4  
580 Taylor Avenue  
Annapolis, MD 21401  
Phone: (410) 260-8416  
Fax: (410) 260-8404

-----Original Message-----

**From:** Clotworthy, Shawn  
**Sent:** Monday, October 02, 2006 3:14 PM  
**To:** Williams, Raj  
**Subject:** FW: Heritage Comments for Pocomoke SF FY08 Annual Work Plan

-----Original Message-----

**From:** Smith, Scott A.  
**Sent:** Monday, October 02, 2006 1:11 PM  
**To:** Bennett, Sam  
**Cc:** Knapp, Wesley M.; Perdue, Jack; Coakley, Brett; Hill, Russ; Powers, Kip; Clotworthy, Shawn; Moulis, John  
**Subject:** Heritage Comments for Pocomoke SF FY08 Annual Work Plan

Sam:

Please see attached comments. I am not sure who is on the current ID Team, so if you could forward this on to anyone whose name does not appear on the cc list I would appreciate it. See you all next Wed. (Oct. 11) at 9 AM at the Nassawango office.

Scott

Scott A. Smith  
Eastern Region Ecologist  
DNR-Wildlife & Heritage Services  
PO Box 68  
Wye Mills, MD 21679

11/28/2006

**AGENDA**  
**CITIZEN'S ADVISORY COMMITTEE TOUR**  
**FRIDAY, OCTOBER 27, 2006**

- 9:00** Meet at Nassawango (Public Lands Office)
- 9:00 - 9:30** Coffee and donuts. Plan/Tour overview
- 10:00 - 11:00** Campbell Complex (Chesapeake Forest)
- 1<sup>st</sup>. Thinning (active) – restoration project  
(Proposed Powell Road restoration project)
  - 2<sup>nd</sup>. Thinning – Prescribed burn
- 11:45 - 12:15** O.R.V. Trail (Pocomoke Forest)
- 12:30 - 1:15** Lunch at Shad Landing (Pocomoke State Park) – provided
- 1:30 - 2:00** Pocomoke State Forest Compartment #10  
Proposed Final Harvest
- 2:15 - 2:30** Pocomoke State Forest Compartment #5  
Proposed Final Harvest
- 2:40 - 2:50** Pocomoke State Forest Compartment #16  
Completed Final Harvest
- 3:00** Return to Nassawango (Public Lands Office)



The meeting was called to order at 9:15 am

**Members In Attendance:**

Lisa Challenger – Worcester County Tourism, Recreational Professional; Anthony DiPaolo – Forest Industry, Economic Interest; Larry Beauchamp – Hunter and Landowner; Joan Maloof – Salisbury University Department of Biological Sciences, Ecologist; Arthur Egolf – Egolf Forest Harvesting, Timber; Mike Schofield – Forest Manager of the Chesapeake Forest Lands; Sam Bennett – Forest Manager of the Pocomoke State Forest; Dee Brace – Forester for the Chesapeake Forest Lands.

**Members Not In Attendance:**

William Giese, Jr. – Wildlife Professional; Calvin Lubben – Forestry Professional; Charles Vane Jr. – Delmarva Powers Sports, LLC, Recreational User; Alan Girard – Chesapeake Bay Foundation, Conservation Interest; Elizabeth Sigrist – Student Representative; Michael Howard – Fisherman.

**Items of Discussion:**

1. How should the Maryland Forest Service proceed in regards to the Forest Stewardship Council's recent intention to ban Arsenal/Imazapyr?
2. How can the Citizens Advisory Committee get involvement from local Native American tribes (indigenous people) into the forest review process (Forest Stewardship Council Principal #1)?
3. How can the problem with Off Road Vehicle (ORV) use on non-designated areas be resolved?
4. Reintroduction of the Northern Pine Snake to the Pocomoke State Forest.
5. Were any changes made to Fiscal Year 2007 work plans in response to comments received from the public or the citizens advisory committee?

A field tour of the forests took place after the meeting was adjourned at 9:50 am.

**Comments on the Pocomoke State Forest Proposed 2008 Annual Work Plan**  
**William M. Giese Jr.**

I commend the staff of the Forest for the usual well wrote annual work program, which makes it easy for the a lay person to review and comment on. I have no major issues with the plan but offer the following general comments as a member of the Citizens Advisory Committee. I commend DNR personnel for conducting the tour of management activities and was looking forward to seeing first hand the management practices proposed. I unfortunately was unable to attend the tour at the last minute due to some pending legal issues relating to the Blackwater Resorts project in Dorchester County.

1. The breakdown of lands being managed for forest management compared to preservation and protection of special resources appear to be reasonable and have been established based on sound ecological reasons. I would however encourage the DNR staff to maintain an aggressive monitoring program for invasive pest species such as pine bark beetle and gypsy moth in all areas of the Forest. These pests not only threaten the forest resources of the General Management Zone but of other protective zones as well and private resources adjacent to the State Forest. Any infestation needs to be dealt with swiftly and aggressively.

2. I am sure that this may have been discussed during the tour, or established with consultation, I would suggest that all buffers and corridors left to provide wildlife corridors or visual barriers be of adequate width to protect wildlife resources. Depending upon the width of the buffers these areas sometimes become predator traps to some bird and small mammals species such as squirrels. Given the high numbers of mammalian and avian predators in the area, consideration of buffer width should be implemented. As far as I know there is no magic number of feet but, I feel certain that the appropriate DNR biologists will give their recommendations if they have not already done so.

3. I commend the Forest staff for giving Research a high level of consideration. State Forests are excellent laboratory sites for testing new and innovative practices and monitoring field conditions. The information gathered from this research can ultimately be put to practice on other DNR lands and in the private sector. The reintroduction of the Northern Pine Snake is a great opportunity.

November 14, 2006

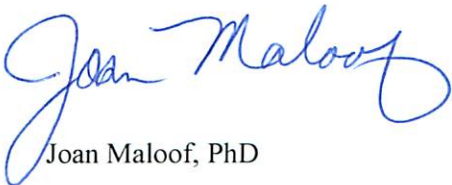
Comments on the Proposed 2008 Annual Work Plan for the **Pocomoke State Forest**

As the ecology representative of the Chesapeake Forest/ Pocomoke Forest citizen's advisory committee I have been asked to comment on the 2008 work plan during the comment period of Oct. 27- Nov. 27. I appreciate the opportunity to comment and I make the following suggestions:

- **Stop harvesting of older mixed forests.** The majority of our State Forests (the Chesapeake Forest and the Pocomoke State Forest) are composed of young, early succession pines -- a result of past cutting practices. These pine plantations lack the natural biodiversity (species of plants and animals) that should be present in our forests. This situation is so serious that Chesapeake Forest lands are being aggressively thinned and managed to try to return some of their former biodiversity. In place of a monoculture of pines the management plans for the Chesapeake Forest encourage other hardwood species. In the Pocomoke Forest, however, there are pockets of forest that already contain a rich diversity of plant and animal life. These forests are between seventy and eighty years old. Large oaks of many different species and mature pines tower over an understory of dogwoods, hollies, azaleas, mountain laurel, and many more species. In the spring these forests are a sea of bloom, in the fall they are filled with the color from the leaves of many species. In some cases these beautiful forests are adjacent to recreational trails where they can be appreciated by the citizens that they belong to. The Pocomoke State Forest work plan proposes that a number of these mixed species, older, forests be logged. I objected to this practice last year and I object again this year. The logging plan calls for retaining dominant and co-dominant oaks, but the understory species; including the ancient mountain laurel, the beech, and the dogwoods, will be destroyed. Even the oaks that are not removed will be subject to windthrow and root damage as a result of the harvest. These older, species rich, forests should not be logged. They are an important reservoir of genetic material, they provide food for birds and other animals – and they provide a beautiful serene refuge for humans. Compartment #34 of the Tarr Tract is a good illustration of a misguided harvest plan. This forest should absolutely not be harvested.



- **Longer lead time needed before the work plan meeting.** The citizen's advisory committee had less than ten days to examine the work plans for the Pocomoke State Forest before the meeting on October 27<sup>th</sup>, 2006. To comment intelligently, and for planning purposes, a longer lead time would be appreciated. The plans were well organized, included maps, and gave summary totals for the work plan. A tour planned for the group was much appreciated. Unfortunately, due to the short notice I was not able to find a replacement to teach my classes and so could not attend.
- **Take comments seriously.** Many comments were made regarding last year's plan, but none of those who commented received any response from the DNR, and no changes to the work plan were made in response to comments from the public or the advisory committee (per Mike Schofield and Sam Bennett, Oct 27, 2006). If comments are requested they deserve recognition and consideration. The policy on salvage logging reflects this call for comments which are then disregarded. The work plan states that, "Upon completion of the timber evaluation and review of comments, the timber sale will be advertised and mailed to prospective bidders, and submitted for pre-approval." Does this sound as if any comments could make a difference?
- **Better advertising of public comment period.** There was some confusion last year on when the public comment period began and ended. In addition, the posting of the plans on the website and the opening of the comment period was not well advertised. Perhaps if the public comment period were the same 30 day period each year there would be less confusion.
- **Continue with no spraying of herbicides or applications of fertilizer.** The 2008 work plan for the Pocomoke Forest does not provide for any spraying of herbicides or applications of fertilizer. This is excellent. If any spraying or fertilization is to take place it should be included in the work plan or the public should be notified.
- **Seek FSC certification for the Pocomoke State Forest.**
- **Pine snake reintroduction** is supported.



Joan Maloof, PhD





Robert L. Ehrlich, Jr., Governor

Michael S. Steele, Lt. Governor

C. Ronald Franks, Secretary

October 9, 2006

Michael E. Howard  
2445 Lakeland Drive  
Pocomoke City, MD 21851

Dear Mr. Howard:

This letter is being sent to inform the Citizen's Advisory Committee that a field tour of the Chesapeake Forest Lands and Pocomoke State Forest that will be held on Friday, October 27, 2006 at 9:00 am. The tour will focus on the current management activities and proposed future activities of the above-mentioned forests.

You should plan to arrive at the forest office no later than 9:00 am. The office is located in the green house next to the Nassawango Fire Tower on Route 12 (Snow Hill Road). Please contact the office if directions are needed. A box lunch and drinks will be provided.

Please contact me at the forest office at (410) 632-3732 or email [ppowers@dnr.state.md.us](mailto:ppowers@dnr.state.md.us) if you have any questions regarding the tour and to let me know if you plan to participate in the tour.

Sincerely,

Pam Powers  
Administrative Assistant  
Chesapeake Forest Lands  
Pocomoke State Forest  
410-632-3732  
[ppowers@dnr.state.md.us](mailto:ppowers@dnr.state.md.us)

# **Pocomoke State Forest**

## **Fiscal Year 2008 Annual Work Plan**

### **Online Public Forum Comments**

#### **June 25, 2007 – July 24, 2007**

#### **Maintenance**

My property is very close to Pocomoke State Forest Land and I know through acquaintances that there are only two full-time people working for the Pocomoke State Forest - the manager and one technician. I don't see how all this work will get done unless another person is hired on full-time or long-term.

I travel the county roads that pass through the Forest regularly. Over the last several months I have noticed a big difference in the cleanliness of these roads and parking lots and the re-appearance of fire roads. I've seen the fellow who mows these roads on his old, beat-up Ford tractor.

All this needs to be maintained - and then some - and it's going to take more than just one full-time guy and some worn-out equipment to do it.

Gilbert B.  
Princess Anne MD  
6/28/2007

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#### **Other**

To me the plan looks good and also is consistent with past years plans. Only about 1% of the acreage is effected by silvicultural activity which I'm pretty sure is well within the growing capacity of the forest. The forest is important to the Eastern Shore's forest economy and should continue to supply raw materials to the providers of forest products to the nations consumers. Also, the silvicultural activities allow forest managers to make management decisions that can improve habitat for a wide range of forest species. As to the question of the pine snake, it would seem to me that there is quite a bit of uncertainty as expressed by the experts, and I would be against the introduction of the snake at this time.

Thank you for allowing me to comment on this plan.

William L.  
Princess Anne MD  
7/10/2007

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**Other**

The time has come for the state of Maryland to start managing its forests for wildlife rather than cash. Pines should be replaced with hardwoods and the vast majority should never be cut. DNR Wildlife and Heritage should determine the best sites for some secondary growth forests which could be timbered or burned in regular cycles. DNR should also be looking to convert as much agriculture to forests as possible, especially on WMAs. Private landowners should be encouraged to plant and retain as much old hardwood forest as possible rather than being told their perfectly healthy mature forests are dying and need to be timbered as soon as possible. Looking at the latest breeding bird data, I'd say this conversion in philosophy needs to take place as soon as possible.

Dave W.  
Ocean City MD  
7/19/2007