

# Appendix H. Compatibility Determinations

## [Appendix H. Compatibility Determinations](#)

Fishing .....	<a href="#">H-i</a>
Harvesting Forest Products .....	<a href="#">H-xi</a>
Hunting Big Game .....	<a href="#">H-xxxix</a>
Hunting Waterfowl .....	<a href="#">H-li</a>
Trapping Furbearers .....	<a href="#">H-lxi</a>
Wildlife-dependent Recreation .....	<a href="#">H-lxxxi</a>
Wildlife-dependent Recreation (Chesapeake Island Refuges) .....	<a href="#">H-xcvii</a>

This page intentionally left blank

# Compatibility Determination on Fishing

## Fishing

**Station Name:** Blackwater National Wildlife Refuge (Chesapeake Marshlands NWR Complex)

### Establishing and Acquisition Authorities

The Chesapeake Marshlands National Wildlife Refuge Complex (CMNWRC) is composed of three nationally significant wildlife areas: Blackwater NWR, Martin NWR, and Susquehanna NWR with several separate divisions. Blackwater NWR includes the Nanticoke Division, and Martin NWR includes the Barren Island, Bishops Head and Spring Island, and Watts Island Divisions. Collectively, Martin NWR, Susquehanna NWR, and their respective divisions are referred to as the Chesapeake Island Blackwater NWRs.

The first and largest of these areas to be established was Blackwater NWR. Originally authorized for establishment by the Migratory Bird Conservation Commission on December 3, 1931, and named “Blackwater Migratory Bird Refuge,” its current 28,000 acres are a showplace for the National Wildlife Refuge System.

On December 31, 1931, the Migratory Bird Conservation Commission authorized the Secretary of Agriculture to purchase 10,000 acres from the Delmarvia Fur Farms, Inc., of Philadelphia, Pennsylvania. On December 9, 1931, the Secretary entered into an agreement with Delmarvia Fur Farms, Inc., effective January 1, 1932, to lease 8,167.99 acres for the refuge. The Secretary subsequently determined that it was in the best interest of the Government to acquire 8,240.99 acres for the refuge from the Delmarvia Fur Farms and two other properties by condemnation. A notice of condemnation was filed August 26, 1932, and these tracts were conveyed to the Government in January 1933.

Blackwater NWR was, therefore, officially established under the authority of the Migratory Bird Conservation Act on January 23, 1933. Since that time, additional lands have been added to the refuge under the authorities of the Endangered Species Act, Refuge Recreation Act, North American Wetlands Conservation Act, and the Refuge Administration Act.

Table I summarizes the history of Blackwater National Wildlife Refuge land acquisition and the tracts that are now being affected by the proposed uses. Unless otherwise noted, all acquisitions are fee title. This compatibility determination also will apply to additional tracts, particularly those in the Nanticoke Division, as they are acquired.

## **Refuge Purposes**

For lands acquired under the Migratory Bird Conservation Act (16 U.S.C. § 715 d), the purpose of the acquisition is “...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.”

For lands acquired under the Endangered Species Act of 1973 (16 U.S.C. § 1534), the purpose of the acquisition is “...to conserve (A) fish or wildlife that are listed as endangered or threatened species...or (B) plants.”

For lands acquired under the Refuge Recreation Act (16 U.S.C. § 460K–1), the purpose of the acquisition is for “...(1) incidental fish and wildlife-oriented recreation; (2) the protection of natural resources; (3) the conservation of endangered species or threatened species...”

For lands acquired under the North American Wetlands Conservation Act (16 U.S.C. § 4401–413), the purpose of the acquisition is “(1) to protect, enhance, restore, and manage an appropriate distribution and diversity of wetland ecosystems and other habitats for migratory birds and other fish and wildlife in North America; (2) to maintain current or improved distribution of migratory bird populations; and (3) to sustain an abundance of waterfowl and other migratory birds consistent with the goals of the North American Waterfowl Management Plan and the international obligations contained in the migratory bird treaties and conventions and other agreements with Canada, Mexico, and other countries.”

For lands acquired under the Refuge Administration Act (16 U.S.C. § 668ddb), the purpose of the donation is “to protect, enhance, restore, and manage wetland ecosystems and other habitats for migratory birds, endangered and threatened species, and other wildlife.”

## **National Wildlife Refuge System Mission**

“The mission of the System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”—National Wildlife Refuge System Improvement Act of 1997 (Public Law 105–57)

## **Description of Use**

This evaluation is to determine whether programs for fishing and their associated facilities are compatible with the purposes for which the affected tracts were acquired.

### **(A) What is the use? Is it a priority use?**

The use is fishing, including the construction of associated facilities described below. The National Wildlife Refuge System Improvement Act of 1997 identifies fishing as one of the six, priority, wildlife-dependent recreational uses to be facilitated in the Refuge System, and encourages the Service to provide opportunities for the public to enjoy them.

## **Background and Rationale for the Management Activity**

Fishing and crabbing have been sources of food and recreation in these areas since Native Americans were the only inhabitants. However, when Blackwater NWR was established in the 1930s, it was considered an inviolate sanctuary for wildlife. Because the refuge owned and regulated all the waters and water bottoms within the original acquisition boundary, all interior waterways were closed during the peak waterfowl migration and wintering seasons from October 1 to March 31 to prevent disturbance. Fishing was prohibited from October 1 to March 31 for the same reason.

The waters on Blackwater NWR are unmarked, shallow, and often revert to tidal mud flats at low tide, making fishing very, very difficult. Because of the very shallow waterways, increasing salinities, and excessive turbidity resulting from marsh loss, fish populations are very low and the sizes of most fish species are small. Because public fishing opportunities that are not adversely influenced by these problems abound throughout Dorchester County, fishing and crabbing have not historically been active recreational pursuits at the refuge.

The navigable waters of the Nanticoke River would not be subject to refuge regulations, should land be acquired as a division of Blackwater NWR. Fishing and associated boating activities would be under the sole jurisdiction of the State of Maryland. Similarly, jurisdiction for regulating these activities on the Chesapeake Island Refuges would reside completely with the State of Maryland, since the Service owns only to mean high water. Access to the river or to the waters of the Chesapeake Bay would be the only issue associated with these activities that the Service could regulate.

The public expressed their desire during the CCP scoping process for more boat ramps and fishing opportunities, even with the problems of difficult access, particularly, access to the upper Blackwater River, which is not subject to refuge jurisdiction. Increased fishing opportunities were, therefore, proposed through the construction of a canoe ramp on Route 335 with a parking area, the development of an accessible boardwalk or pier along Key Wallace Drive on the Little Blackwater River, and the improved mapping and marking of the Blackwater River channel. The area that historically has been closed from October 1 through March 31 would be expanded from 5,788 acres to 6,223 acres, in accordance with new legislation promulgated by Maryland DNR. Improved signage and printed materials explaining refuge rules and regulations would be made available to visitors. Canoeing and boating activities would be monitored and, if necessary, be restricted to reduce disturbances to wildlife and impacts on habitat.

### **(B) Where would the use be conducted?**

Fishing will occur on navigable and non-navigable waterways of the Blackwater, Little Blackwater, and Nanticoke Rivers and tributaries. However, authorization to control recreational fishing within the boundary of Blackwater National Wildlife Refuge (including the Nanticoke Division) is applicable only to those waters that are defined as “non-navigable,” where title was vested in the United States in fee simple absolute, or where the State did not exert its claim during the original acquisition (approximately 3,900 acres of waterways). Essentially, this means

that the refuge has the authority to regulate fishing only on Tracts (14), (14a-i), (14a-I,II), (14a-III), (14e-I), (16,a), (18), (19), (24,a-c), and (29).

The refuge is not authorized to regulate fishing or other waterborne activities within the navigable waters of the State or within areas where water bottoms are State-owned. Therefore, for the purpose of explanation and definition, non-navigable waters within the refuge include all refuge waters except (1) the Blackwater River partially downstream of its confluence with the Little Blackwater River, (2) where the Service owns only to the centerline of the Blackwater River above and below the Highway 335 bridge, and (3) where the Government owns only to the centerline of the Little Blackwater River and Meekings Creek.

Therefore, the compatibility of recreational fishing will be evaluated only according to its effects on the purposes for which these tracts were acquired. The construction of associated facilities, boat ramps, parking areas, and boardwalks or piers will be assessed in reference to their respective tracts. Shoreline access from refuge lands to waters within Service jurisdiction and control will not be authorized, except for two freshwater, land-locked ponds used for special refuge fishing events and environmental education programs on Tract 100u (Briggs Pond) and Tract 37 (Key Wallace Pond).

Access to the approximately 3,900 acres of refuge-regulated waters will be limited to one existing, off-refuge, public boat ramp at Shorter's Wharf bridge adjacent to Tract 52; a proposed new canoe or kayak ramp on Tract 100m adjacent to Star Route 335 near the Blackwater River bridge; or from any other off-refuge location. [NOTE. Fishing on the refuge will be further restricted by the very shallow tidal waterways, which average less than 1.5 feet deep, except for the long, meandering, unmarked Blackwater River channel, which is approximately 3 feet deep. Few visitors attempt to navigate their small boats or canoes any distance into this uncharted area because of those conditions. Even experienced refuge employees find it difficult to navigate refuge waterways.]

The proposed new canoe or kayak ramp will be constructed from a series of 12"×2"×8' concrete logs, which will be designed to be used by canoes, kayaks, and non-motorized boats for wildlife or wildlands observation and photography and fishing (all priority public uses), with an adjacent 350'×48' parking area (space for about 10 vehicles), which will be constructed by the Maryland Department of Transportation within the State right-of-way, an area not subject to our review. The ramp will be built on lands owned by the U.S. Government, while the parking area will be built on lands regulated by the Maryland DOT. These facilities will be located west of and adjacent to the State Route 335 bridge, and will provide safe access to the navigable waterway, not regulated by the refuge, of the upper Blackwater River.

An accessible fishing pier or boardwalk (approximately 4'×600') and associated parking area (200'×25') are proposed for construction on Tract 14 to provide safe fishing access to the non-regulated waters of the Little Blackwater River. The proposed pier or boardwalk will be built on water bottoms owned by the State of Maryland (not subject to compatibility) and emergent marsh and uplands owned by the U.S. Government. The pier will extend from the immediately adjacent parking lot on refuge uplands approximately 200 feet over refuge marshland and then another 400 feet over State-owned water bottoms and waters, along the south side of Key

Wallace Drive, almost to the Little Blackwater Bridge. The associated parking area would be built in an adjoining refuge agriculture field.

**(C) When would the use be conducted?**

Fishing in refuge-regulated waters would be allowed daily from dawn to dusk (i.e., daylight hours only), from April 1 to October 1, unless a conflict with a management activity or an extenuating circumstance necessitates deviating from these procedures. Fishing during that period would be further restricted by summer weather and insect infestations, factors that virtually eliminate all uses from June through August, and often extend into September. Fishing on the two freshwater ponds would be further limited to an annual event at Briggs Pond, and on special requests for environmental education programs at Key Wallace Pond. Since the proposed boardwalk or pier would be built over navigable waters, fishing in the impacted Little Blackwater River along Key Wallace Drive and the Little Blackwater Bridge area would not be regulated by the Service, but by the State of Maryland. Fishing in the upper Blackwater River also would be regulated solely by the State.

**(D) How would the use be conducted?**

Fishing and crabbing will be authorized and regulated according to provisions in Title 50, C.F.R., Subchapter C, Part 33, and State regulations. Fishing and crabbing will be restricted to opportunities from boats, which provide the only access to refuge-regulated waters of the Blackwater and Little Blackwater River systems. There will be no bank fishing or crabbing, except for special fishing events and environmental education programs at Briggs Pond, Key Wallace Pond, and the proposed pier or boardwalk on the Little Blackwater River, regulated by the State of Maryland. Boat launching will not be permitted on the refuge, except canoes and kayaks at the proposed canoe or kayak ramp near the Route 335 Blackwater River bridge.

The uses described above will be regulated by the distribution of refuge leaflets and state fishing and crabbing regulations at the Visitor Center. Law enforcement patrols and compliance checks by refuge officers will enforce the provisions of 50 CFR, Subchapter C, Parts 26, 27, and 33, as applicable. Unmarked channels and shallow water will limit the speed and distance small motor boats can travel into the refuge. As previously mentioned, all uses on refuge-regulated waters will be expressly restricted from April 1 to October 1. Staff and volunteers at the visitor center and the refuge office will also give instructions to visitors on how these uses are to be conducted. A boating, fishing, and crabbing leaflet will be distributed at the Visitor Center.

**(E) Why is the use being proposed?**

Fishing will be conducted to provide compatible recreational opportunities for visitors to enjoy the resource, and to enhance their understanding and appreciation of fish and wildlife. These uses also will provide wholesome, safe, outdoor recreation in a scenic setting, enticing those who come strictly for recreational enjoyment to participate in the more educational facets of the public use program, and then become advocates for the refuge and the Service.

## Availability of Resources

Additional staff would provide National Fishing and Boating Week activities and interpretation programs on fishing, crabbing, and safe boating; prepare canoe trails, maps, kiosk information, and signs; post navigation signs and boundary signs; and enforce fishing, boating, and crabbing regulations within Blackwater NWR.

## Cost Breakdown

### Service Costs

Interpretive programs (45 hrs @ \$30/hr) . . . . .	\$1,350
National Fishing and Boating Week Event (9 hrs @ \$30/hr) . . . . .	270
Preparation of signs, maps, trails, info (90 hrs @ \$30/hr) . . . . .	2,700
Law enforcement of regulations ( 40 hrs @ \$24/hr) . . . . .	960
Monitoring of canoeing and boating activities (20 hrs @ \$16/hr) . . . . .	320
Brochures . . . . .	5,000
Signs . . . . .	5,000
Canoe Ramp . . . . .	\$1,000
	<u>Total</u> \$16,600

### Non-Service Costs Provided by Partnerships, Grants, and Donations

Construction of canoe ramp and parking area . . . . .	\$60,000
Construction of boardwalk or fishing pier and parking area . . . . .	\$200,000
	<u>Total</u> \$260,000

## Anticipated Impacts on Refuge Purposes

The environmental, socioeconomic, and cultural or historical impacts summarized below are more thoroughly described in the Environmental Assessment prepared for the Chesapeake Marshlands NWR Complex Comprehensive Conservation Plan. Most of the impacts associated with constructing fishing facilities will occur on non-Service lands, lands not regulated by the refuge and, therefore, not subject to our compatibility review. The impacts from fishing are anticipated to be minimized by close monitoring.

The continuation of the very limited number of fishermen using canoes (approximately seven visits per year) will have very little if any effect on refuge wildlife, waterways, and adjacent habitats. Small motor boats potentially could affect the submerged aquatic vegetation, could create limited shoreline erosion from their wakes, and could potentially increase turbidity if the number of visits were sufficient. Zieman (1976) stated, "In shallow waters the most common form of rhizome disturbance is from the propellers of motor boats." Only an estimated 70 recreational fishermen per year now use motorized boats, but most fishermen remain close to the Blackwater River channel, where depths are greater and scouring of the water bottom is less likely. Because of the higher salinity and constant wind-generated turbidity of the silt-laden refuge waters, submerged aquatic vegetation (SAV) is almost nonexistent, eliminating Zieman's concerns about the destruction of SAV rhizomes (at least at Blackwater).



At Blackwater NWR, fishermen potentially can interfere with migratory waterbirds present between April 1 and October 1. Studies on boating disturbance of nesting waterfowl (Atkinson and Willes, 1969; Bouffard, 1982; Brickley, 1976; Cook, 1987; Coulter and Miller, 1968) and migratory waterbirds (Erwin, 1989) indicate that boating causes flushing of nesting birds and possible disturbance to nesting. However, Hartman (1972) found that wood ducks, a prominent nesting waterfowl at Blackwater, quietly swam away instead of flushing. Evenson, et al. (1974) concluded that, in spite of disturbance, ducks were never seen leaving the lake. In addition, Speight (1973) determined that the effects of waterfowl disturbance depended more on the frequency of human presence than on the number of people present at one time. Fishing can also potentially cause death or serious injury to migratory birds by their ingesting lead sinkers or encountering discarded hooks, monofilament line, or other litter that can trap or entangle birds and other wildlife.

The concern, therefore, is whether or not these disturbances are sufficient to adversely affect the purposes for which the refuge was established. Because fishing and crabbing are limited to April 1 through October 1, when aggregations of migratory waterfowl are not present, and are further limited by difficult access, weather, insect infestation, and shallow water, which limits the size and type of watercraft, the major criterion for evaluation will be the frequency of human presence.

Fishing in refuge-regulated waters from a boat averages about one visit per day in April and May, and one visit per week from June through September. This equates to about 70 fishing visits annually. The daily frequency of human presence on approximately 3,900 acres of regulated waterways is, therefore, almost zero, causing negligible wildlife disturbance. Since the limiting factors are not likely to change, the frequency of visitor use on refuge-regulated waters is also unlikely to change. The change will be in access to waters not regulated by the refuge, where the use is regulated by the State.

Fishing and crabbing on refuge waters, if authorized during the fall and winter, would have a negative impact on migratory waterfowl and nesting bald eagles. Blackwater NWR will continue to be closed to fishing and crabbing on refuge waters from October 1 through March 31. The increase from 5,788 acres to 6,223 acres of closed area (marsh that has been changed to open water) will prevent increased visitor disturbance to migratory waterfowl. Although the fishing and crabbing facilities would be increased, the shallow water and closure during 6 months of the year would contribute to having little or no impact on fish and crabs from visitors' fishing and crabbing. Although 34 million anglers live in the United States, few would come to the refuge to fish, simply because it is not noted for its sport fishing.

The proposed accessible boardwalk or pier, kiosk, and parking area near the Little Blackwater Bridge would provide a popular fishing area that would draw many people who do not own or have access to a boat to fish. It would eliminate the parking problem and safety hazards along the County roadway and, thus, control the deterioration of the roadway and erosion from illegal parking. It would also provide an accessible fishing area where presently there are none on the Blackwater NWR and few, if any, in Dorchester County. For most of the year, the pier would be used not for fishing, but rather, for observing wildlife.

Interpretive signs, maps, and river channel markers will be provided to increase safety and prevent physical impacts by allowing the fisherman or boater to follow the channel instead of getting lost in the unmarked shallow water. The continued closure of boating from October 1 through March 31 and the proposed increase in the size of the seasonal closed area at Blackwater NWR would have a positive physical impact on the environment. Since no additional facilities would be proposed for the Nanticoke Division or Chesapeake Island Refuges, no impacts on physical resources would result.

We expect no impacts on cultural or historical resources.

### **Public Review and Comment**

In full compliance with NEPA, this compatibility determination will be submitted for public review and comment as an appendix to the Environmental Assessment for the Draft Comprehensive Conservation Plan for the Chesapeake Marshlands NWR Complex.

### **Determination (Check One)**

This use is compatible  X . This use is not compatible \_\_\_\_.

### **Stipulations Necessary to Ensure Compatibility**

Fishing on Blackwater NWR has been conducted for many years. The continued closure of boating from October 1 through March 31 and the proposed increase in the size of the seasonal closed area at the refuge have been implemented to ensure compatibility. If the monitoring described in “Availability of Resources” indicates that this use materially interferes with or detracts from fulfilling the mission of the National Wildlife Refuge System or the purposes of the refuge, we would curtail or eliminate the use.

Special regulations governing our fishing programs will be codified in Title 50, Code of Federal Regulations, and will be consistent with Maryland State regulations and the following special refuge conditions.

1. We allow fishing and crabbing from April 1 through September 30 during daylight hours only.
2. We restrict fishing and crabbing to boats and the Key Wallace roadway across the Little Blackwater River.
3. We require a valid Maryland sport fishing license. We do not require a refuge permit.
4. We require all fish and crab lines to be attended.

5. We prohibit boat launching from refuge lands except for canoes or kayaks at the canoe or kayak ramp located near the Blackwater River Bridge on Route 335. A public launching ramp is available at Shorter’s Wharf.
6. We prohibit the use of air boats on refuge waters.

**Justification**

Recreational fishing is compatible because of the extremely limited visitation and the very limited direct and indirect effects on the refuge’s 3,900 acres of waterways, or approximately 17 percent of the refuge, which was acquired “as an inviolate sanctuary, or other management purpose, for migratory birds.” The restrictions that the refuge places on these activities—outreach to the public, enforcement, and education—and the shallowness of the waters and difficulty in navigating them, which severely limit opportunities for this use, all combine to keep fishing compatible.

Fishing will not interfere with or detract materially from the mission of the National Wildlife Refuge System or the purposes for which the refuge was established.

**Signature—Refuge Manager** \_\_\_\_\_  
(Signature and Date)

**Concurrence—Regional Chief** \_\_\_\_\_  
(Signature and Date)

**Mandatory 10- or 15-year Reevaluation Date** \_\_\_\_\_

**References**

Atkinson-Willes, G. 1969. Wildfowl and recreation: a balance of requirements. *Br. Water Supply*. 11: 5–15.

Bouffard, S. H. 1982. Wildlife values versus human recreation: Ruby Lake National Wildlife Refuge. *Trans. N. Am. Wildlife National Resour. Conf.* 47:553–558.

Buckley, P. A., and Buckley, F. G. 1976. Guidelines for protection and management of colonially nesting waterbirds. *N. Atlantic reg. Off., NPS, Boston, Mass.* 54pp.

Cooke, A. S. 1987. Disturbance by anglers of birds at Grafham Water. *ITE Symposium*. 19:15–22.

*Compatibility Determination on Fishing*

Coulter, M. W., and Miller, W. R. 1968. Nesting biology of black ducks and mallards in northern New England. Vermont Fish and Game Dep. Bull. 68(2):74pp.

Erwin, R. M. 1989. Responses to human intruders by birds nesting in colonies: experimental results and management guidelines. *Colon. Waterbirds*. 12(1):104–108.

Hartman, G. W. 1972. The biology of dump nesting in wood ducks. M.S. thesis, University of Missouri (Columbia). 66pp.

Speight, M. C. D. 1973. Outdoor recreation and its ecological effects: a bibliography and review. University College London, England, Discuss. Pap. Conserv. 4. 35pp.

Ziemer, J. C. 1976. The ecological effects of physical damage from motor boats on turtle grass beds in southern Florida. *Aquat. Bot.* 2:127–139.

Back to top

# **Compatibility Determination on Harvesting Forest Products**

## **Harvesting Forest Products**

**Station Name:** Blackwater National Wildlife Refuge (Chesapeake Marshlands NWR Complex)

### **Establishing and Acquisition Authorities**

The Chesapeake Marshlands National Wildlife Refuge Complex (CMNWRC) is composed of three nationally significant wildlife areas: Blackwater NWR, Martin NWR, and Susquehanna NWR with several separate divisions. Blackwater NWR includes the Nanticoke Division, and Martin NWR includes the Barren Island, Bishops Head and Spring Island, and Watts Island Divisions. Collectively, Martin NWR, Susquehanna NWR, and their respective divisions are referred to as the Chesapeake Island Refuges.

The first and largest of these areas established was Blackwater NWR. Originally authorized by the Migratory Bird Conservation Commission on December 3, 1931, and named “Blackwater Migratory Bird Refuge,” its 28,000 acres showcase the National Wildlife Refuge System.

On December 31, 1931, the Migratory Bird Conservation Commission authorized the Secretary of Agriculture to purchase 10,000 acres from the Delmarvia Fur Farms, Inc., of Philadelphia, Pennsylvania. On December 9, 1931, the Secretary entered into an agreement with Delmarvia Fur Farms, Inc., effective January 1, 1932, to lease 8,167.99 acres for the refuge. The Secretary subsequently determined that it was in the best interest of the Government to acquire 8,240.99 acres for the refuge from the Delmarvia Fur Farms and two other properties by condemnation. A notice of condemnation was filed August 26, 1932, and these tracts were conveyed to the Government in January 1933.

Blackwater NWR was, therefore, officially established under the authority of the Migratory Bird Conservation Act on January 23, 1933. Since that time, additional lands have been added to the refuge under the authorities of the Endangered Species Act, Refuge Recreation Act, North American Wetlands Conservation Act, and the Refuge Administration Act.

Table I summarizes the history of Blackwater National Wildlife Refuge land acquisition and the tracts that are now being affected by the proposed uses. Unless otherwise noted, all acquisitions are fee title. This compatibility determination will also apply to additional tracts, particularly those in the Nanticoke Division, as they are acquired.

## **Refuge Purposes**

For lands acquired under the Migratory Bird Conservation Act (16 U.S.C. § 715 d), the purpose of the acquisition is “...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.”

For lands acquired under the Endangered Species Act of 1973 (16 U.S.C. § 1534), the purpose of the acquisition is “...to conserve (A) fish or wildlife that are listed as endangered or threatened species...or (B) plants.”

For lands acquired under the Refuge Recreation Act (16 U.S.C. § 460K–1), the purpose of the acquisition is for “...(1) incidental fish and wildlife-oriented recreation; (2) the protection of natural resources; (3) the conservation of endangered species or threatened species...”

For lands acquired under the North American Wetlands Conservation Act (16 U.S.C. § 4401–413), the purpose of the acquisition is “(1) to protect, enhance, restore, and manage an appropriate distribution and diversity of wetland ecosystems and other habitats for migratory birds and other fish and wildlife in North America; (2) to maintain current or improved distribution of migratory bird populations; and (3) to sustain an abundance of waterfowl and other migratory birds consistent with the goals of the North American Waterfowl Management Plan and the international obligations contained in the migratory bird treaties and conventions and other agreements with Canada, Mexico, and other countries.”

For lands acquired under the Refuge Administration Act (16 U.S.C. § 668ddb), the purpose of the donation is “to protect, enhance, restore, and manage wetland ecosystems and other habitats for migratory birds, endangered and threatened species, and other wildlife.”

## **National Wildlife Refuge System Mission**

“The mission of the System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”—National Wildlife Refuge System Improvement Act of 1997 (Public Law 105–57)

## **Description of Use**

This evaluation is to determine whether programs for harvesting forest products—using commercial forest management practices to create and restore seven forest cores, each with a minimum of 865 acres, which are needed to support 11 of the most highly area-sensitive forest interior dwelling bird species, many of which are Neotropical migrants—are compatible with the purposes of the refuge.

**(A) What is the use? Is it a priority use?**

The primary purpose of the commercial harvesting of forest products will be to improve wildlife habitat and ensure that diverse forest habitat types are perpetuated for many generations to come. The specific types of commercial timber stand improvements (TSI) that will be used include thinning and release cutting, which could result in the sale of poles, pulpwood or firewood; regeneration cuts such as seed tree, selection or shelterwood cuts, which would yield products ranging from pulpwood to saw timber; and salvage cuts performed as a result of storm, insect or disease damage, which could result in the sale of any or all of the above-mentioned forest products. Commercial management practices are the method preferred over using force account, due to the fact that the refuge system does not own the equipment necessary to perform the tasks properly without causing significant negative impacts on the sites. Nor does the refuge have the manpower to run equipment or harvest trees using chainsaws. Commercial timber management is the most economical, safe, and environmentally sound method of achieving many of our proposed forest management objectives.

**Background and Rationale for the Management Activity**

Blackwater National Wildlife Refuge is 36-percent forested, encompassing some of the largest contiguous tracts of mature forest remaining on the Delmarva Peninsula. That forest shelters several Federal-listed endangered plant and animal species: the Delmarva fox squirrel (*Sciurus niger cinereus*); southeastern bald eagle (*Haliaeetus leucocephalus*); swamp pink (*Helonias bullata*); and sensitive joint-vetch (*Aeschynomene virginica*), as well as many other Fish and Wildlife Service trust species (see our CCP and EA for a full species list). Other equally ranked species groups of concern are Neotropical migratory songbirds: specifically, forest interior dwelling species (FIDs). FIDs generally require expansive tracts of interior forest for breeding. Our forest management objectives and strategies will focus primarily on enhancing forest habitats for those trust resources. Clearing and converting the upland and wetland forested areas surrounding Blackwater NWR to residential and agricultural use or pine monocultures continues to adversely impact some of the last large contiguous tracts of forested land in Dorchester County. Therefore, it is essential that this habitat type be protected, maintained, and actively managed to promote healthy populations of fish, wildlife, and plants.

In addition to performing forest management to enhance habitat for trust resources and promote healthy and diverse ecosystems, the Service and Blackwater NWR have been under increased public scrutiny for the lack of forest management performed on the refuge. Much of the forested land acquired by Blackwater NWR remains in less than desirable condition as a result of historical poor forest management practices and the lack of planning for future habitat conditions. A large percentage of the forested land acquired earlier (1933–1969) either had been cleared soon before, or was in an early stage of succession (<30 years). Much of the typical loblolly pine/oak and loblolly pine/hardwood forests that once dominated the landscape have been converted to low quality mixed hardwood stands through a harvest technique called high-grading.

High-grading is removing the most commercially valuable trees, leaving trees of poor condition or undesirable species composition. It is not considered silviculture,<sup>1</sup> due to its dysgenetic effects and long-term economic and forest health implications (Helms, 1998). High-grading is “taking the best and leaving the rest” (Jastrzembski, 1999). In most cases, the preferred timber species is still loblolly pine for saw timber, pulp wood and poles. A viable hardwood market is essentially nonexistent on the Eastern Shore, resulting either in some degree of residual canopy or in extremely heavy slash loads, which have detrimental effects on the natural regeneration of loblolly pine and preferred mast-producing hardwoods. At the time of acquisition, the rehabilitation of these tracts was left to natural processes. Some of these stands have regenerated successfully, and have matured into healthy stands containing both pine and hardwoods, while other stands have not been as successful in their response to the disturbance, and have not regenerated. This in turn resulted in a conversion in cover type or possibly habitat type. More recently (1970–present) Blackwater NWR has been acquiring a higher percentage of lands containing mature forests. However, a significant number of stands that had been harvested (clear-cut or high-graded) or mismanaged before acquisition remain in need of intensive silviculture to restore them to health.

The overarching goal of the proposed Forest Management Program at Blackwater NWR (to be expanded to include the Nanticoke Division) will be to maintain and increase the size of seven contiguous, mature forest cores from a minimum of 400 acres to as large as 865 acres. Management strategies will include reforestation, strategic land acquisition, regrowth of cut-over areas, timber stand improvement of existing stands, and regeneration cuts. The latter will, in most cases, target forest stands that are exhibiting signs of declining health; to a lesser extent, regeneration cuts also will be used to influence species and age class diversity. Blackwater NWR also contains 1,270 acres (15%) of recently cut-over stands ranging from 0 to 15 years in age and 227 acres (3%) of immature stands ranging in age from 16 to 40 years old. With proper management, those eventually will develop into quality DFS and FIDs habitat. Some of them will become part of an existing core or form their own cores.

Both even- and uneven-aged systems will be employed to enhance and expand the core areas and create new cores. A wide variety of silvicultural techniques may be applied within each core to maintain forest health and desired species and age class composition. Silvicultural prescriptions will be crucial in managing the cores, and include the following TSI: thinning, release cutting, salvage cutting and sanitation cutting. In most of these stands, mast production could be significantly improved through release cutting, the understory reduced through burning, and stress reduced through thinning.

Other management techniques, such as single tree and group selection, shelter-wood regeneration cuts, and pesticide or herbicide applications will also be used to improve forest stands inside and outside core areas. Seed tree harvests may also be performed outside or inside a core, but only if adjacent (i.e., contiguous) forested lands of similar size and quality can be incorporated into the core as they reach maturity or are acquired. Areas in which forest management activities result in gaps in the canopy greater than 30 meters wide will be excised

---

<sup>1</sup> a phase of forestry that deals with the establishment, development, reproduction, and care of forest trees—Webster’s *Third New International Dictionary*



from the core until the gaps have closed up. Consequently, the core can be envisioned as dynamic, moving about in both space and time. Once a core has been established (minimum of 400 acres), our goal will be to maintain that acreage regardless of the forest management activities, with the exception of catastrophic events (e.g., weather, insects, disease). Forested areas that are not part of a core will be more intensively managed to maximize forest health and promote optimal survivability and growth for the purpose of incorporating them into existing or new cores. This may require that some of the previously mismanaged (e.g., high-graded), neglected, or degraded areas (e.g., gypsy moth mortality) be completely cleared and restored to a healthier, more vigorous stand of a desired species composition.

Well-managed forests are healthy forests. They filter pollutants from the air, produce oxygen that we breathe, cool off the land, and improve the quality of our water. Well-managed forests are beautiful. The most appealing forests you have seen, those that are inviting to walk through, are probably forests that recently have been thinned. Timber harvests are essential to our way of life, not only for the wood and paper products they provide, but also for the beautiful, healthy forests they help create (Jastrzembski, 2000).

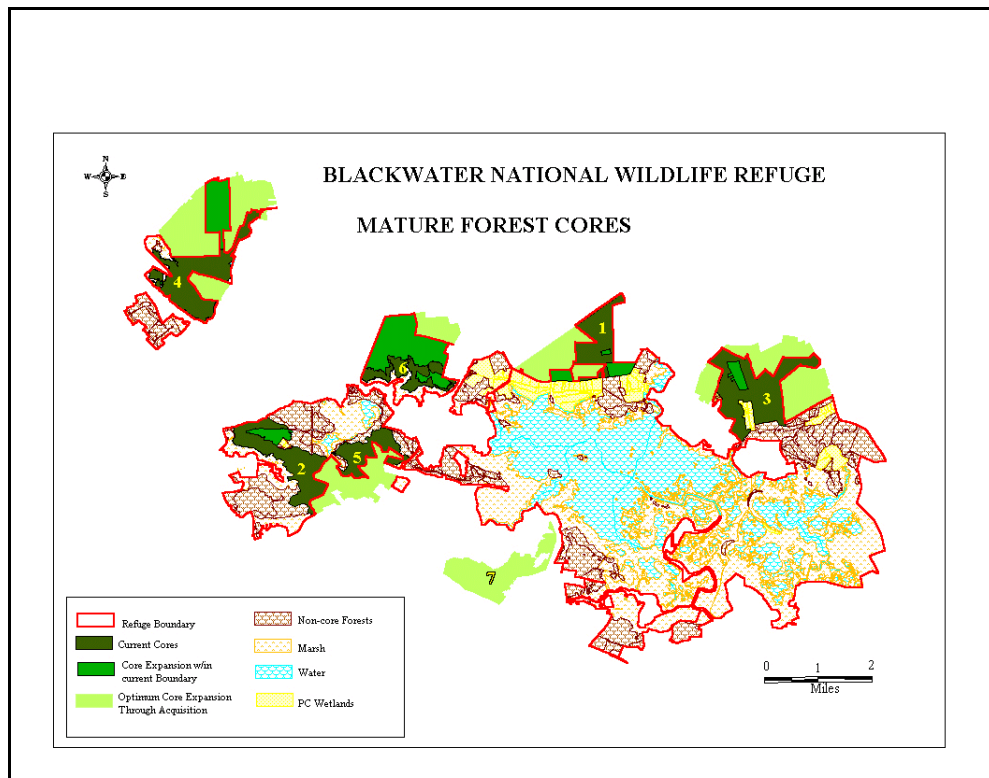
Silviculture involves managing and handling the forest in view of its silvics.<sup>2</sup> It imitates a natural change such as a windthrow, beetle infestation, or fire. However, silvicultural methods harvest forest products for human use instead of waiting for nature to burn them, consume them, or blow them down. Silviculture can be practiced at any time in the life of a timber stand. Southern pine management is an excellent example of silvicultural treatments throughout the life of a stand. However, in Appalachian hardwoods, 90 percent to 100 percent of silviculture is decided and carried out at the time of a timber harvest (Jastrzembski, 2000).

Some tree species thrive in shade; sugar maple, beech, hemlock, dogwood, red maple and basswood are good examples. These species can live, grow, and reproduce in shade and semi-shade conditions. Many tree species prefer or require full sunlight; yellow-poplar, walnut, some oaks, loblolly pine, and hickory are good examples. These species require full sunlight to reproduce, after which they grow best in full sunlight or as part of the overstory canopy of the forest. They also tend to be the fastest-growing species and, to a great extent, the most valuable. Still other species such as white pine, white ash, and some oaks, are intermediate in their sunlight requirements.

As in all forest communities, a variety of both exotic and indigenous forest pests and diseases impact the woodlands of Blackwater NWR. The susceptibility to both insects and disease relates directly to stand conditions and forest health. Forest insect pests in particular have the ability to key in on tree stress and, therefore, target stressed or unhealthy forests first. Once established, these pests can reach epidemic levels and spread to healthy forests. Several natural processes that occur on and around Blackwater NWR are negatively affecting forest health. Accelerations in sea-level rise, other permanent alterations in drainage, and climate changes are processes that we cannot control. However, nearly all other stressors, as well as insect or disease outbreaks, can be prevented or managed by improving forest health through silviculture.

---

<sup>2</sup> the study of the life history and characteristics of forest trees esp. as they occur in stands and with particular reference to environmental influences—Webster's *Third New International Dictionary*



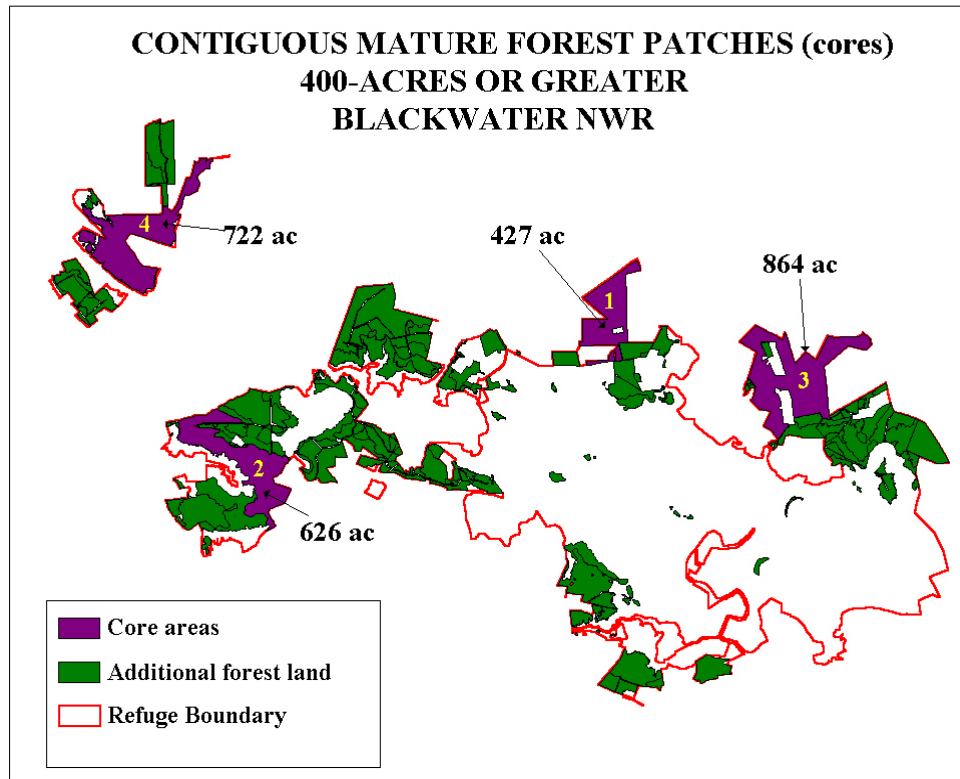
Mature forest cores (BLK)

**(B) Where would the use be conducted?**

We delineated the following cores based on the criteria for the minimum breeding area requirements for FIDs, described in the Environmental Assessment prepared for the Chesapeake Marshlands NWR Complex Comprehensive Conservation Plan and the Forest Management Plan for Blackwater NWR. The criteria require cores of a minimum of 400 contiguous acres in forests that are more than 40 years old (i.e., mature). The current refuge land base has been delineated to create four cores of 400 acres or more, and two cores less than 400 acres that exhibit the greatest potential for becoming 400-acre cores. A seventh core will be established soon through land acquisition. Figure 1 demonstrates the size and location of the four current cores. Figure 2 displays all seven cores in their unmanaged condition as well as the projected or desired future condition of all seven. Although all cores are representative patches of contiguous mature forest of a minimum size and developmental stage, each core is dynamic in that they are essentially evolving in both space and time. Although the general location and minimum size of a core will not change, the actual boundaries and forest conditions within a core may shift as management activities are carried out or new lands are acquired. In other words, a core may not always consist of the same physical forested acres.

For example, as stands within a core reach the point of over-maturity and declining health, these stands may be harvested (removed from the core), but only when adjacent parcels of forested land of equal or greater value can be incorporated into the core to offset the decrease in patch

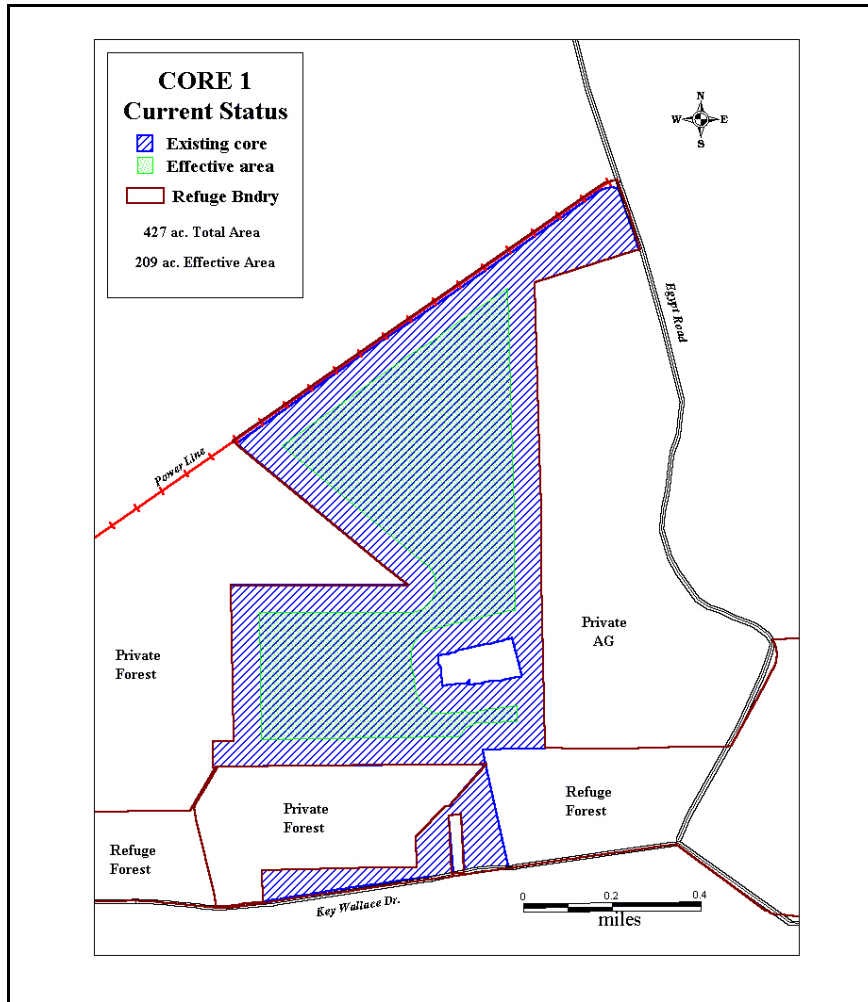
size and effective area. Once four of the seven cores reach the optimum size of 865 acres, that acreage will then be maintained as their minimum size.



Mature forest cores of 400 acres or more

### A.) Core 1

Core 1 is a subset of forested habitats within compartment D. Core 1 was delineated by grouping all contiguous mature and overmature stands within the compartment. The current core is composed of 427 acres of contiguous mature and overmature loblolly pine/hardwood forest. A more detailed description of the forests in this core can be found in chapter 3, “Affected Environment,” and in the Forest Management Plan. A closed canopy road bisects the entire core from south to north. A secondary closed canopy road also exists in the western part of the core. The fact that these roads are narrow and are closed canopy makes them an insignificant detriment to the integrity of the core. The core is, however, negatively impacted by a 9-acre abandoned field that serves in part as the refuge boneyard. The current effective area of Core 1 within the 100-meter buffer is 209 acres; its perimeter-to-area ratio is 86 (figure 3). The following forest management prescriptions have been determined to be the highest priority for improving the quality of this core. The proposed actions and consequences will be described and geographically displayed.



Core 1 current status

## 1.) Timber Stand Improvement

The highest ranking management recommendation consists of applying TSI in the 71-acre stand of immature loblolly pine and hardwoods directly adjacent to the core. The stand is dominated by very dense 30-year-old pines and hardwoods with a remnant canopy of overmature pines. As well as an overstocking of pine, the stand also contains a high percentage of sapling and pole-size oaks of various species. The future of this oak component is severely limited by the high degree of competition from pines and less desirable, more vigorous hardwoods. The effects of competition on the oaks' ability to

become established in the canopy are already evident. Due to their slower rates of growth and density of the stand, the oaks are quickly being suppressed. To promote and ensure the establishment of both pines and oaks in the upper canopy of this stand before its incorporation into the existing core, we recommend a crop tree release to reduce competition and improve the growth and vigor of preferred mast-producing species, hardwoods, and pine.

Significantly decreasing the competition for resources throughout the stand and targeting a specific number of preferred tree species for release will improve tree growth and mast production and ensure that this stand will be a healthy and beneficial addition to the core. The increase in tree growth and mast product will provide tremendous benefits for DFS, as well. Adding this particular stand will increase the overall size of the core by 16.71 percent and its effective area by 16.67 percent (34.76 acres). The perimeter-to-area ratio will decrease from 86.08 to 80.47, a 6.5-percent decrease. Adding such a significant parcel to the core will allow for the regeneration or restoration of some of the older, less vigorous, and less healthy portions of the core without significantly impacting its effective area. This management prescription will not result in any changes to species competition, but will directly affect stem density and stand structure for the benefit of DFS, FIDs, and all wildlife. Figure 4, below, demonstrates the

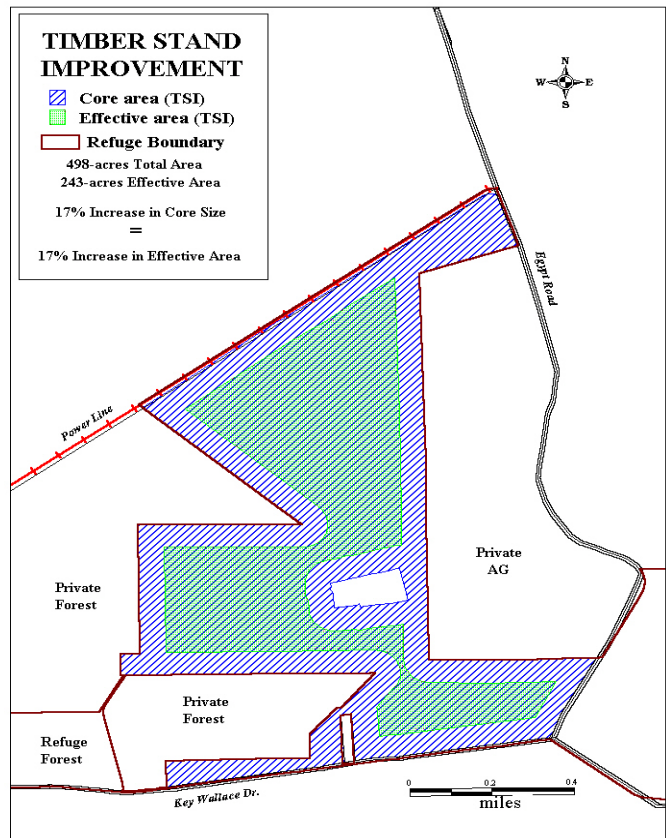
consequences of implementing prescription A and how the core would be improved by the addition of this 71-acre stand. Since the age of this stand is slightly over 30 years, and our definition of mature forests states an age of 40 years, this 71-acre stand will be incorporated into the core in less than 10 years. This map also provides a visual explanation of the consequences of each prescription.

## 2.) Regeneration Harvests

Techniques to enhance the natural regeneration of both hardwood and pine species under a mature canopy will be performed on approximately 250 acres of mature and overmature forested habitat within this core over the next 15 years. The proposed acreage is based on current conditions and current land base. As this core expands as a result of land acquisition, the proposed treatment acres may also increase.

### B.) Core 2

Core 2 is composed of 617 acres of contiguous, mature forest within compartment M. This assemblage of connected pine, pine/hardwood, and mixed hardwood stands is possibly the most diverse assemblage of mature forested habitats on Blackwater NWR (figure 5). This core is highly variable in its species composition, age class, and stand conditions. A more detailed description of these forested stands can be found in chapter 3, “Affected Environment,” of the Environmental Assessment prepared for the Chesapeake Marshlands NWR Complex Comprehensive Conservation Plan and in the Forest Management Plan for Blackwater NWR. This core also exhibits some of the greatest potential for expansion through silviculture and land acquisition. However, due to its somewhat linear shape, its current effective area is only 294 acres.



Performing TSI and enhancing 71 acres of immature pine/hardwood

The most significant ecological factor that will continue to detract from this core is its vast areas of salt-induced tree mortality. In 1987 and 1988, more than 165 acres of large hardwoods and pines were lost to storm tides and prolonged salt water intrusion. The following forest management prescriptions for improving the quality of this core have the highest priority. Some of the prescriptions are to be carried out directly within the current core, while others will be



performed in forested habitats adjacent to the core, which will eventually improve the integrity of the core. The proposed actions and consequences will be described and geographically displayed.

### 1.) Timber Stand Improvement.

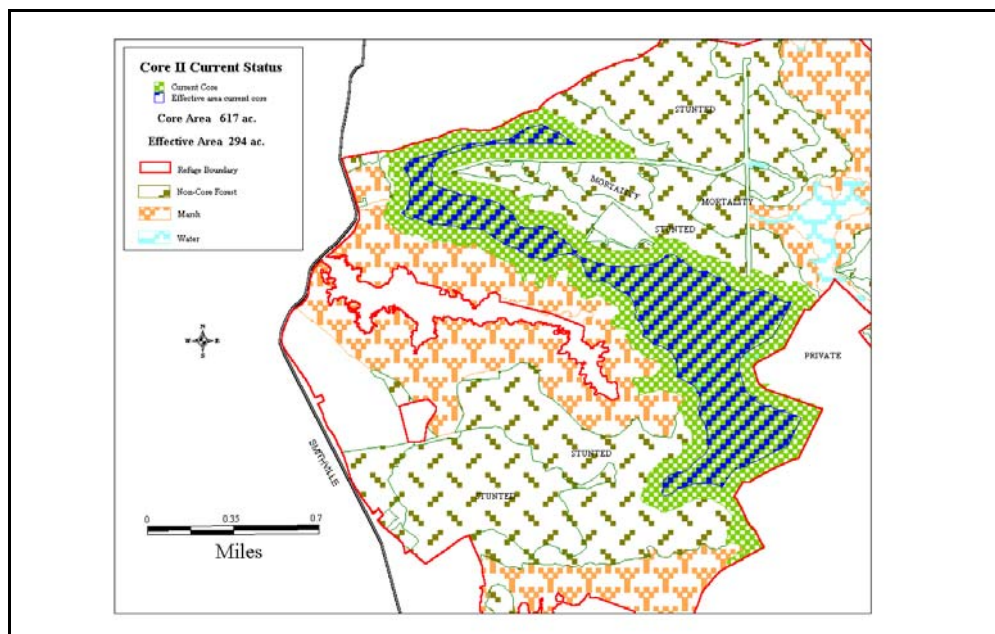
Timber stand improvement is currently proposed on only 120 acres within this core, due to the fact that most of the stands within the current core are mature to overmature and are more in need of regeneration harvesting than thinning or crop tree release. As this core expands as a result of land acquisition, the proposed treatment acres may also increase.

### 2.) Regeneration Harvests

Techniques to enhance the natural regeneration of both hardwood and pine species under a mature canopy will be performed on approximately 375 acres of mature and overmature forest habitat within this core over the next 15 years. As this core expands as a result of land acquisition, the proposed treatment acres may also increase.

### C.) Core 3

Core 3 is composed of 864 contiguous acres of mature hardwood dominated forest within compartment U. This expansive tract was previously harvested; the large, valuable pines were extracted and the more numerous hardwoods were left. This assemblage of high-graded stands



Core 2 current status

not only turns out to be the largest block of mature hardwoods on the refuge, it is also the largest mature forest core with the greatest amount of effective area, 445 acres (figure 6). In its current

state, this core provides potential breeding habitat for 9 of the 11 priority FID species for which we are managing. Much of the remaining pine within the core is becoming overmature and is of lower quality as a result of being suppressed for most of their lives. Most of the hardwoods, particularly oaks, are also old and stressed due to the sudden changes brought on by the harvest and subsequent ingrowth of more vigorous hardwoods such as maple and gum. Past gypsy moth infestations have also taken their toll on the oaks in this area. Very little or no regeneration is occurring in many of these stands. The increased amount of sunlight reaching the forest floor following the harvest resulted in extremely dense understories that preclude natural regeneration and may have negative impacts on DFS populations.

The following forest management prescriptions have been determined to be the highest priority for improving the quality of this core. Some of the prescriptions are to be carried out directly within the current core, while others will be performed in forested habitats adjacent to the core, which will eventually improve the integrity of the core. The proposed actions and consequences will be described and geographically displayed.

**1.) Timber Stand Improvement.**

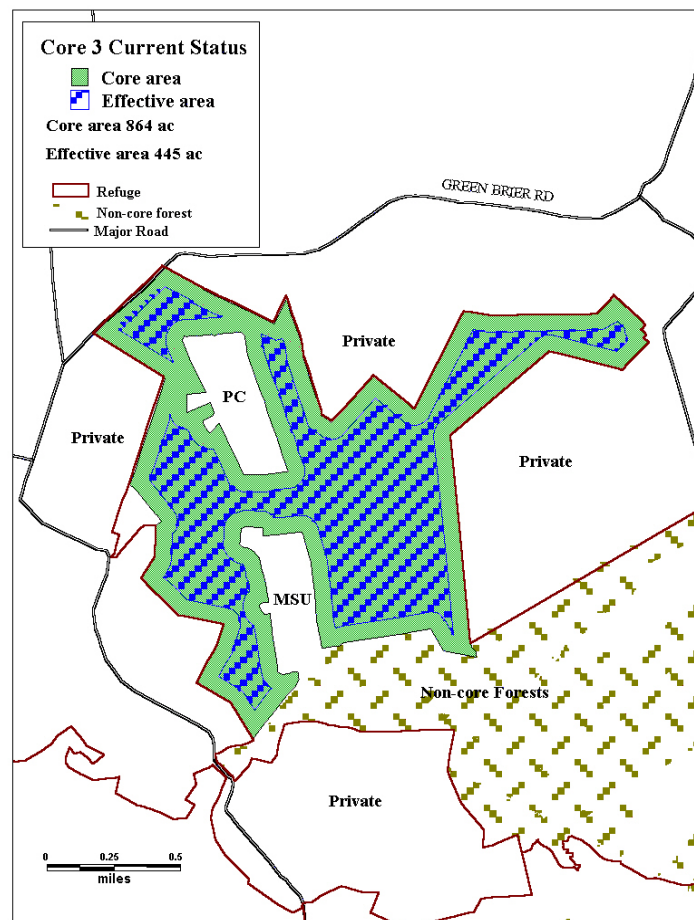
Timber stand improvement is currently proposed on approximately 250 acres within this core. The preferred method of TSI will be crop tree release or a combination of this and one other TSI method. As this core expands as a result of land acquisition, the proposed treatment acres within the core may also increase.

**2.) Regeneration Harvests**

Techniques to enhance the natural regeneration of both hardwood and pine species under a mature canopy will be performed on approximately 300 acres of mature and overmature forested habitat within this core over the next 15 years. As this core expands as a result of land acquisition, the proposed treatment acres may also increase.

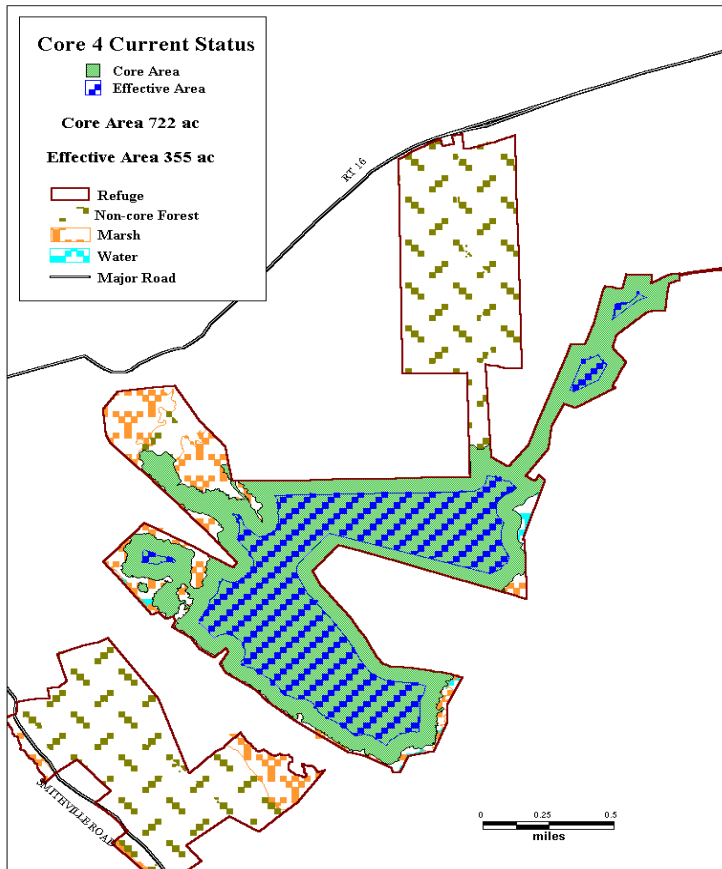
**D.) Core 4**

Core 4 is composed of 722 acres of contiguous mature forests within compartment T. The effective area of core 4 is 355 acres and has a perimeter-to-area ratio value of 92. The current core area consists



Core 3 current status

predominantly of a mixture of pine and hardwood, which changes to a pine-dominated forest as it gets lower in elevation and closer to the marsh. A more detailed description of the forests in this compartment can be found in chapter 3, “Affected Environment,” in the Environmental Assessment prepared for the Chesapeake Marshlands NWR Complex Comprehensive Conservation Plan. The current core size of 722 acres should provide potential breeding habitat for 5 of the 11 area-sensitive FIDs.



Core 4 current status

### 1.) Release Cutting and TSI

Approximately 292 acres of mature loblolly pine timber had been harvested from this compartment prior to acquisition in 1994. The harvest was in the form of a clear-cut, but in areas where the hardwood was denser than pine, the pine was selectively removed and the lower-grade hardwoods were left. Many of these remnant trees were of poor health and form to begin with and continue to show signs of declining health. Although a more detailed stocking inventory needs to be performed, preliminary observations revealed that most of this area contains an adequate stocking of loblolly pine regeneration. However, the shading from the residual trees has been a significant hindrance to the growth and establishment of a new vigorous stand of trees. Oak regeneration is virtually absent

from the stand, most likely due to the dense growth of more vigorous hardwood vegetation and possibly the lower prevalence of oaks in the original canopy. These factors coupled with the competition from other woody vegetation and the lack of proper management has been a significant setback in the establishment of a new stand.

Other areas that served as logging decks during the operations now contain no regeneration of any tree species. The compaction of the soil and residual debris has precluded the germination of stored or newly fallen seed. The growth and establishment of pine seedlings and saplings is hampered by the dense shrub competition and in some areas, shading from residual canopies. Therefore, the regeneration within these stands is in dire need of release. By ensuring the successful regeneration of these stands and their inclusion into the core we will increase the overall size of the core by 292 acres (40%) to 1,015 acres, while the effective area will be increased by 173 acres (49%) to 528 acres (figure 8). The perimeter-to-area ratio value



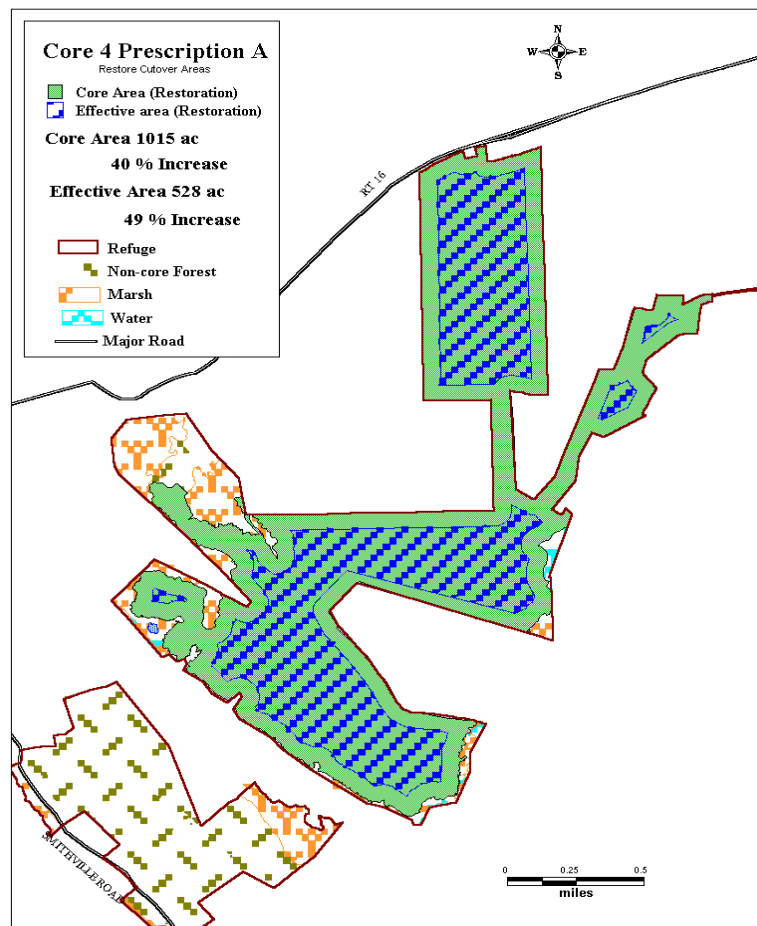
subsequently will be decreased by 12 percent from 92 to 81. Despite the significant increase in core size as a result of this activity, effective area will still be compromised due to the narrow band of forest that connects these restored lands to the original core. This wooded corridor is bordered by clear-cuts and contains no effective area for FIDs. The total effective area of the newly established core is actually not contiguous and is separated from the original core by this narrow wooded corridor. This factor will only be mitigated through the acquisition and reforestation of the adjacent lands. However, by increasing the overall size of the core to 1015 acres, the new core will potentially provide breeding habitats for all 11 species of the area-sensitive FIDs listed.

## 2.) Timber Stand Improvement

Timber stand improvement is currently proposed on approximately 100 acres within this core. The preferred method of TSI will be crop tree release or a combination of this and one other TSI method. As this core expands as a result of land acquisition, the proposed treatment acres within the core may also increase.

## 3.) Regeneration Harvests

Techniques to enhance the natural regeneration of both hardwood and pine species under a mature canopy will be performed on approximately 100 acres of mature and overmature forested habitat within this core over the next 15 years. As this core expands as a result of land acquisition, the proposed treatment acres may also increase.



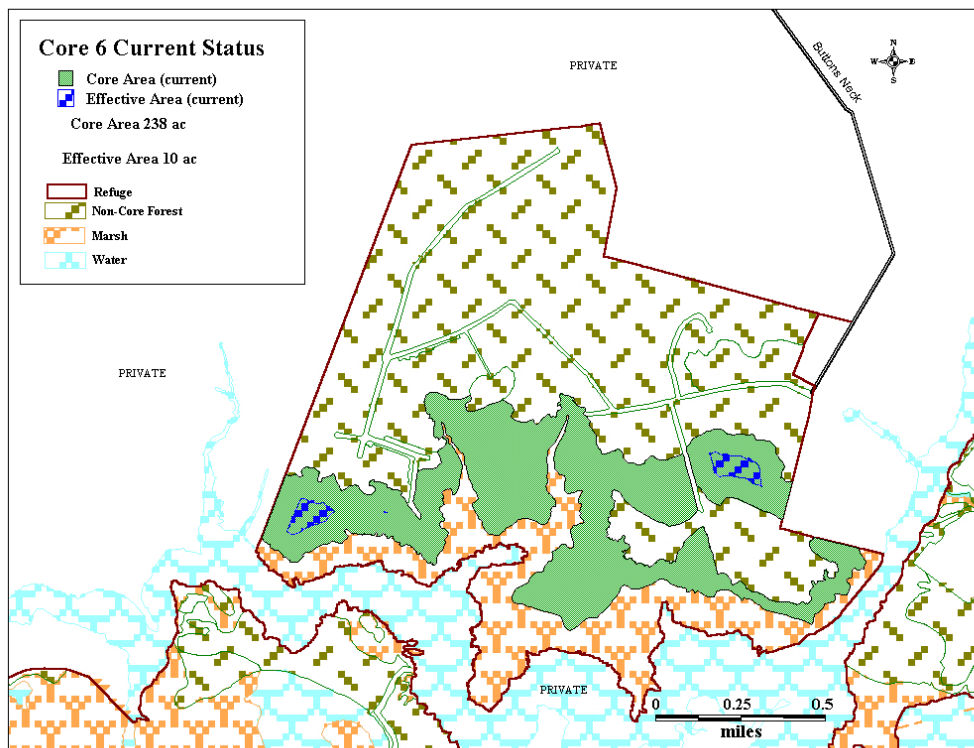
Core 4 and release cutting

## Core 6

Core 6 is located within compartment R, and is now only 283 acres in size. Due to its linear shape and expansive clear-cut within its boundary, the current effective area for FIDs is only 10 acres. This assemblage of mature forest stands consists primarily of pure pine forests that are located within the 'Critical Areas' and a previously high-graded overmature hardwood

dominated stand. The Critical Area can be defined as a zone of protection that may extend out to 1,000 feet from the mean high tide delineation along tidal wetlands and waterways. These Critical Areas are protected and governed through the Maryland Critical Area Act, enforced by the Critical Areas Commission. Therefore, no management activities will be proposed on forested areas within the designated Critical Area. The only management that will be implemented within the current core boundaries will be a very light selection harvest to promote natural regeneration within this stand.

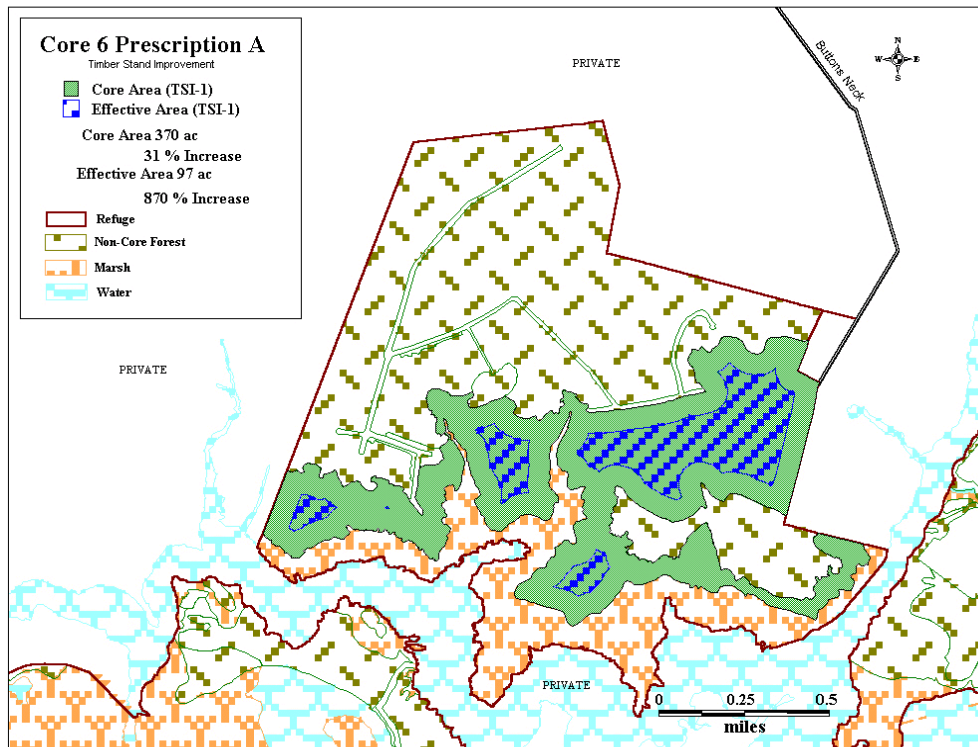
The entire future of this core hinges on the management of the surrounding immature and regenerating stands. The primary management objective will focus on enhancing these adjacent lands to someday include them into the core. The current forest conditions in this compartment are a result of timber harvesting that occurred over a 25-year period. The time factor, coupled with the different harvest techniques performed under various site conditions, has resulted in a highly diverse forest with respect to age class, species composition and stand conditions. A more detailed description of the forests in this compartment can be found in chapter 3, “Affected Environment,” in the Environmental Assessment prepared for the Chesapeake Marshlands NWR Complex Comprehensive Conservation Plan. In order to perpetuate the growth and development of stands within this compartment for the goal of establishing a core, an equally diverse combination of forest management strategies will be required. The specific commercial management practices that will be performed in the near future are discussed below.



Core 6 current status

## 1.) Timber Stand Improvement

Timber stand improvement is now proposed on approximately 87 acres within this core. It is highly likely that the preferred method of TSI will be a thinning within the 35- to 40-year-old pure pine stands directly north of and adjacent to the current core. The objective of this thinning will be to reduce the total basal area of the stand to between 80 and 90 square feet per acre, thus enhancing growing conditions for the remaining trees. The long-term benefits to the quality of these stands will be most evident at maturity when they will be added to the core. By adding these stands to the core, the overall size of the core will be increased by 31 percent to 370 acres, while, the effective area is increased by 97 acres or 870-percent. (figure 10). Despite the tremendous percentage increase in effective area, the size of the core remains below the minimum size requirements and will provide potential breeding habitat for only 5 out of the 11 highly area-sensitive FID species.

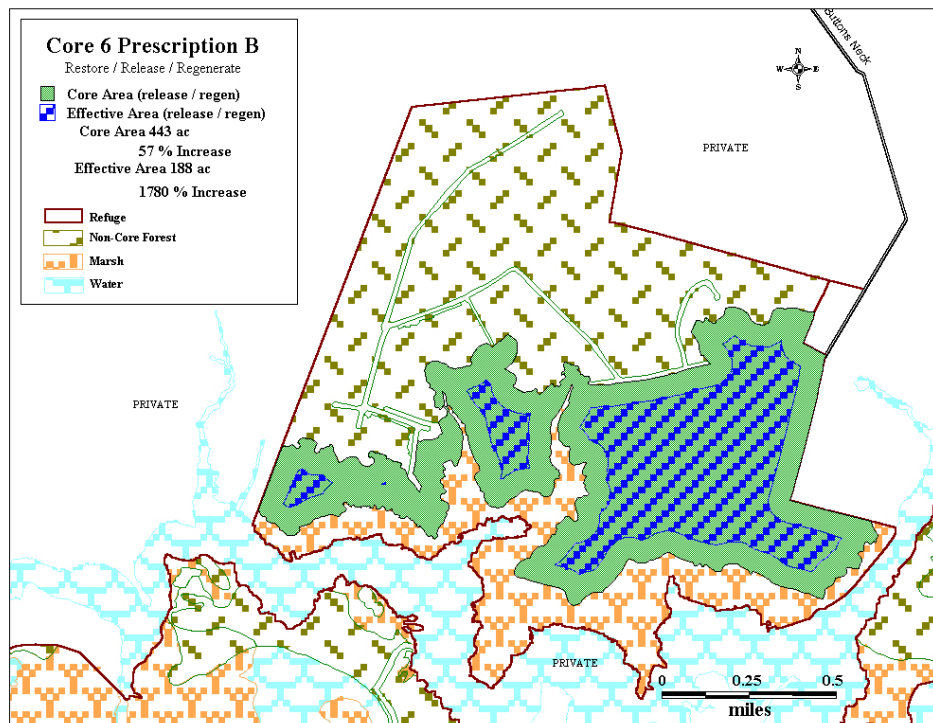


Core 6 and TSI

## 2.) Release cutting

Approximately 150 acres or more of mature loblolly pine timber was harvested from 1994 to 1999 from this compartment, before and after its acquisition. The harvest was in the form of a clear-cut, or the selective removal of residual trees left during previous harvest operations. A 66-acre clear-cut is located directly within the current core; therefore, the regeneration of this stand is a high priority. Although a more detailed stocking inventory needs to be performed, preliminary observations revealed that most of this area contains an adequate stocking of loblolly

pine regeneration. However, dense growth of competing shrubs, vines, and Phragmites has significantly impacted the growth and establishment of pine regeneration. Oak regeneration is virtually absent from the stand, most likely due to the dense growth of more vigorous hardwood vegetation and possibly the lower prevalence of oaks in the original canopy. These factors coupled with the competition from other woody vegetation and the lack of proper management have been a significant setback in the establishment of a new stand. Since the original stand was a predominantly pine forest, it will be our intent to manage this area for similar future conditions. If it turns out that loblolly pine stocking levels are more than adequate throughout much of the stand, and oak regeneration is not occurring, management strategies will focus on improving the growth of the existing pine regeneration. As previously stated, the growth and establishment of pine seedlings and saplings are hampered by the dense shrub competition and in some areas, shading from residual canopies. Therefore, the regeneration within these stands is in dire need of release. The actual inclusion of these lands to the current core will not take place for another 35 years when the stand has reached maturity. By not managing these areas, we will increase this time frame considerably. The actual impacts of including these areas in the core have been analyzed and illustrated below.



Core 6 and release

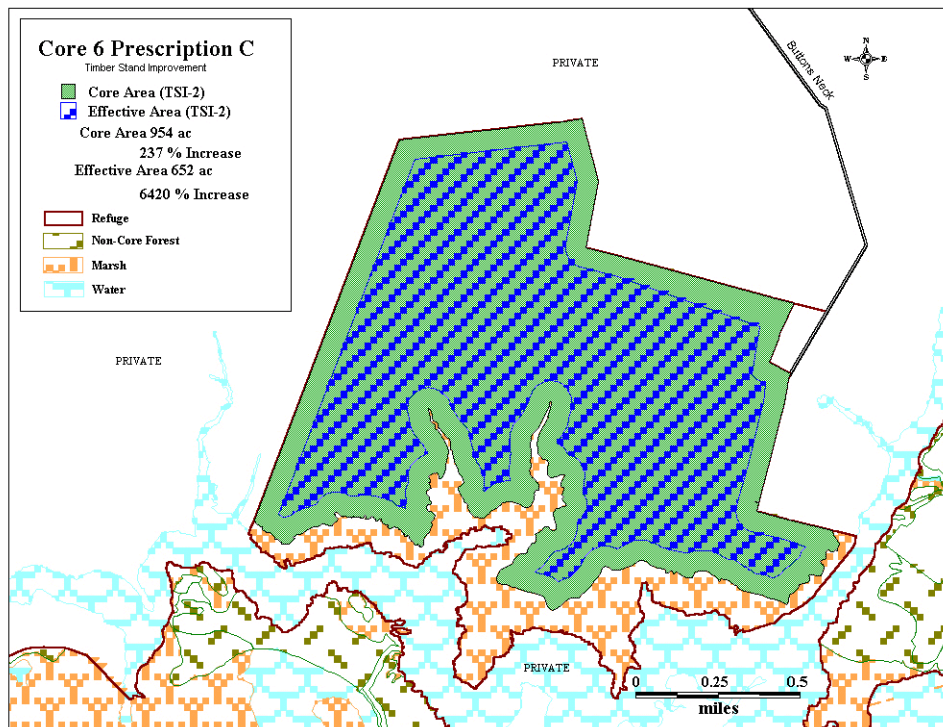
### 3.) Timber Stand Improvement 2

A variety of timber stand improvement techniques will be used within the next 15 years to improve growing conditions for preferred species on approximately 580 acres of previously harvested land. These areas were virtually clear-cut, with the exception of some small hardwood dominated pockets that were high-graded. These previously pine dominated areas have since



regenerated to a hardwood dominated forest consisting of mostly red maple and sweet gum. Due to the dense and vigorous growth of these early successional species, pine regeneration is sparse and oak regeneration is almost non-existent. The age of the newly established stand is 10 to 15 years.

Due to the lack of management during the early stages of stand regeneration, management at this stage will be extremely labor-intensive and very expensive. By enhancing conditions of these acres along with the cut-over areas discussed under the previous prescription and ensuring that they eventually become part of the core will significantly increase this core's ability to provide potential breeding habitat for FIDs. By including these areas (in addition to the 87 acres of immature pine stands) we will collectively increase the overall size of the core by 671 acres (237%) to 954 acres. Whereas the effective area will be increased by 642 acres, or an unbelievable 6,420-percent, to 652 acres. The perimeter-to-area ratio value will subsequently be decreased by 76-percent from 58 to 14. The resulting 954 acre core will provide potential breeding habitats for at least 9 of the 11 area-sensitive FIDs listed.



Core 6 and TSI 2

#### 4.) Regeneration Harvests

Techniques to enhance the natural regeneration of both hardwood and pine species under the mature canopy of high-graded stands may be performed on approximately 58 acres of overmature forested habitat within this core over the next 15 years. As this core expands as a result of land acquisition, the proposed treatment acres may also increase.

The management prescriptions that will be proposed on non-core forest habitats are of somewhat less significance, and will not be described in as great detail. Additional forest management will continue to be performed within the current refuge boundary as well as newly acquired lands, however many of these specific management needs cannot be projected at this time without additional inventories and data collection. Future and ongoing management of the forest habitats will be driven by the same management goals and objectives that led to the development of the following management strategies.

**(C) When would the use be conducted?**

To assist in the determination of management needs, it is imperative that a continuous inventory and monitoring program be implemented throughout the refuge to evaluate forest conditions. Once management recommendations are made, any of the strategies previously mentioned may be used to achieve the desired results. With the limited amount of data pertaining to specific forest stands and their condition, it is impossible to make management prescriptions for all forest lands on the refuge for a 15-year period. Therefore, all of the management recommendations are based on current knowledge of stand conditions for those areas. As more information is gathered, we will develop more management prescriptions and at the same time the priority of new and existing prescriptions may change. The prescriptions above include only those that are currently of the highest priority. The prioritization of silvicultural prescriptions and subsequently, commercial timber harvesting, is subject to change due to factors such as the acquisition of new lands, insect, disease, or storm damage, or the availability of funding.

Generally, commercial TSI will be performed within immature stands less than 40 years of age that are characterized as having very high stand densities, undesirable species composition or undesirable species dominance (e.g., oaks being suppressed by gum and maple). Commercial regeneration cuts will generally be performed in overmature stands (80- to 100-plus years old for loblolly pine) that exhibit significant decreases in annual growth or are showing signs of heart rot or other diseases. The types of commercial harvests performed will be those that maximize the potential for natural regeneration of the stand and do not focus on the quality or quantity of saw timber removed. Stands will be harvested during a period when disturbance to the soil will be at a minimum, yet also allow for the maximum seed germination and ultimate regeneration. Timber harvests will not be performed during the primary breeding season for Delmarva fox squirrels and bald eagles (if nests are within or directly adjacent to harvest area). Timber harvest will also be limited but not prohibited during the breeding season for FIDs, from April through August. Since those months also include some of the best soil and hydrological conditions for performing mechanical forest management activities, it will be impossible to completely avoid performing commercial timber harvest during the FIDs breeding season. Due to the traditionally wet winters and springs, most of the forest management practices will be performed from July through December. Performing commercial timber harvests within existing cores will be significantly more restrictive.

**(D) How would the use be conducted?**

Forest stands subject to commercial silvicultural prescriptions will first be inventoried to collect the appropriate data relative to the type of activity being prescribed. For example, for stands

slated for TSI, data such as basal area, trees per acres, age, and species composition would be vital to justifying and monitoring the action. Whereas variables such as age, species composition, basal area, trees per acre, and volume of forest product in the whole stand, as well as that which will be harvested, will be collected prior to performing any harvest. The procedure for conducting pre-commercial and commercial TSI on the refuge will be heavily influenced by the availability of funds (primarily for pre-commercial) and the current market status for the types of forest products produced as a result of the activity (e.g., poles, pulpwood, chips, or firewood). For these harvests, a desired future condition will be specified by the refuge forester. This information, along with all other job specifications, will be provided in a special use permit, which is the accepted form of contact for performing timber harvests on National Wildlife Refuges. A copy of the permit or statement of work will then be sent out to local and regional timber harvesting companies. Contracts will either be awarded to the highest bidder if the stand and market allow for the sale of yielded products.

As for harvests that result in the removal of saw timber, a more formal approach will need to be taken. Once again the proposed stand will be inventoried to acquire essential data (specifically overall merchantable volume). This data will also be provided in a special use permit along with a statement of work including all of the particulars and stipulations that must be adhered to. This will then be sent to local and region potential contractors inviting them to visit the proposed harvest site and perform their own inventories and subsequently submit sealed bids for the forest products expected to be harvested.

#### **(E) Why is the use being proposed?**

Our silvicultural management prescriptions primarily will focus on establishing, protecting and enhancing the benefits of core management areas as habitat for DFS, bald eagles and FIDS. The desired future conditions by the year 2015 will guarantee that a minimum of seven mature forest cores will be maintained at an optimum size, effective area, perimeter-to-area ratio, species composition and overall health for a more healthy forested ecosystem. A detailed description for each of the established and potential cores within the current refuge boundary and the proposed prescriptions and resulting future conditions are discussed below, along with additional high priority management recommendations for non-core habitats. These management prescriptions represent only the highest priority management needs. The forest management on Blackwater NWR will not be limited to these high priority areas (cores). It also will focus on using silvicultural techniques to enhance the overall quality of forest habitats throughout the refuge. All additional prescriptions or management recommendations can be collectively grouped under the umbrella of conducting forest management to improve, maintain, and perpetuate healthy, diverse assemblages of both contiguous and disjunct forest habitats and achieve refuge forest management goals and objectives.

In addition, as previously mentioned, commercial management practices are the method preferred over using force account, due to the fact that the refuge system does not own the equipment required for performing those practices without causing significant negative impacts on the sites. Nor does the refuge have the manpower either to run equipment or to harvest trees using chainsaws. Commercial timber management is the most economical, safe, and environmentally sound method of achieving many of our proposed forest management

objectives. It is also imperative that funds generated from the sale of forest products be returned to the refuge in order to ensure proper restoration of the forest and help support the management or restoration of additional forest habitats, since no actual funding is provided by the Service to support forest management activities on refuges.

### **1.) Commercial Timber Stand Improvements**

Commercial TSI, which include but are not limited to crop tree release, thinning, and improvement cutting, may be performed on as much as 2800 acres of immature and mature stands that are stressed due to overcrowding and competition for resources on Blackwater NWR and the Nanticoke Division. These intermediate cuttings will result in improving the growth of an existing crop of trees, but will not result in stand replacement. The selective removal of less preferred, overstocked, intermediated and co-dominant vegetation will allow the expansion of the crowns and root systems of remaining trees. The vacancies created in the growing space will not be large or permanent enough to allow height growth of any new trees that become established as a result of the treatments. When a forest is young, it always contains many more trees than it will when it is mature. One thousand or more young saplings may initially compete for a foothold on a single acre of land. Fifty years later that same acre of land will support only a few hundred trees. Performing thinning of various types in overstocked stands will free up nutrients and other resources and promote faster growth rates, greater mast production and healthier trees. Thinning overcrowded stands will significantly reduce competition and decrease stress.

In a crowded forest, trees tend to grow very tall due to competition with its neighbor for sunlight. Tall trees in a crowded forest usually have very thin trunks. All new growth goes toward obtaining height, not girth. While crowded trees are constantly competing with each other, they also depend on each other for support. Tall, thin trees cannot support the weight of their own branches by themselves. The interwoven branches of crowded trees provide support for one another. Openings that naturally occur in a forest due to one or more trees falling will result in several thin-trunked trees losing their support. In an opening, a thin-trunked tree will suddenly find itself being buffeted by the wind, causing the trunk to sway. In response to the bending, the tree will add wood to its stem to stabilize itself. Growth hormones allow the tree to direct the growth to the stem when environmental conditions require it. The fact that trees can concentrate growth in a specific region of the tree in response to external environmental conditions is valuable knowledge to a forest manager. By thinning forests, we as land managers mimic nature by following the process of natural selection. By cutting out the weak, crooked, and over-crowded trees, the strongest trees can reach their fullest potential. A thinned forest is typically healthier than a crowded forest. Once thinned, the remaining trees will expend less energy competing with other trees, which will enhance their ability to fight off invasions of insects or disease. The trees that remain after a thinning will grow sturdy, thick trunks and few will be lost to windfall.

Wildlife will benefit from these thinning due to both the increased growth and mast production as well as the abundance of new food available on the forest floor. Most of the plants used by wildlife for food grow on the forest floor and require sunlight (Jastrzembski, 2000). Thinning forest stands will temporarily increase the amount of sunlight hitting the forest floor, which will



allow for the germination of many new plants. The resulting plant diversity in the understory is especially aesthetically pleasing to hikers, hunters, and photographers. When properly performed, thinning will benefit the entire forest ecosystem and enhance the many values we receive from our forests. Thinning will also help to reduce the risk of oak decline by reducing competition for moisture and nutrients and promote better physiological condition of the remaining trees. Silvicultural practices designed to encourage species best adapted to the site can help reduce the effects of drought or frost. Removal of weak and dying trees may also reduce or delay buildups of two-lined chestnut borers.

Release cutting (crop tree release) will result directly in increased growth rates and mast production and may also be used to regulate or modify species composition in a young stand. Precommercial crop tree releases will increase tree diameters and help ensure survival. Released trees will become mature sooner and attain a larger size at maturity. Crop tree selection will always focus on healthy trees with well-formed crowns and should include species from both the red and white oak groups along with beech and pine. The crop tree species diversity will promote a more consistent mast crop (Whiteman and Onken, 1994). Crop tree selection will also focus on mast production, providing dens and timber quality. Crop tree release will consist of cutting only trees that are directly competing with crop trees. The process will not consist of selecting crop trees and cutting all other trees in the stand. Therefore, an acceptable level of species diversity and richness will be maintained. Mast-producing hardwoods, when released, will be able to respond by increasing both height and diameter growth and most importantly crown diameters. Hardwood mast production can be maximized and a sparse understory can be maintained by promoting large crown development of mast producers in the overstory. Mast production in immature stands (average dbh <12 inches) is likely to be very limited. Although these stands can have an open understory, they typically are overcrowded and as a result have smaller crowns. A 12-inch dbh tree will generally produce 225 percent more mast than it did when it had a 10-inch dbh. Generally mast production increases with the diameter of the tree until it reaches 22–24 inches dbh, at which time mast production starts to decline as the tree becomes overmature. The rate at which immature stands reach the desired conditions for DFS can be expedited by identifying potential hard and soft mast crop trees and performing a release cutting around these trees to encourage crown development (Onken and Whiteman, 1994).

Loblolly pines that have developed in a suppressed condition respond in varying degrees to release. Increases in diameter growth after release are related to live-crown ratio and crown growing space. Trees of large diameters generally respond less than trees of small diameters. Trees with well-developed crowns will usually respond best to release. Trees long suppressed may grow much faster in both height and diameter after release but may never attain the growth rate of trees that were never suppressed (Baker and Langdon, 1990).

Once again, most of these practices will be performed on a commercial basis whenever possible due to the specific nature of the types of equipment needed to perform the task properly. The Service simply does not have the equipment or personnel to achieve the desired results economically with the fewest environmental impacts.

## **B.) Commercial Stand Replacement and Regeneration Harvests**

In order to ensure the long-term existence of core areas, stand replacement or regeneration must be an ongoing management objective. A common characteristic of mature and overmature forest stands on Blackwater NWR is generally a closed canopy and, as a result, a sparse understory. Also due to the closed canopy and lack of sunlight, there exists little or no natural regeneration of preferred tree species such as oak. Techniques to enhance the natural regeneration of both hardwood and pine species under a mature canopy may be employed on as much as 2033 acres of mature and overmature forested areas on the refuge over the next 15 years. Harvesting methods that are performed for the purpose of stimulating the germination of stored seeds or sprouting of root stocks and eventual stand replacement include, but are not limited to, single tree selection, group selection, shelterwood, and strip and patch clearcuts. The methods most frequently used would be single tree selection and shelterwood techniques due to the minimal impacts on the forest canopy and the lesser effects on the integrity of the cores. Performing these prescriptions would have no direct impacts on the size, effective area or perimeter-to-area ratio of the core.

Additional techniques such as group selection, strip and patch cuts and seed tree harvests would only be used when it has been determined that they are the only or best option for regenerating an overmature or unhealthy stand. Within core areas, these methods will only be performed when lands of equal or greater quality in terms of acres, age and species composition can be added to the core to offset the temporary impacts on the size and perimeter-to-area ratio of the core. A minimum post-harvest basal area will be the target when preparing prescriptions for these areas. Performing regeneration harvests in some of the mature and overmature stands throughout the complex will reduce the potential for forested habitats to become stagnant. As trees become overmature and reach the end of their life, as is the case with many pines in these stands, their growth rates slow considerably and mast or seed production is severely reduced. The selective removal of dominant and co-dominant canopy trees that show signs of declining health will allow necessary light to reach the forest floor to facilitate seed germination and free up additional resources to enhance the growth of new regeneration. In most cases the resulting natural regeneration likely will be dominated by pine, red maple, sweet gum and possibly beech.

Due to the many complications related to the germination of oak seeds such as parasitism, predation and other various site conditions, it is likely that oak regeneration will be minimal. The planting of oak or other hard-mast-producing species may be required in these openings to ensure their replacement and continued occupancy of the stand. Additional future silvicultural treatments may be required to ensure survival and optimum growth of new trees, thus increasing their chances of achieving dominance in the stand. Creating openings in the canopy will not only enhance natural regeneration but will also enhance growth and mast production of remaining trees, much like a crop tree release. The perpetuation of the stand through promoting regeneration and the associated improvements in mast production will have significant long-term benefits for DFS. Future implementation of TSI will ensure that the species composition of these stands is not significantly altered.

**Availability of Resources**

The proposed preferred alternative in the Comprehensive Conservation Plan for the Chesapeake Marshlands NWR Complex recommends one supervisory forester, one field forester and two forest technicians to adequately achieve the proposed forest management objectives for Blackwater and the Nanticoke Division.

The current staff of only one permanent forester is far from the minimum needed to implement such a large and complex forest management plan. Money generated from the sale of forest products will be deposited in the ‘expense of sales’ account under the code 6860 for distribution back into the refuge system. It is expected that a significant percentage of the funds generated by the sale of timber on Blackwater NWR will be returned to the refuge the following year for the purpose of supporting and sustaining the forest, the refuge forest management program, and performing activities such as regeneration and restoration, follow-up inventories, additional stand inventories, timber marking and any related road work.

When appropriate and applicable, tasks such as forest regeneration and road rehabilitation may be included in the contract as an end product and will be included as part of the bid. This would alleviate any additional management costs to the government associated with this specific activity. However it would not eliminate most of the preliminary site preparation and some minor road maintenance.

Also when appropriate and available, the reforestation of the site will be performed through partnerships, grants and volunteers, which will also result in no significant costs to the government.

It is anticipated that all harvesting will be performed near or from existing roads. Since we would not be constructing any new facilities or improvements on refuge property for this specific use, there would be no significant construction costs associated with this use. However, funding for the maintenance of roads and water control structures will be necessary. Contract development and administration and monitoring costs associated with maintaining statistical information on timber harvesting activities will be assumed by refuge forestry staff.

**Cost Breakdown**

The following is the list of costs to the refuge required to administer and manage the proposed commercial forest management practices on an annual basis.

Refuge Personnel Costs

Forest Inventories (50 days @ 8 hrs/day@\$25/hr) .....	\$10,000
Marking Timber (45 days @ 8hrs/day@\$25/hr) .....	9,000
Contact Development (28 days @ 4hrs/day@\$25/hr) .....	2,800
Contract administration (30 days @ 4 hrs/day@25/hr) .....	\$3,000
	<b>Total \$24,800</b>

## **Anticipated Impacts on Refuge Purposes**

All anticipated and potential environmental, socioeconomic, and cultural or historical impacts resulting from the above-mentioned activities can be found in the Chesapeake Marshlands NWR Comprehensive Conservation Plan and Environmental Assessment, chapter 4, “Environmental Consequences,” pages 4–42 through 4–110.

## **Public Review and Comment**

This compatibility determination will be submitted for public review and comment as an appendix to the Environmental Assessment for the Draft Comprehensive Conservation Plan for the Chesapeake Marshlands NWR Complex, in full compliance with NEPA.

## **Determination (Check One)**

This use is compatible . This use is not compatible .

## **Stipulations Necessary to Ensure Compatibility**

All commercial forest management activities will be performed in accordance with the recommendations and guidelines described in both the “Endangered Species Recovery Plan for the Delmarva fox Squirrel” and the “Management Guidelines for Bald Eagles in the Chesapeake.” The additional stipulations listed below apply to the overall forest management program and will be followed when carrying out all forest management activities.

- Forestry management decisions will be based upon the best available dendrological and biological information.
- Forestry management objectives and strategies will focus on conservation of entire communities of native wildlife and plants to contribute to the biological integrity of the ecosystem and purposes of the refuge as appropriate at the local, regional, and landscape level.
- Forestry prescriptions will have a landscape context, consistent with the mission of the Refuge System and individual refuge purpose and will explicitly link to national, regional, and eco-regional wildlife management objectives.
- Forestry prescriptions will attempt to restore or mimic natural regimes and processes to achieve habitat objectives by recreating or maintaining a desired forest condition for Service trust resources as required by the Integrity Policy.
- Forestry management actions will eliminate, reduce, or create unfavorable conditions for exotic and invasive species.

- Each forest community objective will include monitoring protocols and use the process of adaptive management to assess and modify management strategies to achieve objectives.
- Biological goals will be established for each forest each management unit. Biological goals may include elements from the following: ecosystem processes, wildlife-habitat relationships, hydrology, connectivity, viability of special species, or hydrogeomorphic processes.
- The Forestry Management Program will have restoration objectives, where appropriate, to guide the desired future forest conditions.
- The overarching management philosophy and objective is to create a forest management program that improves ecosystem health and conserves biodiversity and simultaneously contributes to the forestry industry and local economy of the Eastern Shore.
- Forest management practices will focus on improving forest health, increasing tree growth and vigor, reducing stress, increasing hard and soft mast production, promoting desirable species composition and facilitating the natural regeneration of desirable tree species throughout the refuge on appropriate sites.
- Desired future conditions of the refuge forests will be managed to enhance ecological and structural diversity where feasible and prudent by using a variety of silvicultural techniques and by retaining a diversity of vegetation and unique structural features.
- Best Management Practices will be employed that meet or exceed state and federal standards for the protection of endangered species, forest interior dwelling species of Neotropical migratory songbirds, water quality, wetlands, and other aquatic resources, including the retention of forested buffers.
- Silvicultural treatments will ensure that air quality will not be degraded by burning only when prescribed burning is an appropriate silvicultural technique for the improvement of forest conditions or aesthetics in visually sensitive areas or when required by law for hazard abatement.
- Management actions will ensure future forest growth and sustainable productivity by reforesting all harvested areas in a timely manner consistent with ecological conditions.
- Silvicultural forestry management will maintain soil and site productivity by minimizing soil disturbance and by recycling harvest residues for soil nutrient enhancement.
- Under a landscape-level lense, the forestry plan will conserve fish and wildlife resources through targeted research and management of the habitat and wildlife relationships, retention of late successional areas, judicious control of road access, timber harvest management and cooperation with state and federal fish and wildlife agencies.

- The Forestry Management Program shall have visual quality objectives, recognizing and managing for aesthetic values near communities and major travel corridors by using appropriate design standards and harvest methods.
- The Plan shall cooperate with adjacent landowners to address and minimize potential impact of forest management activities.
- Implementation of the Plan shall have features that will ensure the application of new scientific, social and economic information to improve silvicultural and management practices and enhance environmental and financial performance.
- During any forest management practice, all den and cavity trees will be retained and protected from damage to the best of our ability.
- During any silvicultural treatment, neither DFS den trees nor adjacent trees should be cut. The foliage of adjacent trees shades the bole of the den tree, thus keeping the den cooler. In order to promote additional den sites, trees interfering with crop tree crown development should not be felled, but rather left standing and killed by girdling or by using systemic herbicides.

The following recommendations applying to commercial timber harvesting are from the Chesapeake Bay Critical Area Timber Harvest Plan Guidelines (FIDS and Forestry Task Force, June 1999). We will make every effort to adhere to them when applicable and appropriate to achieving management objectives.

- Reforest existing openings in forest tracts, especially those located in forest interior areas.
- Reforest existing nonforested areas along the edge of a forest tract. Select forest areas that will maximize the area-to-edge ratio and total forest tract size.
- Allow existing woods roads to reforest or reduce their width so that canopy closure is maintained over the road.
- Establish a core area where little or no harvesting occurs; select areas at least 5 acres in size and locate them, if possible, in the most interior part of the forest and adjacent to other areas with little or no harvesting (e.g., Critical Area Buffer, steep slopes).
- Retain a no-cut buffer of at least 100' along each side of perennial streams, rivers and extensive forested wetlands (corridors will be maintained out to 300').
- Increase the width of riparian forest corridors to at least 300' and, ideally, to > 600'.
- Conversion of riparian hardwood or mixed hardwood-pine forest on perennial streams to loblolly pine is not permitted.

- Conversion to pine forest (i.e., forests in which loblolly pine composes >60 percent of the total basal area) is acceptable in isolated, small forest tracts (<100 acres) lacking mature mixed hardwood-pine stands; within 300' of existing permanent forest edges; adjacent to existing loblolly pine stands, and in narrow (<600'-wide) forest peninsulas that extend out into a nonforested area. In all cases, some hardwoods would be retained in understory, midcanopy and overstory.
- Maximize pole stage or older.
- Retain >8 snags per acre that are >8" dbh
- Retain dead and downed wood debris on forest floor during harvest operations.
- Single tree selection will be the preferred harvest strategy in the interior.
- Timber harvesting (not TSI) will be avoided in core areas from April 1 through September 1, which is the breeding season for most FIDS.

### Justification

The justification for performing silvicultural prescriptions such as commercial timber harvesting is described in great detail in both chapter 3, "Alternatives," and chapter 4, "Environmental Consequences," in the Environmental Assessment prepared for the Chesapeake Marshlands NWR Complex Comprehensive Conservation Plan, as well as in the Forest Management Plan for Blackwater NWR.

The overall impact of performing timber harvest on Blackwater NWR and the proposed Nanticoke Division will not materially interfere with or detract from the mission of the National Wildlife Refuge System or the purposes for which the refuge was established.

**Signature—Refuge Manager** \_\_\_\_\_  
(Signature and Date)

**Concurrence—Regional Chief** \_\_\_\_\_  
(Signature and Date)

**Mandatory 10- or 15-year Reevaluation Date** \_\_\_\_\_

### Attachments

None

## **References**

- Baker, L. B. and Langdon, O. G. 1990. *Pinus taeda* L. Loblolly Pine. In *Silvics of North America* Vol. 2, Agricultural Handbook 654. USDA Forest Service, Washington, D.C. [http://willow.ncfes.umn.edu/silvics\\_manual/Volume\\_1/pinus/taeda.htm](http://willow.ncfes.umn.edu/silvics_manual/Volume_1/pinus/taeda.htm) 877p.
- Helms, J.A. 1998. *The Dictionary of Forestry*. The Society of American Foresters. [www.safnet.org](http://www.safnet.org). 210 p.
- Jastrzembki, P. 2000. Benefits of Cutting Trees to Forest Health . Maryland Forestry Association. <http://www.mdforests.org/mfa/ee3.htm>. 1p.
- Jastrzembki, P. 2000. FIDs. Maryland Forestry Association. <http://www.mdforests.org/mfa/fids.htm>. 1p.
- Jastrzembki, P. 2000. Silvics and Silviculture, the Science of Forestry. Maryland Forestry Association. <http://www.mdforests.org/mfa/silvics.htm>. 4p.
- Jastrzembki, P. 2000. Thinning—A Silvicultural Tool. Maryland Forestry Association. <http://www.mdforests.org/mfa/thinning.htm>. 1p.
- Whiteman, R. L. and Onken, B. P. 1994. Protecting Delmarva Fox Squirrel Habitat from Gypsy Moth and Southern Pine Beetle, Blackwater National Wildlife Refuge. USDA Forest Service, Forest Health Protection. Morgantown, WV. 46p.

Back to top



# Compatibility Determination on Hunting Big Game

## Hunting Big Game

**Station Name:** Blackwater National Wildlife Refuge (Chesapeake Marshlands NWR Complex)

### Establishing and Acquisition Authorities

The Chesapeake Marshlands National Wildlife Refuge Complex (CMNWRC) is composed of three nationally significant wildlife areas: Blackwater NWR, Martin NWR, and Susquehanna NWR with several separate divisions. Blackwater NWR includes the Nanticoke Division, and Martin NWR includes the Barren Island, Bishops Head and Spring Island, and Watts Island Divisions. Collectively, Martin NWR, Susquehanna NWR, and their respective divisions are referred to as the Chesapeake Island Refuges.

The first and largest of these areas to be established was Blackwater NWR. Originally authorized for establishment by the Migratory Bird Conservation Commission on December 3, 1931, and named “Blackwater Migratory Bird Refuge,” its current 28,000 acres are a showplace for the National Wildlife Refuge System.

On December 31, 1931, the Migratory Bird Conservation Commission authorized the Secretary of Agriculture to purchase 10,000 acres from the Delmarvia Fur Farms, Inc., of Philadelphia, Pennsylvania. On December 9, 1931, the Secretary entered into an agreement with Delmarvia Fur Farms, Inc., effective January 1, 1932, to lease 8,167.99 acres for the refuge. The Secretary subsequently determined that it was in the best interest of the Government to acquire 8,240.99 acres for the refuge from the Delmarvia Fur Farms and two other properties by condemnation. A notice of condemnation was filed August 26, 1932, and these tracts were conveyed to the Government in January 1933.

Blackwater NWR was, therefore, officially established under the authority of the Migratory Bird Conservation Act on January 23, 1933. Since that time, additional lands have been added to the refuge under the authorities of the Endangered Species Act, Refuge Recreation Act, North American Wetlands Conservation Act, and the Refuge Administration Act.

Table I summarizes the history of Blackwater National Wildlife Refuge land acquisition and the tracts that are now being affected by the proposed uses. Unless otherwise noted, all acquisitions are fee title. This compatibility determination will also apply to additional tracts, particularly those in the Nanticoke Division, as they are acquired.

## **Refuge Purposes**

For lands acquired under the Migratory Bird Conservation Act (16 U.S.C. § 715 d), the purpose of the acquisition is “...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.”

For lands acquired under the Endangered Species Act of 1973 (16 U.S.C. § 1534), the purpose of the acquisition is “...to conserve (A) fish or wildlife which are listed as endangered or threatened species...or (B) plants.”

For lands acquired under the Refuge Recreation Act (16 U.S.C. § 460K–1), the purpose of the acquisition is for “...(1) incidental fish and wildlife-oriented recreation; (2) the protection of natural resources; (3) the conservation of endangered species or threatened species...”

For lands acquired under the North American Wetlands Conservation Act (16 U.S.C. § 4401–413), the purpose of the acquisition is “(1) to protect, enhance, restore, and manage an appropriate distribution and diversity of wetland ecosystems and other habitats for migratory birds and other fish and wildlife in North America; (2) to maintain current or improved distribution of migratory bird populations; and (3) to sustain an abundance of waterfowl and other migratory birds consistent with the goals of the North American Waterfowl Management Plan and the international obligations contained in the migratory bird treaties and conventions and other agreements with Canada, Mexico, and other countries.”

For lands acquired under the Refuge Administration Act (16 U.S.C. § 668ddb), the purpose of the donation is “to protect, enhance, restore, and manage wetland ecosystems and other habitats for migratory birds, endangered and threatened species, and other wildlife.”

## **National Wildlife Refuge System Mission**

“The mission of the System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”—National Wildlife Refuge System Improvement Act of 1997 (Public Law 105–57)

## **Description of Use**

This evaluation is to determine whether programs for hunting white-tailed and sika deer and eastern wild turkey are compatible with the purposes for which the affected tracts were acquired.

### **(A) What is the use? Is it a priority use?**

The use is big game hunting for white-tailed deer, sika deer, and eastern wild turkey. The National Wildlife Refuge System Improvement Act of 1997 identifies hunting as one of the six, priority, wildlife-dependent recreational uses to be facilitated in the Refuge System, and encourages the Service to provide opportunities for the public to enjoy them.

## **Background and Rationale for the Management Activity**

In the 1930s, when Blackwater NWR was first established, hunting in Dorchester County was a means of providing food for the table as well as an accepted popular form of recreation. Most of the area was rural and the local population hunted on their own land and also allowed others to hunt their property. The refuge was considered a sanctuary for wildlife and protected from poachers. Few visitors came to the refuge.

A 1949 amendment to the Duck Stamp Act permitted hunting on 25 percent of the lands purchased for the National Wildlife Refuge System with Duck Stamp funds, but Blackwater NWR remained closed to hunting (Note. Later amendments authorized up to 40 percent). After World War II, Americans traveled the Nation's back roads and discovered their national wildlife refuges. Interest developed in using refuges for recreation other than hunting. Although most wanted to share with their families the sights and sounds of wildlife and the wonders of the living world, many citizens wanted to use their refuges to sail, swim, camp, water ski, ride horses, sun bathe, and rock climb. Guidance in the first Refuge Manual (1943) left the door open to uses for the cause of building public support, but conflicts between wildlife and public uses could be forecast. In the 1957 Refuge Manual, guidance on how to decide which public uses to allow hinted towards a wildlife first priority, but sent mixed signals. However, the Refuge Recreation Act of 1962 and the Refuge Administration Act of 1966 place into law the concept that refuges would be closed to all recreation uses, until a manager could determine that a proposed use was compatible with the refuge's establishing purpose and that sufficient funds were available to administer those uses. Refuge managers were responsible for making these compatibility determinations. Usually decisions were made locally, and in many cases, were based on local pressures and interests. The first formal compatibility determination for big game hunting on Blackwater NWR was approved on August 26, 1994.

Waterfowl hunting has always been a major recreational activity in Dorchester County, but when hunters discovered the abundance of deer and especially the exotic sika that could not be found elsewhere, they swarmed to the area. Interest in hunting on the refuge increased. When the farming community complained that the ever increasing population of deer on the refuge seriously depredated their crops, interest in promoting hunting on the refuge increased even more. To assist with the crop situation and provide recreation, Blackwater NWR began a deer hunting program in 1985. Although the current program allows most of the hunters that apply to participate, during the CCP scoping meetings hunters indicated a desire for increased opportunities to deer hunt. They also requested a turkey hunt.

### **(B) Where would the use be conducted?**

Deer turkey hunting will occur on approximately 10,430 acres, or approximately 38 percent of the existing refuge, but will increase with additional acquisitions. Hunting areas are located in upland forest and forested wetland habitats away from public use areas, high density waterfowl use areas, and away from most marsh and open water (figure 1). Portions of the marshes adjacent to forested wetlands are hunted for sika deer; however, these areas are not intensively used by waterfowl as evidenced by our biweekly aerial waterfowl surveys.

Spring turkey hunting will occur on approximately 7,485 acres in 10 areas (Areas B1, D, M2, N, R, S, T, U1, U2, and U3, figure 1) (27 percent of the existing refuge). Like deer hunting, turkey hunting areas are located in upland forest and forested wetland habitats away from public use areas, high density waterfowl use areas, and away from most marsh and open water.

**(C) When would the use be conducted?**

Hunting for white-tailed and sika deer would be permitted for a minimum of 53 days (45 days of archery hunting generally beginning the last Saturday in September, continuing consecutively until mid-November and ending with a late archery season beginning the first Saturday in January and ending the third Saturday in January; 2 days of muzzle-loading rifle or shotgun hunting the third Friday and Saturday in October; 2 days of youth-only shotgun hunting the second and fourth Saturdays in November; and 4 days of shotgun hunting the first and second Mondays and Fridays of the state-wide firearms season), all within State seasons, and consistent with State weapons, bag limits, and hunting hours. Deer hunting will be permitted on the aforementioned dates from one-half hour before sunrise to one-half hour after sunset.

Hunting for turkeys (gobblers only) will be authorized on Tuesdays and Saturdays for 4 weeks (8 days) during the State season (April 18 to May 16), on a quota basis, in compliance with state hunting regulations, and from one-half hour before sunrise until noon on designated hunt days. Turkey hunting would require a permit determined by a lottery system issued to 14 hunters per day (112 hunters). Scout days would be authorized the day before each hunt day. New areas would be evaluated and considered as they are acquired that would not conflict with public use areas or endangered and threatened species (e.g., bald eagle) and would not have a negative impact on other wildlife and habitat resources or public safety.

**(D) How would the use be conducted?**

During the spring turkey and deer archery seasons, hunters would walk in from existing designated parking areas, and all vehicle access would be prohibited. During the firearms seasons, vehicles would be restricted to designated roadways and existing parking areas. There would be no off-road vehicles or ATV use allowed during any hunting season. There would be no access allowed by boats during any of the big game hunting seasons. The first section of the Wildlife Drive would only be closed the first day of the shotgun hunt, leaving the second part of the Wildlife Drive open for public use. Hunting opportunities would be provided to a minimum of 3,000 hunters annually on a first come, first served, mail in system (non-quota for the archery season, but with quotas for the firearms hunts). Hunters would be restricted to zoned areas for safe distribution, with a ratio of no more than 1 hunter per 20 acres, although some areas may have only 1 hunter per 40 acres.

Blackwater Refuge would honor the commitments related to refuge acquisitions where the Service assured the public that the historical tradition of hunting deer would be permitted if compatible with the objectives of the refuge. With the acquisition of additional property, the refuge would open other areas suitable to hunting with the number of hunters per acre the same, and would increase the number of total hunters accordingly. Check stations would be operated by staff and volunteers during muzzle-loader and shotgun hunts to obtain age, sex, species, and

weight data. Deer killed during the archery season would be required to be checked at a specified Maryland DNR certified checking station. An annual hunt program would be prepared and submitted for review prior to July 1. Summaries of the biological information would be published in the refuge's Annual Narrative Report. Administrative fees would be charged for the permits. Senior citizens and youth would receive a 50-percent discount on these fees. Fees would be applied to hiring a hunt program coordinator and maintaining parking areas and signs.

One area of the refuge would be designated for certified wheelchair bound big game hunters. Hunt leaflets, regulations, and maps would be prepared and published annually, and distributed to hunters. Refuge specific regulations would be published annually in the Federal Register and codified in Title 50, Part 32. A hunter data base would be maintained to facilitate mailings and distribution of information. Blackwater NWR would continue the same precautions for threatened and endangered species and migratory waterfowl as in alternative A. Hunting would be regulated in time and space to eliminate conflicts with endangered species and other public uses and to ensure compatibility with refuge purposes. Annual spotlight surveys, harvest data, herd health conditions, and available habitat would continue to ensure that the deer hunt remained biologically sound.

Deer hunting, while maintaining herd numbers within acceptable levels, would continue to provide opportunities to utilize a renewable resource. Hunting seasons would be adjusted annually to take into consideration changes indicated in herd quality by biological monitoring [APCs (abomasum parasite counts), antler size, reproductive rates, etc.].

### **(E) Why is the use being proposed?**

Deer hunting will be conducted to achieve an integral part of the refuges comprehensive wildlife management program. The deer management goals are: maintain a healthy deer population at or below habitat carrying capacity; minimize crop depredation to refuge and adjacent private croplands; minimize Delmarva fox squirrel (DFS) habitat degradation and deer competition with the squirrel; keep the number of exotic sika deer at a level compatible with their habitat to prevent the species from increasing its range inland, thereby intruding into and competing with the native white-tailed deer; and, provide quality, compatible, consumptive, wildlife-oriented recreation.

Spring turkey hunting is being proposed to provide quality, compatible, consumptive, wildlife-oriented recreation.

### **Availability of Resources**

The Comprehensive Conservation Plan for the Chesapeake Marshlands NWR Complex recommends two full-time law enforcement officers (one at Blackwater and one for the Nanticoke Division) to conduct this and other hunt programs. One full-time officer was hired in FY2003. Combined with the existing two collateral duty refuge officers, there will be sufficient personnel to ensure compliance with regulation, protection of the resources, and public safety when all these positions are filled.

All hunting programs and supporting activities would be totally administered and funded by the Friends of Blackwater, who would also hire and pay for a full-time hunt coordinator. The Hunt Coordinator would administer all aspects of these hunting programs; respond to all questions and provide information to the public; process hunt applications and permits; conduct mailings; provide visitor assistance for the hunt programs; improve customer service; make a positive impression to customers and the public; provide maintenance of signs and parking areas; and otherwise assist hunters in following regulations and enjoying a good hunting experience, all at no cost to the government. Friends of Blackwater will continue to fund the annual publication of regulations, permit applications, maps, and leaflets. Any remaining revenue generated from the administrative process and permit application fees would be used to replace signs, post closed areas, and maintain parking areas and roads.

There should be no significant administration and management costs for the government associated with this specific proposed use.

There would be no special equipment, facilities or improvements necessary to support the amount of big game hunting anticipated.

Since we would not be putting in any facilities or improvements on refuge property for this specific use, there would be no significant maintenance costs associated with this use.

Monitoring costs associated with maintaining statistical information on hunting activities, kill, age and sex ratios, etc., will be assumed by Friends of Blackwater, who will staff the check stations.

### **Cost Breakdown**

The following is the list of costs to the refuge required to administer and manage the hunting programs.

#### Refuge Personnel Costs

Archery (45 days @ 3 hrs/day@\$24/hr) . . . . .	\$3,240
Muzzle-loading (2 days @ 9hrs/day@\$24/hr) . . . . .	432
Shotgun (4 days @ 9hrs/day@\$24/hr) . . . . .	864
Turkey hunts (8 days @ 4 hrs/day@24/hr) . . . . .	\$768
	<b>Total \$5,304</b>

**All other costs will be paid by the Friends of Blackwater.**

### **Anticipated Impacts on Refuge Purposes**

The environmental, socioeconomic, and cultural or historical impacts summarized below are more thoroughly described in the Environmental Assessment prepared for the Chesapeake Marshlands NWR Complex Comprehensive Conservation Plan. Impacts from the deer hunts are anticipated to be minimized as demonstrated by closely monitoring the impacts of annual hunts during 1972 and from 1985 to present.

Impacts on endangered species and their habitats would be minimized by taking several precautions. In accordance with the “Management Guidelines for Bald Eagles in the Chesapeake,” hunting near eagle nests would be restricted to a minimum radius of 250 yards. Open marsh areas, where eagles typically feed, would be entirely closed to hunting, and eagle roost sites would be protected by a ¼-mile minimum buffer zone where no entry is permitted. Eagle activity usually increases in late December and nesting begins in early January, well after deer hunting seasons end. All young eagles would be fledged prior to spring turkey season.

Delmarva fox squirrels are found in the upland hunting areas, but hunter–squirrel encounters are expected to be brief and generally non-disturbing. When questioned during hunter check-in, almost 100 percent of white-tailed deer hunters responded that they use deer stands. Consequently, most hunters’ movement would only involve going to and coming from their stand. This is especially true during the archery hunt. Law enforcement patrols during past hunts observed very little movement among deer hunters. Furthermore, sika deer are hunted primarily in wet forest, where DFS are less frequently observed.

Impacts on habitat are expected to be minimal and then only temporary, as trampled ground vegetation will recover. During the archery and spring turkey seasons, hunters must walk in from designated, existing parking areas, and all vehicle access will be prohibited. During the deer firearms season, vehicles will be restricted to designated roadways. There will be no off-road vehicles or ATV uses allowed during any hunting season. Personal observation of the habitat during hunting season would lead a biologist to suspect the deer population, especially bucks, do more damage to the vegetation with numerous scrapes, antler polishing on saplings, and browsing woody vegetation, than the hunters damage.

Impacts on public use are especially minimal. Public use facilities are totally unaffected by the archery hunt. The only time the self-guided trails and the wildlife drive are closed is during the first day of the 4-day firearms season (0.25% of the year). Even then, a portion of the wildlife drive remains open for visitor use. The visitor center remains open and is unaffected by the deer hunt. The remainder of the refuge hunt areas are closed to public entry throughout the year.

Waterfowl use areas such as the moist soil impoundment system, adjacent cropland, and marsh are closed to hunting, and are not impacted.

### **Public Review and Comment**

This compatibility determination will be submitted for public review and comment as an appendix to the Environmental Assessment for the Draft Comprehensive Conservation Plan for the Chesapeake Marshlands NWR Complex, in full compliance with NEPA.

### **Determination (Check One)**

This use is compatible  X . This use is not compatible \_\_\_\_.

## **Stipulations Necessary to Ensure Compatibility**

These hunting programs have been conducted for many years and the special regulations, restrictions, and general operations have been structured to ensure compatibility. If the monitoring described under Availability of Resources indicates that this use materially interferes with or detracts from fulfillment of the National Wildlife Refuge System mission or the purposes of the refuge, we would curtail or eliminate the use.

Special Regulations governing our hunting programs will be codified in the Code of Federal Regulations, Title 50 and will be subject to Maryland State regulations and the following special refuge conditions.

1. We require refuge permits for all hunters regardless of age. We require that permits must be in the hunter's possession along with a valid Maryland State hunting license, any required stamps, and a photo identification. Permits are non-transferable.
2. We require that hunt permits be obtained only through the mail by mailing an application and administration fee to the refuge after applications are made available in July. To obtain an application and regulations leaflet (including designated areas and map, dates of hunts, bag limits, and permit fees) for archery, youth, muzzle-loader, and shotgun deer hunts and turkey hunts, we require hunters to contact the refuge hunt coordinator or refuge Visitor Center daily between the hours of 9:00 a.m. and 4:00 p.m.
3. We allow archery hunters to obtain a permit at the Visitor Center after the first week of September until the end of the archery season.
4. We allow walk-in youth deer hunters to obtain a permit at the check station on the day of the hunt.
5. We require youth hunters to be at least 12 years old but less than 16 years old, and require that they be accompanied by a licensed or exempt from licensed, unarmed adult, 21 or older. We require the accompanying adult to remain with the youth at all times in the field.
6. We require a permanently disabled hunter to be certified "wheelchair-bound" by a physician, and to be accompanied by an assistant who is not permitted to use a firearm. We require the permanently disabled certification to accompany the hunters permit application.
7. We allow only participants possessing authorized permits to enter the hunt areas.
8. We require check-in for all hunts except archery hunts beginning at 5:00 a.m.
9. We require all deer and turkey killed during all hunts except archery hunts to be properly tagged and presented for examination at the refuge check station on the day of the kill.
10. We require hunters to seek refuge employee assistance to retrieve deer or turkeys from closed areas.



11. We do not require check-in or check out at the refuge for the archery hunt, but we require harvested deer to be registered at one of the Maryland check stations designated by the refuge.
12. We require only weapons that meet Maryland State regulations. We do not allow handguns and breech-loading rifles.
13. We allow access to hunt areas only on designated roads and parking areas indicated on hunt maps in the regulations leaflet (obtained with application by mail or at the Visitor Center). All other access is limited to walk-in or bicycles. We do not allow access by boats or ATVs.
14. We allow scouting only on designated days listed in the regulations for permitted hunters.
15. We do not require check-in or check-out for scouting.
16. We do not allow firearms or other weapons on the refuge when scouting.
17. We require permitted youth hunters to be accompanied by permitted adult age 21 or older while scouting.
18. We require a minimum of 400 square inches of solid-colored daylight fluorescent orange clothing to be worn on the head, chest, and back of all deer hunters during the youth, muzzle-loader, and shotgun hunts.
19. We require the use of a tree stand that elevates the hunter a minimum of 8 feet above the ground for deer hunting in Area B2 (except disabled hunters). Temporary, removable, ladder, fixed, and climbing-type tree stands that do not damage trees are permitted in all other areas.
20. We do not allow screw-in steps, spikes, or other objects that may damage trees.
21. We do not allow hunting from a permanently constructed tree stand.
22. We allow tree stands to be pre-installed during the scouting days for use during the selected hunts, and to be left in the hunting area at the hunter's discretion. We require all stands to be removed the last day of the refuge hunting season. (We will not be held responsible for damage, theft, or occupancy by other hunters.)
23. We do not allow pets in hunt areas.
24. We do not allow hunting from or shooting across a roadway where vehicle traffic is allowed.
25. We do not allow driving deer during youth hunts.
26. We do not allow commercialized guiding.

## **Justification**

As a federally mandated steward of the Nation's wildlife and other natural resources, the U.S. Fish and Wildlife Service and Blackwater National Wildlife Refuge have an obligation to the State of Maryland, the Eastern Shore, and Dorchester and Wicomico Counties to manage a deer population equally shared by the refuge and private lands adjacent to the refuge in such a manner as to not violate the purposes for which the refuge was established. At the same time, the refuge must honor its commitments related to refuge acquisitions where the Service assured the public that the historical tradition of hunting deer and other wildlife would be permitted if compatible with the objectives of the refuge.

It has been determined in the preceding sections that deer and spring turkey hunting programs are compatible. Palmer et al. (1980) and Cypher (1988) state that the only biologically sound and cost-effective method to keep a deer population in balance with its environment is through regulated hunting. Overbrowsing by an unmanaged deer population has a detrimental effect on understory vegetation and on hardwoods regeneration (Butt 1984). Likewise, an unmanaged deer population causes severe crop depredation on refuge property and on the property of adjacent land owners. This crop depredation results in negative socioeconomic impact on the private landowners as well as competition with migratory waterfowl and the endangered Delmarva fox squirrel. Croplands can account for 41 percent of the annual diet in deer even though other prime food sources are available (Dusek et al. 1989).

A regulated deer hunt is essential to accomplish the goal of managing a healthy deer population, resulting in high reproductivity and recruitment for both consumptive and non-consumptive wildlife-orientated recreation. Dickerson (1983) noted the drastic effect of the "no hunting" approach to deer management. He examined harvested deer from a state park in New York where hunting had been prohibited for 71 years. Through these observations, he concluded that due to the lack of hunting, the deer herd was in the worst physical condition of any he had observed in New York and possibly the northeast.

Limited spring turkey hunting in accordance with the restrictions and numbers of hunters proposed would have insignificant impacts on biological resources, with the exception that obviously a few gobblers would be killed. However, their removal from the population would not have significant impacts on the species or its abundance.

Big game hunting for white-tailed deer, sika deer, and eastern wild turkey will not materially interfere with or detract from the mission of the National Wildlife Refuge System or the purposes for which the refuge was established.

**Signature—Refuge Manager** \_\_\_\_\_  
(Signature and Date)

**Concurrence—Regional Chief** \_\_\_\_\_  
(Signature and Date)

**Mandatory 10- or 15-year Reevaluation Date** \_\_\_\_\_

### **Attachments**

Tract descriptions (table 1), and Hunting Map (figure 1)

### **References**

- Butt, J.P. 1984. Deer and trees on the Allegheny: how could hunters keep the deer and the forest service keep regeneration when the deer were eating the regeneration? *Journal of Forestry* 82(1984):468-471.
- Cline, K. 1985. Bald Eagles in the Chesapeake: A Management Guide For Landowners. National Wildlife Federation. 16 pp.
- Cypher, B.L., E.A. Cypher. 1988. Ecology and management of white-tailed deer in northeastern coastal habitats: a synthesis of the literature pertinent to the National Wildlife Refuges from Maine to Virginia. U.S. Fish and Wildlife Service, Biological Report 88(15). 52 pp.
- Dickinson, N.R. 1983. An example of the effect of underharvesting on a deer population. *N.Y. Fish and Game Journal* 30(1983):231-232.
- Dusek, G.L., R.J. Mackie, J.D. Herriges, Jr., B.B. Compton. 1989. Population ecology of white-tailed deer along the lower Yellowstone River. *Wildlife Monographs* 104:1-68.
- Larson, T.J., O.J. Rongstad, F.W. Terbilcox. 1978. Movement and habitat use of white-tailed deer in southcentral Wisconsin. *Journal of Wildlife Management* 42(1):13-117.
- Palmer, D.T., D.A. Andrews, R.O. Winters, and J.W. Francis. 1980. Removal techniques to control an enclosed deer herd. *Wildlife Society Bulletin* 8(1):29-33.

Back to top

*Compatibility Determination on Hunting Big Game*

This page unintentionally left blank

# Compatibility Determination on Hunting Waterfowl

## Hunting Waterfowl

**Station Name:** Blackwater National Wildlife Refuge (Chesapeake Marshlands NWR Complex)

### Establishing and Acquisition Authorities

The Chesapeake Marshlands National Wildlife Refuge Complex (CMNWRC) is composed of three nationally significant wildlife areas: Blackwater NWR, Martin NWR, and Susquehanna NWR with several separate divisions. Blackwater NWR includes the Nanticoke Division, and Martin NWR includes the Barren Island, Bishops Head and Spring Island, and Watts Island Divisions. Collectively, Martin NWR, Susquehanna NWR, and their respective divisions are referred to as the Chesapeake Island Refuges.

The first and largest of these areas to be established was Blackwater NWR. Originally authorized for establishment by the Migratory Bird Conservation Commission on December 3, 1931, and named “Blackwater Migratory Bird Refuge,” its current 28,000 acres are a showplace for the National Wildlife Refuge System.

On December 31, 1931, the Migratory Bird Conservation Commission authorized the Secretary of Agriculture to purchase 10,000 acres from the Delmarvia Fur Farms, Inc., of Philadelphia, Pennsylvania. On December 9, 1931, the Secretary entered into an agreement with Delmarvia Fur Farms, Inc., effective January 1, 1932, to lease 8,167.99 acres for the refuge. The Secretary subsequently determined that it was in the best interest of the Government to acquire 8,240.99 acres for the refuge from the Delmarvia Fur Farms and two other properties by condemnation. A notice of condemnation was filed August 26, 1932, and these tracts were conveyed to the Government in January 1933.

Blackwater NWR was, therefore, officially established under the authority of the Migratory Bird Conservation Act on January 23, 1933. Since that time, additional lands have been added to the refuge under the authorities of the Endangered Species Act, Refuge Recreation Act, North American Wetlands Conservation Act, and the Refuge Administration Act.

Table I summarizes the history of Blackwater National Wildlife Refuge land acquisition and the tracts that are now being affected by the proposed uses. Unless otherwise noted, all acquisitions are fee title. This compatibility determination will also apply to additional tracts, particularly those in the Nanticoke Division, as they are acquired.

## **Refuge Purposes**

For lands acquired under the Migratory Bird Conservation Act (16 U.S.C. § 715 d), the purpose of the acquisition is “...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.”

For lands acquired under the Endangered Species Act of 1973 (16 U.S.C. § 1534), the purpose of the acquisition is “...to conserve (A) fish or wildlife which are listed as endangered or threatened species...or (B) plants.”

For lands acquired under the Refuge Recreation Act (16 U.S.C. § 460K–1), the purpose of the acquisition is for “...(1) incidental fish and wildlife-oriented recreation; (2) the protection of natural resources; (3) the conservation of endangered species or threatened species...”

For lands acquired under the North American Wetlands Conservation Act (16 U.S.C. § 4401–413), the purpose of the acquisition is “(1) to protect, enhance, restore, and manage an appropriate distribution and diversity of wetland ecosystems and other habitats for migratory birds and other fish and wildlife in North America; (2) to maintain current or improved distribution of migratory bird populations; and (3) to sustain an abundance of waterfowl and other migratory birds consistent with the goals of the North American Waterfowl Management Plan and the international obligations contained in the migratory bird treaties and conventions and other agreements with Canada, Mexico, and other countries.”

For lands acquired under the Refuge Administration Act (16 U.S.C. § 668ddb), the purpose of the donation is “to protect, enhance, restore, and manage wetland ecosystems and other habitats for migratory birds, endangered and threatened species, and other wildlife.”

## **National Wildlife Refuge System Mission**

“The mission of the System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”—National Wildlife Refuge System Improvement Act of 1997 (Public Law 105–57)

## **Description of Use**

This evaluation is to determine whether programs for hunting migratory waterfowl are compatible with the purposes for which the affected tracts were acquired.

### **(A) What is the use? Is it a priority use?**

The use is waterfowl hunting. The National Wildlife Refuge System Improvement Act of 1997 identifies hunting as one of the six, priority, wildlife-dependent recreational uses to be facilitated in the Refuge System, and encourages the Service to provide opportunities for the public to enjoy them.

## **Background and Rationale for the Management Activity**

In the 1930s, when Blackwater NWR was first established as a refuge for migratory birds, waterfowl hunting in Dorchester County was a means of providing food for the table as well as an accepted popular form of recreation. Most of the area was rural and the local population hunted on their own land and also allowed others to hunt their property. The refuge was considered a sanctuary for wildlife and protected from poachers. Few visitors came to the refuge.

A 1949 amendment to the Duck Stamp Act permitted hunting on 25 percent of the lands purchased for the National Wildlife Refuge System with Duck Stamp funds, but Blackwater NWR remained closed to hunting (Note. Later amendments authorized up to 40 percent). After World War II, Americans traveled the Nation's back roads and discovered their National Wildlife Refuges. Interest developed in using refuges for recreation other than hunting. Although most wanted to share with their families the sights and sounds of wildlife and the wonders of the living world, many citizens wanted to use their refuges to sail, swim, camp, water ski, ride horses, sun bathe, and rock climb. Guidance in the first Refuge Manual (1943) left the door open to uses for the cause of building public support, but conflicts between wildlife and public uses could be forecast. In the 1957 Refuge Manual, guidance on how to decide which public uses to allow hinted towards a wildlife first priority, but sent mixed signals. However, the Refuge Recreation Act of 1962 and the Refuge Administration Act of 1966 place into law the concept that refuges would be closed to all recreation uses until a manager could determine that a proposed use was compatible with the refuge's establishing purposes and that sufficient funds were available to administer those uses. Refuge managers were responsible for making these compatibility determinations. Decisions were usually made locally, and in many cases, were based on local pressures and interests.

During the CCP scoping meetings, responses indicated a desire for increased hunting opportunities, including deer, turkey, resident Canada geese, and migratory waterfowl. Resident Canada geese have become a major problem on and off the refuge.

The Refuge System Administration Act identifies hunting as one of the six wildlife-dependent recreational uses to be facilitated in the Refuge System, and the Act encourage the Service to provide opportunities for the public to enjoy them.

### **(B) Where would the use be conducted?**

Resident Canada goose hunting blind sites would be located in areas B1, B2, G, F, J, K, L, and O on 3,731 acres of marsh, 70 acres of fields, and 4,500 acres of open water for a total of approximately 8,300 acres. New areas would be evaluated and considered as they are acquired that would not conflict with public use areas; would not adversely affect endangered and threatened species (bald eagle); would not have a negative impact on other wildlife or habitat resources; or adversely affect public safety.

Migratory waterfowl hunting would be conducted along both sides of the upper portion of the Blackwater River from the White Marsh area to Route 16. On the Nanticoke River, migratory

waterfowl hunting would be conducted in the area along the east side of the river from Route 50 south to Rewastico Creek.

**(C) When would the use be conducted?**

Blackwater NWR would be open to spring hunting (March 15–April 15) for resident Canada geese according to an Annual Hunt Plan based on the “Integrated Wildlife Damage Management Plan for Control of Resident Canada Geese,” if consistent with the Service Environmental Impact Statement (EIS) on managing these injurious resident waterfowl. The Migratory Bird Treaty Act prohibits hunting of migratory waterfowl after March 15 of each year. Therefore, the Service must prepare an EIS in order to authorize certain conservation measures, including spring hunting of resident Canada geese. Scout days would be authorized the day before each hunt day.

Migratory waterfowl hunting, in accordance with state seasons, species, bag limits, and hunting methods, would be permitted on 40 percent of all new acquisitions. This proposed hunting opportunity would continue to maintain approximately 23,000 acres as an inviolate sanctuary for wintering and migrating waterfowl.

**(D) How would the use be conducted?**

Resident Canada goose hunting would require a permit determined by a lottery system issued for 30 blind sites (two people per blind site) constructed by the hunter within 100 yards of a numbered post. Fifteen blinds would be hunted daily. Thirty permits per day (27 days) would be issued providing 810 recreational resident goose hunting opportunities.

Other migratory waterfowl hunting, in accordance with state seasons, species, bag limits, and hunting methods, would be permitted for up to 60 days on up to 40 percent of all new acquisitions. In addition to all required state and federal permits, all refuge hunters would be required to obtain a non-quota refuge permit.

Migratory waterfowl hunting areas on the upper Blackwater River would be accessible only by boats launched from the Route 335 launching area. Only canoes, kayaks, and small john boats without trailers are suitable for launching at that facility.

Access to the Nanticoke River waterfowl hunting areas would be by boats launched from the public boat ramp at Vienna.

**(E) Why is the use being proposed?**

Resident Canada goose hunting is being proposed in order to help reverse the adverse effects this population is having on the primary purpose for which the refuge was established. Complete and detailed analysis of the impacts of resident Canada geese can be found in the “Environmental Assessment for the Management of Conflicts Associated with Non-migratory (resident) Canada Geese (2000).”



The National Wildlife Refuge System Improvement Act of 1997 identifies hunting as one of the six, priority, wildlife-dependent recreational uses to be facilitated in the Refuge System, and encourages the Service to provide opportunities for the public to enjoy them.

Opening additional areas as they are acquired would increase public hunting opportunities at Blackwater NWR and, eventually, at the Nanticoke Division. These activities and programs would produce a positive impact on refuge management, visitor attitudes, and local economy. The increase in hunters, especially from other areas like Pennsylvania and Western Maryland would contribute substantially to the economy of the area with their local purchases of gas, food, lodging, hunting licenses, equipment, and supplies. They would spread the word to their friends, encouraging them to come to the area to take advantage of the high quality recreation and thus positively affect the economy of the area.

These proposed hunting opportunities would continue to maintain approximately 23,000 acres as an inviolate sanctuary for wintering and migrating waterfowl while providing quality, compatible, consumptive, wildlife-oriented recreation.

### **Availability of Resources**

The Comprehensive Conservation Plan for the Chesapeake Marshlands NWR Complex recommends two full-time law enforcement officers (one at Blackwater and one for the Nanticoke Division) to conduct this and other hunt programs. One full-time officer was hired in FY2003. Combined with the existing two collateral duty refuge officers, there will be sufficient personnel to ensure compliance with regulation, protection of the resources, and public safety when all these positions are filled.

All hunting programs and supporting activities would be totally administered and funded by the Friends of Blackwater, who would also hire and pay for a full-time hunt coordinator. The Hunt Coordinator would administer all aspects of these hunting programs; respond to all questions and provide information to the public; process hunt applications and permits; conduct mailings; provide visitor assistance for the hunt programs; improve customer service; make a positive impression to customers and the public; provide maintenance of signs and parking areas; and otherwise assist hunters in following regulations and enjoying a good hunting experience, all at no cost to the government. Friends of Blackwater will continue to fund the annual publication of regulations, permit applications, maps, and leaflets. Any remaining revenue generated from the administrative process and permit application fees would be used to replace signs, post closed areas, and maintain parking areas and roads.

There should be no significant administration and management costs for the government associated with this specific proposed use.

There would be no special equipment, facilities or improvements necessary to support the amount of hunting anticipated.

Since we would not be putting in any facilities or improvements on refuge property for this specific use, there would be no significant maintenance costs associated with this use.

Monitoring costs associated with maintaining statistical information on hunting activities, kill, age and sex ratios, etc., will be assumed by Friends of Blackwater, who will staff the check stations.

**Cost Breakdown**

The following is the list of costs to the refuge required to administer and manage the hunting programs.

Refuge Personnel Costs

Resident Canada goose (27 days@3 hrs/day@\$24/hr) .....	\$1,944
Migratory waterfowl (60 days@3 hrs/day@\$24/hr) .....	\$4,320
	<b>Total</b> \$6,264

**All other costs will be paid for by the Friends of Blackwater.**

**Anticipated Impacts on Refuge Purposes**

The environmental, socioeconomic, and cultural or historical impacts are thoroughly described in the Environmental Assessment prepared for the Chesapeake Marshlands NWR Complex Comprehensive Conservation Plan.

**Public Review and Comment**

This compatibility determination will be submitted for public review and comment as an appendix to the Environmental Assessment for the Draft Comprehensive Conservation Plan for the Chesapeake Marshlands NWR Complex, in full compliance with NEPA.

**Determination** (Check One)

This use is compatible  X . This use is not compatible \_\_\_\_.

**Stipulations Necessary to Ensure Compatibility**

Hunting programs have been conducted for many years and the special regulations, restrictions, and general operations have been structured to ensure compatibility. If the monitoring described under Availability of Resources indicates that this use materially interferes with or detracts from fulfillment of the National Wildlife Refuge System mission or the purposes of the refuge, we would curtail or eliminate the use.

Special Regulations governing our hunting programs will be codified in the Code of Federal Regulations, Title 50, and will be subject to Maryland State regulations and the following special refuge conditions.

1. We require refuge permits for all hunters regardless of age. We require that permits must be in the hunter's possession along with a valid Maryland State hunting license, any required stamps, and a photo identification. Permits are non-transferable.
2. We require that hunt permits be obtained only through the mail by mailing an application and administration fee to the refuge after applications are made available. To obtain an application and regulations leaflet, including designated areas and map, dates of hunts, bag limits, and permit fees, we require hunters to contact the refuge hunt coordinator or refuge Visitor Center daily between the hours of 9:00 a.m. and 4:00 p.m.
3. We allow only participants possessing authorized permits to enter the hunt areas.
4. We require check-in for all hunts beginning at 5:00 a.m.
5. We do not require check-in or check out at the refuge for the hunts.
6. We require only weapons that meet Maryland State regulations.
7. We allow access to hunt areas only on designated roads and parking areas indicated on hunt maps in the regulations leaflet (obtained with application by mail or at the Visitor Center). All other access is limited to walk-in or bicycles.
8. We allow scouting only on designated days listed in the regulations for permitted hunters.
9. We do not require check-in or check-out for scouting.
10. We do not allow firearms or other weapons on the refuge when scouting.
11. We require permitted youth hunters to be accompanied by permitted adult age 21 or older while scouting.
12. We do not allow pets in hunt areas.
13. We do not allow hunting from or shooting across a roadway where vehicle traffic is allowed.
14. We do not allow commercialized guiding.

### **Justification**

Migratory waterfowl hunting will not materially interfere with or detract from the mission of the National Wildlife Refuge System or the purposes for which the refuge was established.

The Migratory Bird Conservation Act of 1929, which established inviolate sanctuaries, was amended by the National Wildlife Refuge System Administration Act of 1966. This amendment authorized up to 40 percent of an area acquired for a migratory bird sanctuary to be opened to migratory bird hunting. Migratory waterfowl hunting, in accordance with state seasons, species,

bag limits, and hunting methods, would be permitted on 40 percent of all new acquisitions. This proposed hunting opportunity would continue to maintain approximately 23,000 acres as an inviolate sanctuary for wintering and migrating waterfowl.

The National Wildlife Refuge System Improvement Act of 1997 identifies hunting as one of the six, priority, wildlife-dependent recreational uses to be facilitated in the Refuge System, and encourages the Service to provide opportunities for the public to enjoy them.

**Signature—Refuge Manager** \_\_\_\_\_  
(Signature and Date)

**Concurrence—Regional Chief** \_\_\_\_\_  
(Signature and Date)

**Mandatory 10- or 15-year Reevaluation Date** \_\_\_\_\_

**Attachments**

None

**References**

Belanger, L. and J. Bedard. 1989. Responses of staging greater snow geese to human disturbance. *J. Wildl. Manage.* 53(3):713-719.

Cullen, R. 1985. Rationing recreational Use of public land. *J. Environ. Manage.* 21:213–224.

Keller, V. E. 1991. The effects of disturbance from roads on the distribution of feeding sites of geese (*Anser brachyrhynchus*, *A. anser*), wintering in north-east Scotland. *Ardea* 79:229-232.

Klein, M. L. 1989. Effects of high levels of human visitation on foraging waterbirds at J.N. “Ding” Darling NWR, Sanibel, FL. Final report to USFWS. 103 pp.

Laskowski, H., T. Legér, J. Gallegos, and J. James. 1993. Behavior response of greater yellowlegs, snowy egrets, and mallards to human disturbance at Back Bay National Wildlife Refuge, Virginia. USFWS, Final report RMS 51510-01-92. Cambridge, MD. 31 pp.

McNeil, R., P. Drapeau, and J. D. Goss-Custard. 1992. The occurrence and adaptive significance of nocturnal habits in waterfowl. *Biol. Rev.* 67:381-419.

- Morton, J. M. 1987. Habitat use and energetics of American black ducks wintering at Chincoteague, Virginia. M.S. Thesis. VPI and SU, Blacksburg, VA. 147 pp.
- Paulus, S. L. 1984. Activity budgets of nonbreeding gadwalls in Louisiana. *J. Wildl. Manage.* 48(2):371-380.
- Purdy, K.G., G.R. Goff, D.J. Decker, G.A. Pomerantz, and N.A. Connelly. 1987. A guide to managing human activity on National Wildlife Refuges. Human Dimensions Research Unit, Cornell Univ., Ithaca, NY. 34 pp.
- U.S. Department of the Interior, Fish and Wildlife Service. 2000. Hunt Management Plan. Blackwater National Wildlife Refuge, Cambridge, MD. 8 pp.

Back to top

*Compatibility Determination on Hunting Waterfowl*

This page unintentionally left blank

# Compatibility Determination on Trapping Furbearers

## Trapping Furbearers

**Station Name:** Blackwater National Wildlife Refuge (Chesapeake Marshlands NWR Complex)

### Establishing and Acquisition Authorities

The Chesapeake Marshlands National Wildlife Refuge Complex (CMNWRC) is composed of three nationally significant wildlife areas: Blackwater NWR, Martin NWR, and Susquehanna NWR with several separate divisions. Blackwater NWR includes the Nanticoke Division, and Martin NWR includes the Barren Island, Bishops Head and Spring Island, and Watts Island Divisions. Collectively, Martin NWR, Susquehanna NWR, and their respective divisions are referred to as the Chesapeake Island Refuges.

The first and largest of these areas to be established was Blackwater NWR. Originally authorized for establishment by the Migratory Bird Conservation Commission on December 3, 1931, and named “Blackwater Migratory Bird Refuge,” its current 28,000 acres are a showplace for the National Wildlife Refuge System.

On December 31, 1931, the Migratory Bird Conservation Commission authorized the Secretary of Agriculture to purchase 10,000 acres from the Delmarvia Fur Farms, Inc., of Philadelphia, Pennsylvania. On December 9, 1931, the Secretary entered into an agreement with Delmarvia Fur Farms, Inc., effective January 1, 1932, to lease 8,167.99 acres for the refuge. The Secretary subsequently determined that it was in the best interest of the Government to acquire 8,240.99 acres for the refuge from the Delmarvia Fur Farms and two other properties by condemnation. A notice of condemnation was filed August 26, 1932, and these tracts were conveyed to the Government in January 1933.

Blackwater NWR was, therefore, officially established under the authority of the Migratory Bird Conservation Act on January 23, 1933. Since that time, additional lands have been added to the refuge under the authorities of the Endangered Species Act, Refuge Recreation Act, North American Wetlands Conservation Act, and the Refuge Administration Act.

Table I summarizes the history of Blackwater National Wildlife Refuge land acquisition and the tracts that are now being affected by the proposed uses. Unless otherwise noted, all acquisitions are fee title. This compatibility determination will also apply to additional tracts, particularly those in the Nanticoke Division, as they are acquired.

## **Refuge Purposes**

For lands acquired under the Migratory Bird Conservation Act (16 U.S.C. § 715 d), the purpose of the acquisition is “...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.”

For lands acquired under the Endangered Species Act of 1973 (16 U.S.C. § 1534), the purpose of the acquisition is “...to conserve (A) fish or wildlife which are listed as endangered or threatened species...or (B) plants.”

For lands acquired under the Refuge Recreation Act (16 U.S.C. § 460K–1), the purpose of the acquisition is for “...(1) incidental fish and wildlife-oriented recreation; (2) the protection of natural resources; (3) the conservation of endangered species or threatened species...”

For lands acquired under the North American Wetlands Conservation Act (16 U.S.C. § 4401–413), the purpose of the acquisition is “(1) to protect, enhance, restore, and manage an appropriate distribution and diversity of wetland ecosystems and other habitats for migratory birds and other fish and wildlife in North America; (2) to maintain current or improved distribution of migratory bird populations; and (3) to sustain an abundance of waterfowl and other migratory birds consistent with the goals of the North American Waterfowl Management Plan and the international obligations contained in the migratory bird treaties and conventions and other agreements with Canada, Mexico, and other countries.”

For lands acquired under the Refuge Administration Act (16 U.S.C. § 668ddb), the purpose of the donation is “to protect, enhance, restore, and manage wetland ecosystems and other habitats for migratory birds, endangered and threatened species, and other wildlife.”

## **National Wildlife Refuge System Mission**

“The mission of the System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”—National Wildlife Refuge System Improvement Act of 1997 (Public Law 105–57)

## **Description of Use**

This evaluation is to determine whether programs to manage furbearers by trapping are compatible with the purposes for which the affected tracts were acquired.

### **(A) What is the use? Is it a priority use?**

The use is furbearer management by trapping, to authorize the take of muskrats and nutria and the incidental take of red fox, raccoon, skunk, opossum, and gray fox.



## **Background and Rationale for the Management Activity**

When the refuge was surveyed prior to acquisition in 1933, it was noted that the production of furbearers in the Blackwater area, primarily muskrats, was unsurpassed on the East Coast. The original acquisition of approximately 8,000 acres was from an investment partnership, “Delmarvia Fur Farms,” which hired a number of local trappers to harvest muskrats and other furbearers during the winter months. After acquisition in 1933, “Delmarvia Fur Farms” continued to lease the land for several years. In 1935, a total of 38,000 muskrats were harvested from the property. After the lease arrangement had expired, the refuge continued to use local trappers to harvest muskrats and partnered with these trappers in marketing pelts to commercial fur buyers. The refuge used trapping as a method to control furbearer populations and protect the marsh vegetation from destruction which occurs when herbivore populations are not maintained. Significant areas of marsh loss occurred on the refuge marshes when extremely high muskrat populations occurred in the late 1930s. Trapping also was used to control predator populations (fox, raccoons, skunk, and opossums), which was consistent with current policy at that time for increasing waterfowl populations. In the early 1970s, refuge trapping leases were selected by lottery, and 3 trappers were selected for 3-year contracts. This process later evolved to public bidding for annual leases of 10 to 17 trapping units that were drawn using natural features as boundaries.

The current program today is similar; it allows for the taking of muskrat, nutria, raccoon, fox, skunk, and opossum from January 1 through March 15, consistent with Maryland seasons. Surveys are conducted prior to the season to determine population levels, and furbearer management recommendations are submitted as required by policy.

The interest and funds this program is capable of generating historically have depended upon the international fur markets. When markets were strong in the early 1970s, the refuge received in excess of \$15,000 in annual bids and 30+ bidders competed for 10 to 15 trapping units. As the markets diminished due to the unpopularity of wearing furs in the late 1970s and 1980s, interest in the program also declined. The refuge has a cadre of 10 to 15 local trappers, who bid \$2,000 to \$4,000 annually for trapping rights.

Management of nutria, which were introduced to the area in the 1930s and 1950s, has also been impacted greatly by this market-driven program. When fur markets were high and nutria pelts generated \$5+, refuge trappers contributed greatly to curbing this destructive rodent’s impact on refuge marshes. However, when markets crashed and nutria trapping was not economically feasible for refuge trappers to continue the level of control required to control populations, Blackwater instituted a first-of-its-kind trapping rebate program, which offered refuge trappers \$1.50 in return for each nutria harvested, up to the amount of the bid price. More than 53,000 nutria have been harvested by refuge trappers under that rebate program since 1991.

### **(B) Where would the use be conducted?**

Furbearer management activities will be conducted primarily in refuge marshlands, with no-trapping restrictions around eagle nests, roads, public use areas, and other sensitive sites. The main emphasis will be on trapping muskrats and nutria. There will be some incidental take of

raccoons, opossums, and red foxes. Some upland activities may be permitted, but will be restricted by methods and access due to conflicts with endangered species, waterfowl use, and public use. Population levels will determine annual use of areas, and rotational trapping may be used if populations do not warrant trapping on an annual basis.

**(C) When would the use be conducted?**

Furbearer management activities will always occur within the framework of the Maryland trapping season of December 15 through March 15. Normally, trapping will occur between the dates of January 1 and March 15 due to conflicts with other management programs.

**(D) How would the use be conducted?**

After population surveys are conducted and annual furbearer management programs are approved, refuge regulations and seasons will be developed and publicly announced. A news release will announce the opening of refuge trapping units for public bidding. Trapping units will be opened for inspection on set dates, and an annual public meeting will be scheduled to review regulations and restrictions for that year. A public bid opening will be scheduled, when bids are opened and the highest bids selected under current policies. Once prospective trappers have paid their bid amount, a special use permit will be issued which notes restrictions and uses permitted. Trappers will be permitted to access areas at designated locations and authorized trapping activities will be permitted. These uses may be altered under special circumstances, and all trapping activities and equipment must cease and be removed from the refuge by designated dates on the special use permit. A harvest report will be mailed to the participants. The report must be completed and returned by a set date or the user will forfeit his or her opportunity to participate in the program the following year.

**(E) Why is the use being proposed?**

Trapping is a bonafide furbearer management activity that historically has been used to manage and control furbearer populations. This highly regulated use accomplishes these management goals to maintain populations consistent with the carrying capacity of their habitats with a minimum of cost. Herbivore population levels naturally experience peaks and valleys. Refuge marshlands are stressed by rising sea levels, increased salinity, and land subsidence. Further, impacts from excessive herbivory cause permanent vegetation loss. The Refuge and the Corps of Engineers are undertaking a major marsh restoration in the Blackwater marshes, which makes it imperative that furbearer populations remain under control. This program will also facilitate ongoing efforts by the Maryland DNR, Blackwater NWR, and the USDA to control the nutria population.

The furbearer management program historically has provided an economic benefit to members of the local community. Trappers are generally watermen or farmers who are unemployed during the late winter months. The income levels generated are now at an all-time low, and thus, minimal interest in this program exists, except for a cadre of local trappers. In terms of cultural resources, we would like to preserve this long-standing local practice.

**Availability of Resources**

The Comprehensive Conservation Plan for the Chesapeake Marshlands NWR Complex recommends two full-time law enforcement officers (one at Blackwater and one for the Nanticoke Division) to conduct this and other hunting and trapping programs. One full-time officer was hired in FY2003. Combined with the existing two collateral duty refuge officers, there will be sufficient personnel to ensure compliance with regulation, protection of the resources, and public safety when all these positions are filled.

There will be no major management actions required for this program. Population surveys will be conducted. This typically will take 2 to 3 days for two personnel. Personnel will need to be assigned for duty for the information meeting to discuss the annual program and for the bid opening.

There should be no significant administration and management costs for the government associated with this specific proposed use. Minimum administrative time will be required for annual program development, news release, issuing the special use permits, documenting nutria harvest, issuing harvest reports, and submitting nutria rebate reimbursements. Nor would special equipment, facilities or improvements costs be necessary to support this management activity. Since we would not be putting in any facilities or improvements on refuge property for this use, it would have no significant associated maintenance costs.

**Cost Breakdown**

Costs to the refuge for administering and managing the furbearer program are listed below.

Refuge Personnel Costs

Conduct furbearer surveys (6 days@8 hrs/day@\$24/hr) .....	\$1,152
Administrative time (9 days@8 hrs/day@\$24/hr) .....	1,720
Material costs .....	<u>\$100</u>
	<b>Total \$2,972</b>

**Anticipated Impacts on Refuge Purposes**

The environmental, socioeconomic, and cultural or historical impacts are thoroughly described in the Environmental Assessment prepared for the Chesapeake Marshlands NWR Complex Comprehensive Conservation Plan.

**Public Review and Comment**

This compatibility determination will be submitted for public review and comment as an appendix to the Environmental Assessment for the Draft Comprehensive Conservation Plan for the Chesapeake Marshlands NWR Complex, in full compliance with NEPA.

**Determination** (Check One)

This use is compatible  X . This use is not compatible \_\_\_\_.

**Stipulations Necessary to Ensure Compatibility**

Trapping programs virtually identical to the one being proposed have been conducted on Blackwater NWR for more than 70 years. The attached restrictions, special regulations, and general operations have been structured to ensure compatibility. If the monitoring described under “Availability of Resources” indicates that this use materially interferes with or detracts from fulfillment of the National Wildlife Refuge System mission or the purposes of the refuge, we would curtail or eliminate the use.

Special Regulations governing our trapping programs are addressed under 50 CFR Part 25, Administrative Provisions of Subchapter C—The National Wildlife Refuge System, and will be subject to Maryland State regulations and special refuge regulations, which are contained in the annual trapping program package.

**Justification**

Furbearer management activities will not materially interfere with or detract from the mission of the National Wildlife Refuge System or the purposes for which the refuge was established.

**Signature—Refuge Manager** \_\_\_\_\_  
(Signature and Date)

**Concurrence—Regional Chief** \_\_\_\_\_  
(Signature and Date)

**Mandatory 10- or 15-year Reevaluation Date** \_\_\_\_\_

**Attachments**

Trapping Units (figure 1)  
Special Regulations and Restrictions

## **References**

### *Literature Cited*

- Adams, G., T.H. Stevens, D. Storey, and R.J. Glass. 1995. An economic analysis of the proposed Silvio O. Conte National Fish and Wildlife Refuge on the Connecticut River Watershed. Special Report to the U.S. Fish and Wildlife Service.
- Alexander, C., and J. Hornton. 1986. Wenlock Wildlife Management Area Plan. Vermont Fish and Wildlife Department, St. Johnsbury, Vermont.
- Boddicker, M.L. 1981. Profiles of American trappers and trapping. *Worldwide Furbearer Conference Proceedings* 3:1919-1949.
- Bogges, E.K., G.R. Batcheller, R.G. Linscombe, J.W. Greer, M. Novak, S.B. Linhart, D.W. Erickson, A.W. Todd, D.C. Juve, and D.A. Wade. 1990. Traps, trapping, and furbearer management. *Wildlife Society Technical Review* 90-1, The Wildlife Society, Bethesda, Maryland.
- Brown, T.L., D.J. Decker, and J.W. Enck. 1995. Preliminary insights about the sociocultural importance of hunting and trapping. Human Dimension Research Unit Series Number 95-2, New York State College of Agriculture and Life Sciences, Cornell University, Ithaca, New York.
- Daigle, J.J., R.M. Muth, R.R. Zwick, and R.J. Glass. 1998. Sociocultural dimensions of trapping: a factor analytical study of trappers in six northeastern states. *Wildlife Society Bulletin* 26:614-625.
- Decker, T.A. 1999. Improving traps with science, view from the Vermont Fish and Wildlife. *Vermont Woodlands*, Spring 1999:36.
- Glass, R.J., T.A. More, and J.J. DiStefano. 1991. Vermont trappers: characteristics, motivations, and attitudes. *Transactions of the Northeast Section of The Wildlife Society* 48:134-143.
- Glass, R.J., T.A. More, and R.R. Zwick. 1994. Human relationships with wildlife in Vermont. *Proceedings of the Northeast Recreation Research Symposium*, Saratoga, New York.
- Glass, R.J., T.A. More, R.R. Zwick. 1995. Public acceptance for hunting, fishing, and trapping in Vermont. *Northeast Wildlife* 52:77-92.
- International Association of Fish and Wildlife Agencies. 1998. Best management practices for trapping furbearers in the United States. International Association of Fish and Wildlife Agencies, Washington, D.C.
- Jensen, P.G., P.D. Curtis, and D.L. Hamelin. 1999. Managing nuisance beavers along roadsides, a guide for highway departments. Federal Aid in Wildlife Restoration Program Number WE-

173-G, New York State Department of Environmental Conservation and Cornell Cooperative Extension Service, Cornell University, Ithaca, New York.

Kellert, S.R. 1980. Trappers and trapping in American Society. Proceedings of the Worldwide Furbearer Conference 3:1971-2003.

Loso, M., M. Plummer, J. Rubin, M. Stevens, M. Tetreault, and J. Hughes. 1996. A natural resource and ecological assessment of the McConnel Pond Tract, Brighton, Vermont. Field Naturalist Graduate Program, University of Vermont, Burlington, Vermont.

Maryland Department of Natural Resources. Furbearer management in Maryland, management tools and their application. 2000. Special Report, Maryland Department of Natural Resources. Annapolis, Maryland.

Mason, D.A. 1990. Vermont's other economy: the economic and socio-cultural values of hunting, fishing, and trapping for rural households. Thesis, University of Vermont, Burlington.

Muth, R. M., J.J. Daigle, R.R. Zwick, R.J. and Glass. 1996. Trappers and trapping in advanced industrial society: economic and sociocultural values of furbearer utilization in the northeastern United States. *Sociological Spectrum* 16:421-436.

Muth, R. M., R.R. Zwick, J.J. Daigle, R.J. Glass, and S.A. Jonker. 1996. The sociocultural and economic value of furbearer resources: a study of trapping in six northeastern states. Final Technical Report. Division of Federal Aid, Northeast Region U.S. Fish and Wildlife Service, Hadley, Massachusetts.

National Wildlife Federation. 1979. Trapping and conservation. National Wildlife Federation. Washington, D.C.

Organ, J.F., T.A. Decker, J. DiStefano, K. Elowe, P. Rego, and P.G. Mirick. 1996. Trapping and furbearer management, perspectives from the Northeast. Northeast Furbearer Resources Technical Committee, Northeast Section of The Wildlife Society, Division of Federal Aid, Northeast Region U.S. Fish and Wildlife Service, Hadley, Massachusetts.

Organ, J. F., R.F. Gotie, T.A. Decker, and G. R. Batcheller. 1998. A case study in the sustained use of wildlife: the management of beaver in the northeastern United States. Pages 125-139 *in* van der Linde, H.A. , and M.H. Danskin, editors. Enhancing sustainability resources for our future, International Union for the Conservation of Nature and Natural Resources, Gland, Switzerland.

Payne, N.F. 1980. Furbearer management and trapping. *Wildlife Society Bulletin* 8:345-348.

Phillips, S. 1999. Regional economic profile: Nulhegan and Victory Basins Wildlands Area. The Wilderness Society, Washington, D.C.

- Ruggiero, L.F., K.B. Aubrey, S.B. Buskirk, G.M. Koehler, C.J. Krebs, K.S. McKelvey, J.R. Squires. 2000. Ecology and conservation of lynx in the United States. University Press of Colorado, Boulder.
- Siemer, W.F., and D.J. Decker. 1991. Human tolerance of wildlife damage: synthesis of research and management implications. Human Dimensions Research Unit Publication 91-7, Department of Natural Resources, New York State College of Agriculture and Life Science, Cornell University, Ithaca, New York.
- Southwick Associates. 1999. Bears in the backyard, deer in the driveway: The importance of hunting and trapping in helping wildlife professional manage our treasured wildlife resources. International Association of Fish and Wildlife Agencies, Washington, D.C.
- Todd, A.W., and E.K. Bogess. 1987. Characteristics, activities, lifestyles, and attitudes of trappers in North America. Pages 59-76 in J. Novak, A. Baker, M.E. Obbard, and B. Malloch, editors, Wild furbearer management and conservation in North America. Ontario Ministry of Natural Resources, Ottawa, Canada, and Toronto and Ontario Trappers Associations, North Bay Ontario, Canada.
- Thompson, E. 1989. Natural Communities of Yellow Bogs in Lewis, Bloomfield and Brunswick, Vermont. Technical Report 14, Vermont Fish and Wildlife Department, Waterbury, Vermont.
- Trusso, S. 1999. Best management practices for trapping furbearers in the United States. International Association of Fish and Wildlife Agencies, Columbia, Missouri.
- U.S. Fish and Wildlife Service. 1995. Final action plan and environmental impact statement Silvio O. Conte National Fish and Wildlife Refuge. Hadley, Massachusetts.
- U.S. Fish and Wildlife Service. 1999. Final environmental assessment, U.S. Fish and Wildlife Service participation in a partnership to protect the Champion Lands in Essex County, Vermont. Hadley, Massachusetts.
- U.S. Fish and Wildlife Service. 2000. Canada lynx news and information, commonly asked questions about Canada lynx. The Mountain-Prairie Region, U.S. Fish and Wildlife Service, Lakewood, Colorado.
- Vermont Agency of Human Services. 1997. Population and housing estimates for Vermont, 1996. Montpelier, Vermont.
- Vermont Fish and Wildlife Department. 1993. The Vermont management plan for brook, brown, and rainbow trout. Vermont Fish and Wildlife Department, Waterbury, Vermont.
- Vermont Fish and Wildlife Department. 1998. The role of regulated trapping and the management of furbearers in Vermont, present and future. Vermont Fish and Wildlife Department, Waterbury, Vermont.

*Compatibility Determination on Trapping Furbearers*

Vermont Fish and Wildlife Department 1999. Vermont Furbearer Management Newsletter 1(2):1–10. Vermont Fish and Wildlife Department, Waterbury, Vermont.

Vermont Fish and Wildlife Department. 2000. Vermont Fish and Wildlife Department Strategic Plan. Vermont Fish and Wildlife Department, Waterbury, Vermont.

Vermont Department of Employment and Training. 1998. Vermont, an economic-demographic profile series, Northeastern Vermont, Caledonia County, Essex County, Orleans County Montpelier, Vermont.

Vermont Department of Health. 1997. Population and housing estimates for Vermont 1996. Vermont Agency of Human Services, Montpelier, Vermont.



**Attention! Items of Interest to Bidders on Trapping Permits!  
Blackwater National Wildlife Refuge  
Trapping Season 2003**

1. Trapping units A, B, E, M, Q, R, and S have been removed from the trapping program due to the nutria eradication study.<sup>3</sup>
2. Due to errors in the 2002 nutria rebate program, several trappers are still owed funds earned during the 2002 trapping season. Those funds will be reimbursed from the 2002 trapping bids before other rebates are awarded.<sup>4</sup>
3. Portions of trapping units G and P and M will continue in the long-term burning study. Portions of these units are set up in no burn, annual burn, 3- to 5-year burn and 10-year burn areas. See attached map. Only the annual burn areas of the burn study area will be burned in 2003. Trappers are encouraged to trap the unburned areas at normal rates.
4. Trappers not fulfilling nutria rebate amount of bid by March 1, 2003, will relinquish funds to a general account which will be available to all refuge trappers.
5. Significant numbers of nutria have been tagged or radio collared. Any trappers finding one of these animals is encouraged to bring the animal to the refuge so necessary information can be collected.
6. Trapping will begin on January 1, 2003, for muskrat, nutria, skunk, raccoon, opossum, and fox on all units.
7. All croplands, woodlands, and impoundments in the area between the Wildlife Drive and Key Wallace road are closed to trapping to prevent waterfowl disturbance.
8. Use of Conibear type size 220 traps will not be permitted within 100 feet of the paved portion of any state or county highway on units D, F, J, K, and O. Use of Conibear type size 110 traps are permitted along roadways provided traps are set below marsh level.
9. One individual may be awarded two units; only one unit will be awarded if bidder makes written statement to that effect on trapping bid.
10. A nutria rebate program will be available to refuge trappers again this year, for nutria killed on the refuge units. Trappers will be reimbursed \$1.50 for each nutria tail turned in to the refuge office, not to exceed the amount of the trapping bid. Nutria can be taken by hunting or

---

<sup>3</sup> New for 2003

<sup>4</sup> New for 2003

trapping. Permittees taking nutria by trapping must notify the refuge office in advance and tails must be turned in daily. Permittees taking nutria by hunting must notify the refuge office on the morning of the hunt and turn in tails at the refuge office by 3:30 p.m. of the same day. All tails must be fresh. No frozen tails will be accepted. This rebate will not apply under any other circumstances.

11. All trappers note. Refuge staff will be taking nutria actively on all trapping units. All prospective trappers should bid with this in mind. This intensive removal is necessary to reduce nutria populations and to slow their extensive damage to marsh vegetation.
12. A meeting with all interested trappers will be held at 7:00 p.m. on Wednesday, December 11, 2003 at refuge headquarters. A review of refuge regulation changes will be conducted.
13. All refuge trappers should note that rabies continues to be documented in the Blackwater area. Trappers should take necessary precautions such as pre-exposure shots, wearing gloves while skinning game, etc. Rabies can occur in any warm-blooded animal from deer to squirrels, etc.
14. Only those refuge lands identified on the attached map are open to trapping. Trappers should consult refuge staff with any questions regarding trapping areas.
15. To prevent disturbances to the eagle roosts located adjacent to Pool 4 (Kuehnle Tract-Trapping Unit K and L). Access will be permitted only between the hours of 8:00 a.m. and 4:00 p.m.

**Instructions for Bidding on Trapping Permits  
Blackwater National Wildlife Refuge  
Trapping Season 2003**

1. Inspection of the units will be allowed December 10 through December 12, between the hours of 9:00 a.m. and 3:00 p.m. A public meeting will be held at 7:00 p.m. on December 11 at refuge headquarters in order to familiarize all prospective trappers with the State and Federal regulations governing the trapping of furbearers on the refuge. A public bid opening will be held at the refuge Visitor Center at 1:00 p.m. on December 18. Applications must be in the Blackwater NWR office at the address below by 1:00 p.m. on December 18.

**Muskrat Bid**  
**Refuge Manager**  
**Blackwater National Wildlife Refuge**  
**2145 Key Wallace Drive**  
**Cambridge, MD 21613**

2. You may submit bids for more than one unit. A bid deposit of \$100 is required at the time of bid submission in the form of a bank money order, cashier's check, or postal money order made out to the U.S. Fish and Wildlife Service. Personal checks or cash cannot be accepted. Remaining amount of bid must be received on or before December 31, 2002. If a successful bidder defaults on a bid before full payment is made, then the \$100.00 bid deposit is forfeit. The defaulted bidder then will be ineligible to bid on refuge trapping privileges for 3 years.
3. Although you may submit bids for all units, only two units will be awarded to any one individual. High bid will be the unit awarded. If an individual desires only one unit of marsh, a statement to that effect on the bid form will direct refuge personnel to exclude the applicant's bid after the first unit is awarded.
4. No bids or bid changes can be made by telephone.
5. The bid invitation summarizes the contract, but does not contain all contract requirements. The successful bidders for each unit must review and sign the formal contract.
6. A list of units and details of ingress and egress using refuge lands and waters is available at the refuge office.
7. Bid form, general and special conditions are available on request. Each bidder must complete the Application for Refuge Fur Trapping Permit, Form 3-2001, which will also serve as the bid. Be sure to review, sign and complete both sides of that form.
8. Trapping will begin on January 1, 2003, provided full payment has been made, for trapping of muskrat, nutria, raccoon, opossum, skunk, and fox on trapping units.

9. If after full payment has been made and before trapping begins on January 1, 2003, a bidder requests a permit be voided and refund be made, the following will occur.

*The bidder and refuge manager will sign an agreement to that effect, stating that the unit will be re-bid and refund will be the new bid price (not to exceed the original bid) minus \$100.00 penalty to cover administrative costs and re-advertising the unit.*

10. A nutria study rebate program will be available to refuge trappers again this year, for nutria killed on the refuge units. Trappers will be reimbursed \$1.50 for each nutria tail turned in to the refuge office, not to exceed the amount of the trapping bid. Nutria can be taken by hunting or trapping. Permittees taking nutria by trapping must notify refuge office in advance and tails must be turned in daily. Permittees taking nutria by hunting must notify refuge office on the morning of the hunt and turn in tails at the refuge office by 3:30 p.m. of the same day. All tails must be fresh. No frozen tails will be accepted. This rebate will not apply under any other circumstances. These restrictions are necessary to ensure that reimbursements are made only for nutria taken on Blackwater NWR.
11. Trappers not fulfilling nutria rebate amount of bid by March 1, 2002, will relinquish funds to a general account which will be available to all refuge trappers.
12. Refuge staff will be actively taking nutria on all trapping units. Bidders should take that into consideration when bidding.

**Conditions Applicable to All Trapping Units  
Blackwater National Wildlife Refuge  
Trapping Season 2003**

1. All trapping activity must comply with State and special refuge regulations, including boating regulations. Trapping of muskrats will begin on January 1, 2003 and end on March 15, 2003.
2. Fur animals authorized to be taken on the refuge may be taken only with ordinary steel traps or with other traps which have been approved by the refuge manager. The refuge manager may require the permittee to locate his traps in designated parts of his trapping unit (see special conditions for each unit). Unless specifically waived by the refuge manager, the permittee shall visit and inspect each of his traps within the refuge at least once every 24 hours, but he shall not run his traps or visit traps between sunset and one-half hour before sunrise of the following day. Permittees must advise refuge manager daily by phone or in person if sickness or any other reason, including weather conditions, prevents compliance with the 24-hour inspection regulation. At the close of the trapping season, the permittee shall take up all his traps and remove them from the refuge. The permittee may cut on the refuge, for use as trap stakes or drags, only such species of brush or timber as the refuge manager shall designate.
3. Birds and mammals other than those covered by and taken under this permit that are found alive in the traps by the permittee shall immediately be liberated. Any such unauthorized birds or mammals found dead or mortally injured in the traps shall immediately be turned over to the refuge manager or his representative. Trappers should record any incidental catches of non-target species, as this will be part of the information requested by the refuge at the close of the season.
4. This permit is not transferable, and no privilege hereunder may be sublet or made available to any person or interest not a party hereto without the approval of the refuge manager. Permittee must be present on area when trapping is carried out. One helper will be allowed. If helper is less than 18 years of age, written authorization from the refuge manager is required.
5. Ingress and egress from the refuge shall be only by routes of travel designated by the refuge manager.
6. The permittee shall, not later than 15 days after the conclusion of trapping on the refuge, submit to the refuge manager a report in which are correctly stated the numbers of each species of animal taken on the refuge.
7. All furbearers except otter may be taken. Setting any trap in the vicinity of otter sign or activity is prohibited to prevent the accidental taking of otter. Use or possession of Conibear type 330 is prohibited. Foothold traps normally used for otter are prohibited. Any foothold

trap with a jaw spread of more than 4 inches must be approved by the refuge manager. Use or possession of snares of any description is prohibited. Bait sets with foothold traps are not permitted. The use of foothold trap sets around an animal carcass—draw station—are prohibited.

8. Approved foothold traps may be set for nutria in open marsh. Only one trap per set may be used.
9. Use of Conibear type size 220s and foothold traps are prohibited in upland areas of the refuge with the exception that approved foothold traps will be permitted for use with dirt hole sets for fox on wooded islands in the interior of the refuge provided no other restrictions are in place. See maps at refuge office for locations.
10. Each successful permittee from the period of the bid award may enter his unit during daylight to check for trespass. Permittee must notify the office prior to entering upon the refuge units.
11. No marsh burning by trappers is permitted. All burning will be done by refuge personnel. Burning will be carried out as soon as possible after January 1. Trappers should take into account when bidding that some of the units may not be completely burned. Trapping Units G and P will have sections of marsh which will be burned on an annual burn, 3- to 5-year burn, 10-year burn and a no-burn rotation. (See map).
12. All bidders must have obtained the age of majority in the State of Maryland, which is 18 (eighteen) years of age.
13. Failure by the permittee or his helper to comply with any of the provisions above or the violation by him of any of the refuge regulations or of any State law or regulation applicable to trapping on said refuge, not only shall render him subject to prosecution under said laws and regulations, but shall constitute cause for the revocation of this permit and for refusal of a permit for trapping fur animals during the next following open season or for any other use of privilege on the refuge for which a permit may be required by regulations. This permit may be terminated at any time by agreement between the issuing officer and the permittee; it may be revoked by the issuing officer for non-use.
14. Permittee is responsible for knowing his or her refuge trapping unit boundary. Care should be taken to prevent trespass on adjacent units and private lands. Refuge cannot grant permission for access across private lands.
15. No trapping will be permitted within 200 yards of any eagle nest on or adjacent to the refuge. Permittee should check on those areas with an old nest and possibly any new nest since last trapping season. Trapping may be permitted in these areas once it has been determined by the refuge staff that the nest is not active for that year.
16. Parking areas and access routes will be designated by the refuge manager.

17. Permittees supplied with keys to refuge gates are responsible to return keys within 15 (fifteen) days after conclusion of trapping on the refuge. Permittee is responsible for closing refuge gates upon entering and exiting refuge and is responsible for keeping refuge keys in his or her custody at all times.
18. The refuge manager reserves the right to restrict traffic on any refuge access roads due to weather, wet conditions, eagle nest construction, etc. Permittees are responsible for any damage they cause to refuge roads during bad weather, wet conditions, etc.
19. Off-road vehicles (ATV, marsh buggies, trail bikes, etc.) are prohibited for use on refuge lands.
20. Air boats and air boat use are prohibited on refuge waterways.
21. Permittees are authorized to carry a .22-caliber firearm to dispose of all trapped furbearers, except muskrat and otter.
22. Permission may be received from the refuge manager authorizing additional helpers and dogs for taking nutria. The permittee must be present during the nutria hunt. The permittee is responsible for the helpers and their activities. This regulation will be strenuously enforced during this trapping year.
23. Refuge staff members will be taking an active role in taking nutria on all refuge units.

**Special Conditions for Specific Trapping Units  
Blackwater National Wildlife Refuge  
2003 Trapping Season**

In addition to the general regulations above, special conditions apply to the units listed below.

**Unit D**

1. No foothold traps will be permitted within 100 yards of the paved portion of the county road.
2. No trapping will be permitted within 200 yards of any eagle nest on adjacent land.
3. Trapping will be permitted in the uplands of this area by use of live traps only.
4. Use of Conibear type size 220 traps will not be permitted within 100 feet of the paved portion of the county highway. Use of Conibear type size 110 are permitted along roadway provided traps are set below marsh level.

**Unit F**

1. No foothold traps will be permitted within 100 yards of the paved portion of the county road.
2. Use of Conibear type size 220 traps will not be permitted within 100 feet of the paved portion of the county highway. Use of Conibear type size 110 are permitted along roadway provided traps are set below marsh level.
3. No trapping will be permitted within 200 yards of any eagle nest on this unit.

**Unit G**

1. No trapping will be permitted within 200 yards of any eagle nest on this unit.
2. Consult refuge manager regarding fox trapping on islands located on this unit.
3. A refuge burn study area is located in this unit. The annual burn section of the study area will be burned.



### **Unit J**

1. No trapping will be permitted within 200 yards of any eagle nest on this unit.
2. Consult refuge manager regarding fox trapping on island locations on this unit.
3. No leghold traps will be permitted within 100 yards of the paved portion of the county road.
4. Use of Conibear type size 220 traps will not be permitted within 100 feet of the paved portion of the county highway. Use of Conibear type size 110 are permitted along roadway provided traps are set below marsh level.

### **Unit K**

1. No trapping will be permitted within 200 yards of any eagle nest on this unit.
2. Trapping will be permitted in the uplands of this area by use of live traps only. Consult this area by use of live traps only. Consult refuge manager regarding fox trapping on islands located on this unit.
3. No leg-hold traps will be permitted within 100 yards of the paved portion of the county road.
4. Use of Conibear type size 220 traps will not be permitted within 100 feet of the paved portion of the county highway. Use of Conibear type size 110 are permitted along roadway, provided traps are set below marsh level.
5. To prevent disturbance to eagles utilizing the roost area, road access will be permitted only between the hours of 8:00 a.m. and 4:00 p.m.

### **Unit L**

1. Trapping will be permitted in the uplands of this area by use of live traps only. Consult refuge manager regarding fox trapping on islands located on this unit.
2. Part of the woodland area of this unit will be closed to protect an eagle roosting area. Consult refuge manager for area definition.
3. To prevent disturbance of eagles using the roost area, road access will be permitted only between the hours of 8:00 a.m. and 4:00 p.m.

**Unit O**

1. Use of Conibear type size 220 traps will not be permitted within 100 feet of the paved portion of the county highway. Use of Conibear type size 110 is permitted along roadway provided traps are set below marsh level.
2. No leghold traps will be permitted within 100 yards of the paved portions of the county road.

Back to top

# **Compatibility Determination on Wildlife–Dependent Recreation**

## **Wildlife-dependent Recreation**

**Station Name:** Blackwater National Wildlife Refuge (Chesapeake Marshlands NWR Complex)

### **Establishing and Acquisition Authorities**

The Chesapeake Marshlands National Wildlife Refuge Complex (CMNWRC) is composed of three nationally significant wildlife areas: Blackwater NWR, Martin NWR, and Susquehanna NWR with several separate divisions. Blackwater NWR includes the Nanticoke Division, and Martin NWR includes the Barren Island, Bishops Head and Spring Island, and Watts Island Divisions. Collectively, Martin NWR, Susquehanna NWR, and their respective divisions are referred to as the Chesapeake Island Refuges.

The first and largest of these areas to be established was Blackwater NWR. Originally authorized for establishment by the Migratory Bird Conservation Commission on December 3, 1931, and named “Blackwater Migratory Bird Refuge,” its current 28,000 acres are a showplace for the National Wildlife Refuge System.

On December 31, 1931, the Migratory Bird Conservation Commission authorized the Secretary of Agriculture to purchase 10,000 acres from the Delmarvia Fur Farms, Inc., of Philadelphia, Pennsylvania. On December 9, 1931, the Secretary entered into an agreement with Delmarvia Fur Farms, Inc., effective January 1, 1932, to lease 8,167.99 acres for the refuge. The Secretary subsequently determined that it was in the best interest of the Government to acquire 8,240.99 acres for the refuge from the Delmarvia Fur Farms and two other properties by condemnation. A notice of condemnation was filed August 26, 1932, and these tracts were conveyed to the Government in January 1933.

Blackwater NWR was, therefore, officially established under the authority of the Migratory Bird Conservation Act on January 23, 1933. Since that time, additional lands have been added to the refuge under the authorities of the Endangered Species Act, Refuge Recreation Act, North American Wetlands Conservation Act, and the Refuge Administration Act.

Table I summarizes the history of Blackwater National Wildlife Refuge land acquisition and the tracts that are now being affected by the proposed uses. Unless otherwise noted, all acquisitions are fee title. This compatibility determination will also apply to additional tracts, particularly those in the Nanticoke Division, as they are acquired.

## **Refuge Purposes**

For lands acquired under the Migratory Bird Conservation Act (16 U.S.C. § 715 d), the purpose of the acquisition is “...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.”

For lands acquired under the Endangered Species Act of 1973 (16 U.S.C. § 1534), the purpose of the acquisition is “...to conserve (A) fish or wildlife which are listed as endangered or threatened species...or (B) plants.”

For lands acquired under the Refuge Recreation Act (16 U.S.C. § 460K–1), the purpose of the acquisition is for “...(1) incidental fish and wildlife-oriented recreation; (2) the protection of natural resources; (3) the conservation of endangered species or threatened species...”

For lands acquired under the North American Wetlands Conservation Act (16 U.S.C. § 4401–413), the purpose of the acquisition is “(1) to protect, enhance, restore, and manage an appropriate distribution and diversity of wetland ecosystems and other habitats for migratory birds and other fish and wildlife in North America; (2) to maintain current or improved distribution of migratory bird populations; and (3) to sustain an abundance of waterfowl and other migratory birds consistent with the goals of the North American Waterfowl Management Plan and the international obligations contained in the migratory bird treaties and conventions and other agreements with Canada, Mexico, and other countries.”

For lands acquired under the Refuge Administration Act (16 U.S.C. § 668ddb), the purpose of the donation is “to protect, enhance, restore, and manage wetland ecosystems and other habitats for migratory birds, endangered and threatened species, and other wildlife.”

## **National Wildlife Refuge System Mission**

“The mission of the System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”—National Wildlife Refuge System Improvement Act of 1997 (Public Law 105–57)

## **Description of Use**

This evaluation is to determine whether programs for wildlife-dependent recreation—wildlife observation and photography and environmental education and interpretation—are compatible with the purposes for which the affected tracts were acquired.

### **(A) What is the use? Is it a priority use?**

The use is wildlife-dependent recreation: wildlife observation and photography and environmental education and interpretation, often referred to as “non-consumptive recreational use.” The National Wildlife Refuge System Improvement Act of 1997 identifies wildlife

observation and photography and environmental education and interpretation as four of the six, priority, wildlife-dependent recreational uses to be facilitated in the Refuge System, and encourages the Service to provide opportunities for the public to enjoy them.

### **Background and Rationale for the Management Activity**

In the 1930s, when Blackwater NWR was first established as a refuge for migratory birds, the refuge was considered a sanctuary for wildlife. Few visitors came to the refuge. By the 1960s, people began to take an interest in the refuge for recreation. Schools began to bring students to see wildlife, visitors interrupted working employees to ask questions, and people wanted a place to picnic in a natural setting. A recreational area (consisting of a shelter, rest room, picnic area with tables, charcoal cookers, walkways, and parking area) was constructed in 1963. The area was highly sought after and appreciated by local residents, as it was the only maintained facility in the entire county. It is still only one of the few public use areas available in Dorchester County. Photographers and bird watchers continued to increase, with the pressure of their use being felt by the refuge staff.

A Visitor Center was built in 1996. Locally, the new Center was called the Community Center, where people of the surrounding area could go to ask questions and learn about their renewable resource: wildlife. With the continued demand for wildlife-oriented recreation along with the increase in visitation, additional facilities were constructed: an observation tower in 1968, a 2½-mile Wildlife Drive in 1969, and 2 walking trails in 1971. A self service entrance Fee Program, begun in 1987, caused an initial drop in visitation, but was gradually accepted by the local population continuing the increase in visitation. Four kiosks with interpretive panels were completed in 1999. Public demand for information prompted the refuge to produce a general leaflet; bird, mammal, reptile and amphibians check list; Canada goose leaflet, and Wildlife Drive and Marsh Edge Trail guides. Blackwater became a showcase for wildlife. It was a place for adults and children to learn first hand nature's lessons of adaptation and diversity to see birds and wildlife in their natural environment, and to pass on to a new generation a love for America's wildlife. Visitation peaked in 1999 at approximately 500,000, with 100,000 using refuge facilities and programs.

In the 1960s, the entire staff participated in the overall refuge interpretive program. Although well-trained and equipped to manage habitat and wildlife, the staff faced new challenges with the task of managing an eager and active public. The idea took hold that a better informed public could be a positive force in shaping conservation awareness, and thus policy and practice. A Public Use Specialist was hired in 1968 increasing the number of environmental and interpretive programs. Visitation continued to increase and required a permanent full time Outdoor Recreation Planner (ORP), a permanent full time Recreation Assistant, and as many as two temporary and two seasonal Recreation Assistants. Since 1990, when both the ORP and Recreation Assistant took other positions, Blackwater has had only one ORP and numerous temporary Recreation Assistants, volunteer interns, or Student Conservation Association Volunteers (usually only one at a time for 3-month periods, requiring a great deal of time for recruiting and training). There were also periods as long as 6 months when the ORP tried to cope with the increasing demand of a Public Use Program with only the assistance of volunteers. It is

no longer possible to keep up with the expectations and requests of the public without additional staff.

Although there were a few citizens starting to volunteer in 1981, volunteer workshops weren't started until 1985. The program reached 104 volunteers in 1994 and has remained consistent, with approximately 100 volunteers providing more than 11,500 hours a year of their time. The Visitor Center is staffed mainly by volunteers and sometimes are the only ones on the refuge because of the staff shortage. The Friends of Blackwater (FOB), a cooperative association that established a book store in the Visitor Center in 1988, has grown to an organization of over 700 members, grossed over \$61,000 in their bookstore in 1999, procured several grants to assist in refuge projects, and has become nationally known for their mentoring and assistance in developing other "friends" groups. FOB has supported the Public Use Program by helping to offset the shortage in staffing and government funding, and has assisted the refuge in trying to meet the public demand for environmental and interpretive programs.

During the scoping meetings, the public expressed their desire for more facilities and public use of the refuge. In particular, they want increased opportunity for wildlife-oriented education and interpretation programs, more opportunities for local school use and education, better auto tour routes, more hiking trails, canoe trails and maps, boat ramps, bike trails, observation tower, and a remodeled or new Visitor Center. Although the Visitor Center exhibits were upgraded in 1982, they are in need of new, updated, and innovative displays to better inform the public of Service and Blackwater NWR policies, wildlife needs, and awareness of wildlife conservation.

Proposed strategies include increasing environmental education programs (including the publication of an environmental education manual); increasing the number and types of interpretation and outreach programs, photography facilities, and wildlife observation facilities; constructing an environmental education facility; updating exhibits and remodeling and enlarging the existing Visitor Center; and hiring more staff to plan, manage, conduct, and operate the public use program.

### **(B) Where would the use be conducted?**

Wildlife observation and photography and environmental education and interpretation will all occur on the 5-mile Wildlife Drive, the 0.3-mile Marsh Edge Trail and the 0.5-mile Woods Trail on Tract 14a; other forested and wetland areas of Tract 14, Tract 52, Tract 37, Tract 45e, Tract 45c, Tract 100ai, Tract 100ah; upland areas of Tracts 100 and 101 as designated by the refuge on request; and proposed acquisition of the Robbins property (approximately 19 acres) located adjacent to Tract 14.

The Wildlife Drive begins at the old refuge office (across the road from the fire building) on Key Wallace Drive and extends south across the Pool 1 dike to the Marsh Edge Trail and the observation site, turns west after crossing the Pool 1 dike, and continues along the southernmost dikes of Pools 1, 3, and 5 until it exits onto State Route 335, an area of approximately 10.08 acres. The area was first established as the Wildlife Drive more than 45 years ago, because the dike system that created the freshwater impoundments represented a "ready-made" infrastructure, the only real interior infrastructure that could be considered for such use. Even

today, no other location is better suited for a wildlife drive in terms of infrastructure, and certainly no other location gives the visitor a representation of all refuge habitats within such a short distance, yet restricts use to only 10.08 acres of the refuge's 23,444 acres.

The Marsh Edge Trail begins at the environmental education pavilion parking area, and extends through approximately 10 acres of loblolly pine woods to the marsh where it connects to a 40-foot observation deck built along the edge of the Little Blackwater River. The Marsh Edge Trail is paved to accommodate handicapped access. Uses will be restricted to the 6'-wide paved area and to the boardwalk, a total area of approximately 0.2 acres.

The Woods Trail begins at a parking lot along the Wildlife Drive, and extends in a 0.5-mile loop through the center of 50 acres of loblolly pine woods. Uses will be restricted to the chipped trail, an area of approximately 0.3 acres.

The trails were first established as the Marsh Edge Trail and Woods Trail over 25 years ago. They were originally constructed with minimal disturbance of the habitats within the already existing Wildlife Drive area. With the exception of improvements made for wheelchair access (paving) and interpretation and education (signing and numbered stops), the trails have not changed. The trails provide a sample of the refuge's diverse habitats for interpretation and education, yet directly impact only 0.5 acres of the refuge's 23,444 acres.

The proposed new Key Wallace Trail, habitat demonstration area, and environmental education facility will be located on Tract 37 across from the headquarters building. The 2.7-mile trail will begin at the intersection of Key Wallace Drive and Egypt Road, cross through a previously harvested immature forest area, follow an existing road that goes by two ponds, and continue through a mature forest area. Boardwalks, photo blind, observation platform, outdoor classroom pavilion, and a 20'×20' storage facility will be located in open fields near the ponds. The outdoor classroom facility will consist of a covered 25'×40' pole pavilion with cement floor and six weatherproof tables and benches to seat thirty-six students comfortably. The trail and associated facilities will provide various stages of a forest for wildlife observation and photography and environmental education and interpretation, yet directly impact only 5 acres.

The proposed new 1.7-mile White Marsh Trail will be located on Tracts 100ai and 100ah. The trail will be accessed from Hip Roof Road and will follow existing roads. The trail will circle through a wetland forest area impacting 2 acres. Some of the area will be reforested to restore tornado damage, while a small area will be left for visitors to see the results of a tornado and natural regeneration following the disaster.

The two new proposed trails take advantage of cleared firebreaks and roadways for part of the trail experience. The portions of the trails that pass through undisturbed forest and field will be "blazed" trails. That is, there will be no parts of the trails that are not on the old firebreaks that will be man-made. There will be no "bush hogging" or "cutting in" the trails. A visitor will experience the forests and fields as they are in nature, without man-made interference. Each trail head will begin at an existing parking area of crushed stone and will include an information kiosk, numbered trail signs, and map brochure guide.

A third new proposed Gum Swamp Trail, kiosk, observation and photo blind, and parking area will take advantage of existing roads and parking area with minor physical impact on the surrounding forested habitat. This trail will extend from Route 335 to Smithfield Road through Tracts 45e, 45c, and 100ah. The trail would be approximately 5 miles long, and would connect with the proposed White Marsh Trail.

A new 200'×8' accessible boardwalk and 20'×20' elevated observation platform will be constructed at the old observation tower site along the Wildlife Drive at the junction of the Little Blackwater River and Blackwater River. The structure would replace the observation tower removed in 1990.

Two new wheelchair-accessible photo blinds will be constructed along the Wildlife Drive on Tract 14a. The first 10'×16' blind with an 80'×6' boardwalk will overlook a small pond adjacent to a wooded area. The second blind will be constructed at the beginning of the pool 5 section of the Wildlife Drive which will eventually be converted to non-motorized use. The entrance to the Wildlife Drive will be redesigned to allow visitors to enter the Wildlife Drive from the Visitor Center. The original first section of the drive (pool 1 and pool 3) will be for motorized vehicles exiting at the original entrance, and the second section (pool 5) will be a safe observation area for non-motorized use. The second loop will connect with a bike trail to be constructed by the Maryland Highway Department and Dorchester County along Route 335 to Hip Roof Road, providing a 4- to 5-mile bike trail.

An environmental education outdoor classroom and parking area will be constructed in the site of a previous residence which burned to the ground and would minimize physical and biological impacts on the environment. The Service will purchase the Robbins property located east of Key Wallace Drive near the Visitor Center, which will require no additional excavation, thus reducing the cost of construction. The outdoor classroom will provide storage, wet laboratory, and working tables and chairs for up to 75 students.

The new proposed administrative facility and visitor center and environmental education site at the Nanticoke Division will be located in prior disturbed habitat. There are several opportunities for siting the facility on properties that have been cleared and previously disturbed by construction. The proposed trail and observation tower for the Nanticoke Division will be located in an area that will least disturb the wildlife and habitat by taking advantage of existing roads if possible.

**(C) When would the use be conducted?**

Wildlife observation and photography will be conducted on the Wildlife Drive and trails daily, year-round, from dawn to dusk (i.e., daylight hours only), unless a conflict with a management activity or an extenuating circumstance necessitates deviating from these procedures. Closures for ice storms or other events affecting human safety or activities needed to protect a newly constructed eagle nest are examples that would require these uses to be temporarily suspended. Use will be further restricted by weather and summer insect infestations, self-limiting factors that virtually eliminate all uses from June through August in some areas.



**(D) How would the use be conducted?**

Utilization of the Wildlife Drive will be authorized for automobiles and other motorized vehicles, bicycles, and pedestrians who simply want to walk or hike. All uses will be expressly restricted to the paved roadway, boardwalks, observation and photo blinds, and paved or chipped trails. Admission to the Wildlife Drive, Marsh Edge Trail, Woods Trail, and photo blinds will be regulated by an electric gate at a “self-serve” entrance fee station that will be administered according to provisions in 50 CFR, Subchapter C, Part 25. Educational groups may request a waiver of the fee for using the Wildlife Drive and associated hiking trails and facilities.

The uses described above will be regulated by signing and distribution of publications and regulations at the entrance station (posting Prohibited or Permitted signing, posting time of day use is authorized, 15 m.p.h. maximum speed limit signing, caution signs for recognition of endangered species and waterfowl which may cross the roadway, maps and interpreted information, teacher workshops, and distribution of refuge leaflets and Wildlife Drive and Marsh Edge Trail Guides with numbered, interpreted stops corresponding to signing). A guide or map with numbered, interpreted stops corresponding to signing is planned for other trails. Law enforcement patrols and compliance checks by refuge officers will be used to enforce the provisions of 50 CFR, Subchapter C, Parts 25, 26, and 27, as applicable. As previously mentioned, Staff and volunteers at the Visitor Center and the refuge office will also give instructions to visitors on how these uses are to be conducted.

Utilization of outdoor classrooms, forested and wetland areas on the trails, observation site, and limited specific wetland, wet forest, upland forest and grassland sites in other areas of the refuge will be authorized for educational outdoor classroom activities on an individual basis. These uses will be regulated by refuge personnel personally instructing qualified teachers on how and where the activity will be conducted. Approximately 99 percent of the activities will be conducted in areas where refuge personnel conduct similar education and interpretation activities designated in the Public Use and Management Plans and are incorporated in teacher workshops.

**(E) Why is the use being proposed?**

These uses will be conducted to provide compatible educational and recreational opportunities for visitors to enjoy the resource and to gain understanding and appreciation for fish and wildlife, wildlands ecology and the relationships of plant and animal populations within the ecosystem, and wildlife management. They will enhance the public’s understanding of natural resource management programs and ecological concepts to enable the public to better understand the problems facing our wildlife and wildlands resources, to realize what effect the public has on wildlife resources, to learn about the Service role in conservation, to better understand the biological facts upon which Service management programs are based, and to foster an appreciation as to why wildlife and wildlands are important to them. The authorization of these uses will produce a more informed public, and advocates for Service programs. Likewise, these uses will provide opportunities for visitors to observe and learn about wildlife and wildlands at their own pace in an unstructured environment and to observe wildlife habitats firsthand. Professional and amateur photographers will also be provided opportunities to photograph wildlife in their natural habitats. Photographic opportunities obviously will result in increased

publicity and advocacy for Service programs. These uses will also provide wholesome, safe, outdoor recreation in a scenic setting, with the realization that those who come strictly for recreational enjoyment will be enticed to participate in the more educational facets of the public use program, and can then become advocates for the refuge and the Service.

### Availability of Resources

Requested additional staff will develop and conduct more environmental education programs for different age groups, types of groups (including scouts, 4-H, college, adults, etc.) and for larger numbers of groups; develop an Envirothon for middle and elementary schools; develop communication workshops and meetings with other environmental education organizations and institutions; hold teacher workshops; recruit and train more volunteers; prepare and present more interpretive programs; develop a new updated video; revise leaflets and develop new ones; update kiosk information; develop needed signs; catalog and store slides, photos, and historical items; develop habitat demonstration areas and trails; plan and conduct photography programs; organize and conduct more events; regularly schedule programs for the public; work with Dorchester County Tourism, Harriet Tubman Organization, National Park Service, Gateways Program and other organizations to plan events and activities; display off-site exhibits at more local events; develop ecotourism with the Hyatt and Dorchester County Tourism; participate in the development of watershed-wide cooperative outreach groups; develop better relationships with media providing monthly reports; and be able to respond immediately to public inquiries.

Staff at the Nanticoke Division will be required to initiate, plan, develop, and conduct an environmental education and interpretation program, staff a visitor center, and to develop visitor center exhibits, leaflets, signs, video, website, and special events. The staff will develop teacher workshops, a volunteer program, off-site exhibits and ecotourism programs. They will introduce the Nanticoke Division to the public, the media, and participate in local events and activities. They will plan and develop trails and other observation facilities.

### Cost Breakdown

The following is the list of costs to the refuge required to administer and manage wildlife observation and photography and environmental education and interpretation programs.

#### Yearly Service Staffing Costs—Blackwater NWR

Outdoor Recreation Planner GS-0023-12/13 .....	\$87,285
Outdoor Recreation Planner GS-0023-9/11 .....	61,253
Park Ranger GS-0025-5/7 .....	41,379
Park Ranger (LE) GS-0025-5/7 .....	\$41,379
	<b>Total</b> \$231,296

#### Facility and Equipment Costs—Blackwater NWR

Redesign Wildlife Drive, signs and kiosks .....	\$180,000
Three photo blinds, observation platform, and 15 miles hiking trails .....	106,000
Environmental Education Manual .....	85,000
Exhibits, outreach, and materials for folk museum .....	124,000

Construct observation platform and 150' environmental ed. boardwalk . . . . .	252,000
Remodel Visitor Center . . . . .	1,000,000
Construct environmental outdoor classroom . . . . .	250,000
Install Traveler's Station . . . . .	\$38,000
	<b>Total \$2,035,000</b>

Non-Service Costs Provided by Partnerships, Grants, and Donations—Blackwater NWR

Traveler's Station—Dorchester County . . . . .	\$3,000
--	---------

Yearly Service Staffing Costs—Nanticoke Division

Outdoor Recreation Planner GS-0023-9/11 . . . . .	\$61,253
SCEP GS-0499-5/7 . . . . .	20,689
Park Ranger (LE) GS-0025-5/7 . . . . .	41,000
Maintenance Worker WG-4749-08 . . . . .	\$50,000
	<b>Total \$173,942</b>

Facility and Equipment Costs—Nanticoke Division

Needs and location assessment for building construction, trails, etc. . . . .	\$95,000
Construct Visitor Center-Administration-EE Building . . . . .	1,000,000
Equipment and materials to implement Environmental Education Program . . . . .	26,000
Interpretation and education exhibits, signs, video, leaflets, website and kiosk . . . . .	430,000
Install traveler's station, off-site exhibits, and two public event supplies . . . . .	35,000
Wildlife observation trail and tower . . . . .	\$113,000
	<b>Total \$1,699,000</b>

**Anticipated Impacts on Refuge Purposes**

The environmental, socioeconomic, and cultural and historical impacts summarized below are more thoroughly described in the Environmental Assessment prepared for the Chesapeake Marshlands NWR Complex Comprehensive Conservation Plan.

*Physical Impacts.*—Uses of the Wildlife Drive will directly impact approximately 10.08 acres of refuge habitat, i.e., the tops of dikes or access roadways to these dike systems that were constructed primarily for migratory bird management purposes and administration (creation and management of freshwater impoundments and croplands, and access to the residences and maintenance area). These uses, therefore, directly impact less than .05 percent of the total refuge acreage that supports this particular purpose. It should be noted that even if the subject uses were eliminated, refuge management and administrative uses of these acres would not change, i.e., the roadway would remain paved and the dikes would continue to be maintained just as they are to support migratory bird management purposes. There is no other direct impact to habitats, since visitors are restricted to the pavement.

Uses of the existing trails will directly impact approximately 0.5 acres of refuge habitat that is used primarily by migratory songbirds, and to a lesser degree, a few shorebirds and marsh and waterbirds near the boardwalk at the Marsh Edge Trail. Being primarily forested areas, trail habitats do not support large numbers of other migratory birds such as waterfowl. These uses,

therefore, directly impact less than .003 percent of the total refuge acreage that supports this particular purpose. There is no other direct impact to habitats since visitors are restricted to the paved or chipped areas.

A maximum of 550 students (usually in small groups of 20 a program) a year participate in environmental education workshops in areas other than on the paved drive and Marsh Edge Trail or the Chipped Woods Trail. Approximately 90 percent of these have been refuge-interpreted programs that are part of the Public Use and Management Plan. The remaining 55 students use the refuge different times of the year, in five different areas, and in such small groups as to not have an impact on the habitat.

Construction of visitor centers and environmental education outdoor classrooms will occur in prior disturbed habitats. There are several opportunities for siting the administrative facility and visitor center at Nanticoke Division on properties that have been cleared and previously disturbed by construction. At Blackwater NWR, the Visitor Center expansion and remodeling would occur within close proximity to the existing footprint, in open agricultural fields requiring no clearing of trees or vegetation, and in areas previously disturbed by a historical CCC camp. Blackwater NWR's environmental education outdoor classroom, proposed for siting on the Robbins Property, would be constructed within the footprint of a private residence that recently burned. The site has already been disturbed, and utilities exist, thus requiring no additional excavation or disturbance.

During construction activities, best maintenance practices and storm water runoff and sedimentation plans would be implemented to minimize erosion or degradation to water quality. The additional observation trails at Blackwater NWR, which would extend through a habitat demonstration area off Key Wallace Drive, through a tornado-damaged area off Hip Roof Road, and from Route 335 to Smithville Road, would simply use existing roadways and dikes built in the 1970s. The proposed trail and observation tower at the Nanticoke Division would also use existing roadways when possible. Overall, physical impacts should be very minimal.

*Biological Impacts.*—At Blackwater NWR, public use can potentially interfere with normal migratory bird and other wildlife habits in several ways. One is the disruption of normal foraging and social behavior of wildlife by feeding (Edington and Edington, 1986). Van der Zande (1980) defined such disturbance as “emission of stimuli to which animals may respond by avoiding the vicinity....” Several studies have also found correlations between human use levels and bird densities (Erwin, 1980; Madsen, 1985; Werschkul et al., 1976). High levels of disturbance may keep ducks from building up enough energy reserves over the winter to meet subsequent reproductive requirements (Hohman et al., 1988). Pair-bonding may likewise be adversely affected when disturbance is high (Anderson et al., 1988). In addition, the effects of common human actions, including specific recreational activities, have been examined by Burger (1981, 1986) and Vos et al. (1985), and these actions can, at certain levels, influence a wide diversity of migratory waterbirds (Klein, 1989).

The concern, therefore, is whether or not these disturbances are sufficient to adversely affect the subject purposes for which the refuge was established. Several major evaluation criteria will be used to make this determination: the percentage of the refuge habitats affected; the number of

visitors; location of the wildlife drive and associated trails and their juxtaposition to important habitats; types of human behavior (treatments) and the types of activities visitors participate in; timing of visitation; importance of visitation area to migratory birds; species composition; enforcement and education; presence of “escape cover;” and location of high-quality foraging areas in relationship to line of sight from the wildlife drive and trails.

Even on the best days, only 25 percent of the Wildlife Drive visitors use the Marsh Edge Trail, and only 17 percent use the Woods Trail (information obtained from visitor surveys). This equates to peak visitation of approximately 100 and 72 people each for daily weekend use. Peak weekday use is 22 and 15 visits, respectively. However, peak visitation occurs only 4 months a year (April, May, October, and November) when weather conditions are the best and the insect populations are still bearable. Visitation in other months is considerably less or almost nonexistent as in June, July, and August. The maximum number of student-teacher workshops is only 130 with a maximum of 4200 students. There are approximately 60 non-staff-conducted programs held each year for approximately 1400 students.

Assuming a zone of visitors influence of 50 feet on either side of the trails in these forested areas, the maximum area of human disturbance along the two hiking trails that could be expected from these uses would be approximately 9.6 acres, or less than .05 percent of the total refuge acreage managed for the purposes of migratory birds.

Given the critical distance of 80 meters (the greatest distance that similar migratory bird species were not as likely to be disturbed by the same types of uses being proposed) described for J.N. “Ding” Darling NWR’s 8-km wildlife drive (Klein, 1989), the maximum area of human disturbance along the 5-mile Wildlife Drive that could be expected from these uses would be approximately 300 acres, or less than 1.5 percent of the total refuge acreage managed for the purposes of migratory birds.

The potential for disturbance at Blackwater, however, is significantly less than at J.N. “Ding” Darling NWR, for several very important reasons: (1) Overall annual visitation at Blackwater NWR is almost five times less (approx. 120,000 at Blackwater NWR vs. 538,000 at “Ding” Darling NWR) and, equally important, the average daily use is considerably less (35 vehicles per week day at Blackwater NWR vs. 350 vehicles per week day at “Ding” Darling NWR). Peak use is also considerably different (170 vehicles per weekend day during peak season, 50 during the summer at Blackwater NWR vs. 600 vehicles per weekend day during peak season, 425 during non-peak season) at “Ding” Darling NWR); (2) Blackwater NWR is four times larger than “Ding” Darling NWR (8,500 ha vs. 2,030 ha), with significantly more migratory bird habitats (Carowan, 1994); (3) The impoundment system at Blackwater NWR has a new series of contour, subimpoundment dikes that parallel the Wildlife Drive that screen foraging and resting migratory waterbirds from visitors, thereby decreasing disturbance; (4) Alternative, closely adjoining, extremely high quality, migratory bird feeding and resting habitats have been acquired and developed at Blackwater NWR in areas where no public use is authorized; (5) At Blackwater NWR, 75 percent of the visitors are contacted at the Visitor Center where visitors receive much more individual attention than at “Ding” Darling NWR where visitation exceeds the ability of staff and volunteers to successfully interact with visitors (Klein, 1989). Approximately 99.9 percent of the teachers giving workshops at Blackwater NWR have received training or

individual instruction from refuge staff; (6) Most of the feeding and foraging habitats at J.N. “Ding” Darling NWR are within sight of the Wildlife Drive, and most of the waterbirds are required to feed at relatively narrow time windows (Klein, 1989) dictated by tidal cycles, situations that do not exist at Blackwater NWR; (7) Most public use occurs from 9:00 a.m. to 5:00 p.m. at Blackwater NWR, periods when most migratory birds are less active, although time of day and weather conditions are less important in determining harmful disturbances than conditions mentioned in #6 (Chapman, 1984); and (8) The majority (80%) of student-teacher environmental education programs and all other visitors at Blackwater NWR are restricted to the roadway and, therefore, the major form of disturbances determined by Klein (1989) (i.e., approaching wildlife on foot and exploring off the roadway) are not as likely to affect migratory birds at Blackwater NWR. In addition, extensive, alternative (if so desired), extremely high quality, migratory bird feeding, resting, or nesting habitats have been acquired and developed at Blackwater NWR in areas where no public use is authorized, and the locations of the trails are not in habitats of major importance to migratory birds.

Additional facilities would result in moderate disturbance to wildlife while under construction. These impacts would be short lived and should not significantly affect Federal trust resource species in the long-term. The photo blinds may negatively impact a few wildlife while being constructed, but should have little or no impact on wildlife and their habitats after construction. These facilities would be sited to avoid endangered species habitats and sensitive areas. After construction, the photo blinds would actually help to minimize disturbance by focusing photographic opportunities on specific areas where photographers are out of view of wildlife and where they are not as likely to wander into sensitive areas. Impacts attributable to environmental education and interpretation would be mitigated by the benefits of educating the public about refuge resources and the environment.

Obviously, with improved facilities, there would be increased visitation. Disturbance, however, would remain minimal overall since most of these public use facilities already exist, and they would, for the most part, continue to be located on a very small portion (<4%) of the total refuge acreage. Also, the expanded activities would occur in areas where wildlife have habituated to human activities over the course of over a half century. On Blackwater NWR, for example, excluding the new observation trails on Key Wallace Drive and Hip Roof Road, all the public use would occur on about 1,000 acres of its more than 23,444 acres. The same overall effects would be predicted for the Nanticoke Division.

*Socioeconomic Impacts.*—A remodeled Visitor Center at Blackwater NWR with new exhibits, Environmental Education Outdoor Classroom, and increased number of activities, materials, and facilities would reach a much greater segment of the public with up-to-date information that promotes Blackwater NWR and Service mission and goals and can create support for wildlife both on and off Blackwater NWR. As facilities are enhanced, the possibilities for a quality experience are enhanced. As more people enjoy quality experiences, visitation would increase. Thus, the communities surrounding Blackwater NWR would benefit through increased use of their facilities, service stations, lodging, and restaurants.

Providing a well staffed Visitor Center on the Nanticoke Division that has the potential to reach over 6 million visitors a year; publishing a Nanticoke Division film, interpretive tour guides and

informative leaflets; providing proper signing; printing maps and brochures that convey the mission and goals of the Nanticoke Division and provide understanding of the Nanticoke Division and Nanticoke Division management, would reduce potential conflicts while educating a more knowledgeable public. Working with the community, community organizations, tourism, schools, local businesses, news media, congressional entities, constituent groups, and state and local government agencies to develop programs, events, and activities, would only increase the good association with the community and help establish a better understanding of the Nanticoke Division, its mission and goals, wildlife, and wildlife habitats. Interest in observing and photographing wildlife by walking, biking, canoeing, and automobile has been steadily increasing. With increased opportunities for wildlife observation at Nanticoke Division, more facilities are provided, and better relationships with the community are developed, more visitors would come to the Nanticoke Division. The communities surrounding the Nanticoke Division would benefit from increased use of their service stations, facilities, lodging, and restaurants. If the current \$15 million a year in benefits to the local economy are any indication of what can be expected at the Nanticoke Division, these activities would significantly increase the potential for ecotourism-related businesses.

Dorchester, Wicomico, and Somerset Counties are developing Tourism Management Plans that will increase and facilitate ecotourism. Developing environmental education programs with other educational institutions and groups in the community would create a good working relationship with the community and public, increasing their interest in working with Blackwater NWR to help develop ecotourism. Working with the respective County Tourism Offices and the community to increase ecotourism would help increase the economy of the local area even more.

Hiring a Volunteer Coordinator would enable these refuges to make better use of volunteer talents and interests, make the best use of volunteers to meet refuge needs, and recruit additional volunteers from the local community, developing more support for the community.

Working with the community, community organizations, tourism, schools, local businesses, news media, congressional entities, constituent groups, and state and local government agencies to develop programs, events, and activities can only increase the good association with the community and help establish a better understanding of these refuges, their missions and goals, wildlife, and wildlife habitats.

Interest in wildlife observation by walking, biking, canoeing, and riding in an automobile has been steadily increasing throughout the area. Refuge programs would add some structure and regulation to these activities that would be more compatible with wildlife and sensitive habitats. For example, after Blackwater NWR was listed in the Maryland biking travel guides, the number of cyclists to Blackwater NWR increased from 842 in 1992 to 3,275 in 1995. Publications by Dorchester County, advertising Blackwater's trails, Wildlife Drive, and Visitor Center, have also attracted more visitors to Blackwater NWR seeking opportunities for wildlife observation. According to the Dorchester County Department of Tourism, Blackwater NWR visitors spend an estimated \$15 million annually. Blackwater NWR is the most utilized tourist attraction in Dorchester County. With the new Dorchester County Tourism Plan and the nearly completed construction of a new Hyatt Regency Conference Center in Cambridge, MD, the County anticipates attracting many more visitors to the area. Their encouragement of bus tours to

Dorchester County has already increased the number of bus tours to Blackwater NWR. Increased visitation to these refuges would have a positive impact on the local economy, and would not adversely impact wildlife, if properly planned.

### **Public Review and Comment**

This compatibility determination will be submitted for public review and comment as an appendix to the Environmental Assessment for the Draft Comprehensive Conservation Plan for the Chesapeake Marshlands NWR Complex, in full compliance with NEPA.

### **Determination (Check One)**

This use is compatible  X . This use is not compatible \_\_\_\_.

### **Stipulations Necessary to Ensure Compatibility**

These wildlife observation and photography and environmental education and interpretation uses have been conducted for many years, and their special regulations, restrictions, and general operations have been structured to ensure compatibility. If the monitoring described under Availability of Resources indicates that this use materially interferes with or detracts from fulfillment of the National Wildlife Refuge System mission or the purposes of the refuge, we would curtail or eliminate the use.

Special Regulations governing our programs will be listed in the Code of Federal Regulations, Title 50, Parts 26 and 27, and will be subject to Maryland State regulations.

### **Justification**

Klein (1989) concluded in her study at J.N. “Ding” Darling NWR that visitors were displacing 19 of the 40 species of waterbirds observed from foraging habitats “at least some of the time.” She furthermore stated “if the management of the refuge is to allow waterbirds to use the habitats available to their fullest extent, it will eventually be necessary to control visitor use.” Klein, however, did not address the significance of these recreational uses at “Ding” Darling NWR in reference to their effect on the purposes for which the refuge was established, but one can interpret these summary recommendations as meaning that visitor disturbances at “Ding” Darling NWR are certainly approaching the level that refuge purposes could be negatively affected. Conversely, given the comparisons discussed in the previous sections and the fact that Klein did not quantify what she termed as “critical levels” of disturbance until the number of vehicles exceeded 150 cars per day (most often between 150 and 300 cars per day), it is more obvious that the outdoor recreational uses of wildlife and wildlands observation (walking, hiking, and bicycling), photography, teacher-student environmental education workshops, and interpretation associated with the Wildlife Drive at Blackwater NWR (for educational and recreational uses, cumulatively) are compatible because of the limited visitation and the very limited direct and indirect effects on the refuge’s migratory birds and their habitats. The restrictions that Blackwater NWR places on these activities; the ready availability of alternative, high quality habitats for waterfowl (400 acres of adjacent impoundments and croplands where no



public use is allowed); the public outreach, enforcement and educational efforts that minimize wildlife disturbances; and the limited opportunities for disturbance resulting from the Wildlife Drive's spatial and temporal restrictions; all validate these uses as compatible.

Wildlife observation and photography and environmental education and interpretation will not materially interfere with or detract from the mission of the National Wildlife Refuge System or the purposes for which Blackwater NWR was established.

**Signature—Refuge Manager** \_\_\_\_\_  
(Signature and Date)

**Concurrence—Regional Chief** \_\_\_\_\_  
(Signature and Date)

**Mandatory 10- or 15-year Reevaluation Date** \_\_\_\_\_

### **References**

Anderson, D.W., and J.O. Keith. 1980. The human influence on seabird nesting success: conservation implications. *Biol. Conserv.* 18:65-80.

Burger, J. 1981. Effect of human activity on birds at a coastal bay. *Biol. Conserv.* 21:231-241.

-----, 1986. The effect of human activity on shorebirds in two coastal bays in northeastern United State. *Environ. Conserv.* 13(2):123-130.

Carowan, G.A. Jr. 1994. Personal information and observations from tours of duty at both refuges.

Edington, J.M., and A.M. Edington. 1986. *Ecology, Recreation and Tourism*. Cambridge Univ. Press, Cambridge, UK, 200pp.

Erwin, R.M. 1980. Breeding habitat use by colonially nesting waterbirds in two mid-Atlantic U.S. regions under different regimes of human disturbance. *Biol. Conserv.* 18:39-51.

-----, 1986. Waterfowl and wetlands management in the coastal zone of the Atlantic Flyway: meeting summary and comments. *Colon. Waterbirds* 9(2): 243-245.

- Hohman, W.L., T.S. Taylor, and M.W. Weller. 1988. Annual body weight changes in ring-necked ducks (*Aythya collaris*). Pages 257-269 in M.W. Weller, ed. *Waterfowl in Winter*. Univ. of Minnesota Press, Minneapolis, MN.
- Klein, M.L. 1989. Effects of high levels of human visitation on foraging waterbirds at J.N. "Ding" Darling National Wildlife Refuge. Final Research Report. Florida Coop. Fish and Wildlife Research Unit. Work Order No. 42. 103pp.
- Madsen, J. 1985. Impact of disturbance on field utilization of pink-footed geese in West Jutland, Denmark. *Biol. Conserv.* 33:53-63.
- Van der Zande, A.N., J.C. Berkhuizen, H.C. van Latesteijn, W.J. ter Keurs, and A.J. Poppelaars. 1984. Impact of outdoor recreation on the density of a number of breeding bird species in woods adjacent to urban residential areas. *Biol. Conserv.* 30:1-39.
- , W.J. ter Keurs, and W.J. van der Weijden. 1980. The impact of roads on the densities of four bird species in an open field habitat: evidence of a long-distance effect. *Biol. Conserv.* 18:299-321.
- Vos, D.K., R.A. Ryder, and W.D. Gaul. 1985. Response of breeding great blue herons to human disturbance in north central Colorado. *Colon. Waterbirds* 8(1): 13-22.
- Werschkul, D.F., E. McMahon, and M. Leitschuh. 1976. Some effects of human activities on the great blue heron in Oregon. *Wilson Bull.* 88(4):660-662

Back to top

# **Compatibility Determination on Wildlife-Dependent Recreation in the Chesapeake Island Refuges**

## **Wildlife-dependent Recreation (Chesapeake Island Refuges)**

**Station Name:** Chesapeake Island Refuges (Chesapeake Marshlands NWR Complex)

### **Establishing and Acquisition Authorities**

The Chesapeake Marshlands National Wildlife Refuge Complex (CMNWRC) is composed of three nationally significant wildlife areas: Blackwater NWR, Martin NWR, and Susquehanna NWR with several separate divisions. Blackwater NWR includes the Nanticoke Division, and Martin NWR includes the Barren Island, Bishops Head and Spring Island, and Watts Island Divisions. Collectively, Martin NWR, Susquehanna NWR, and their respective divisions are referred to as the Chesapeake Island Refuges.

The first and largest of these areas to be established was Blackwater NWR. Originally authorized for establishment by the Migratory Bird Conservation Commission on December 3, 1931, and named “Blackwater Migratory Bird Refuge,” its current 28,000 acres are a showplace for the National Wildlife Refuge System.

On December 31, 1931, the Migratory Bird Conservation Commission authorized the Secretary of Agriculture to purchase 10,000 acres from the Delmarvia Fur Farms, Inc., of Philadelphia, Pennsylvania. On December 9, 1931, the Secretary entered into an agreement with Delmarvia Fur Farms, Inc., effective January 1, 1932, to lease 8,167.99 acres for the refuge. The Secretary subsequently determined that it was in the best interest of the Government to acquire 8,240.99 acres for the refuge from the Delmarvia Fur Farms and two other properties by condemnation. A notice of condemnation was filed August 26, 1932, and these tracts were conveyed to the Government in January 1933.

Blackwater NWR was, therefore, officially established under the authority of the Migratory Bird Conservation Act on January 23, 1933. Since that time, additional lands have been added to the refuge under the authorities of the Endangered Species Act, Refuge Recreation Act, North American Wetlands Conservation Act, and the Refuge Administration Act.

Table I summarizes the history of Blackwater National Wildlife Refuge land acquisition and the tracts that are now being affected by the proposed uses. Unless otherwise noted, all acquisitions are fee title. This compatibility determination will also apply to additional tracts, particularly those in the Nanticoke Division, as they are acquired.

## **Refuge Purposes**

For lands acquired under the Migratory Bird Conservation Act (16 U.S.C. § 715 d), the purpose of the acquisition is “...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.”

For lands acquired under the Endangered Species Act of 1973 (16 U.S.C. § 1534), the purpose of the acquisition is “...to conserve (A) fish or wildlife which are listed as endangered or threatened species...or (B) plants.”

For lands acquired under the Refuge Recreation Act (16 U.S.C. § 460K–1), the purpose of the acquisition is for “...(1) incidental fish and wildlife-oriented recreation; (2) the protection of natural resources; (3) the conservation of endangered species or threatened species...”

For lands acquired under the North American Wetlands Conservation Act (16 U.S.C. § 4401–413), the purpose of the acquisition is “(1) to protect, enhance, restore, and manage an appropriate distribution and diversity of wetland ecosystems and other habitats for migratory birds and other fish and wildlife in North America; (2) to maintain current or improved distribution of migratory bird populations; and (3) to sustain an abundance of waterfowl and other migratory birds consistent with the goals of the North American Waterfowl Management Plan and the international obligations contained in the migratory bird treaties and conventions and other agreements with Canada, Mexico, and other countries.”

For lands acquired under the Refuge Administration Act (16 U.S.C. § 668ddb), the purpose of the donation is “to protect, enhance, restore, and manage wetland ecosystems and other habitats for migratory birds, endangered and threatened species, and other wildlife.”

## **National Wildlife Refuge System Mission**

“The mission of the System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”—National Wildlife Refuge System Improvement Act of 1997 (Public Law 105–57)

## **Description of Use**

This evaluation is to determine whether programs for wildlife-dependent recreation—wildlife observation and photography and environmental education and interpretation—are compatible with the purposes for which the affected tracts on the Chesapeake Island Refuges were acquired.

### **(A) What is the use? Is it a priority use?**

The use is wildlife-dependent recreation: wildlife observation and photography and environmental education and interpretation, often referred to as “non-consumptive recreational use.” The National Wildlife Refuge System Improvement Act of 1997 identifies wildlife

observation and photography and environmental education and interpretation as four of the six, priority, wildlife-dependent recreational uses to be facilitated in the Refuge System, and encourages the Service to provide opportunities for the public to enjoy them.

### **Background and Rationale for the Management Activity**

When Martin NWR was first established as a refuge for migratory birds, the refuge was considered a sanctuary for wildlife. Few visitors came to the refuge. In recent years, people have begun to take an interest in Martin as a destination for ecotourism. A small visitor center with refuge information and exhibits is located in the Middleton House in the town of Ewell on Smith Island. Martin Refuge is closed to the general public to protect nesting and wintering waterbirds. Administrative support of Martin NWR is conducted from the Chesapeake Marshlands NWR Complex office in Cambridge, Maryland.

During CCP scoping meetings, the public expressed their desire for more facilities and public use of the refuge. In particular, they wanted increased opportunity for wildlife-oriented educational and interpretive programs, more opportunities for local school use and education, and a remodeled or new Visitor Center. Existing visitor center exhibits are in need of new, updated, and innovative displays to better inform the public of Service and refuge policies, wildlife needs, and awareness of wildlife conservation.

Proposed strategies include increasing environmental education programs (including the publication of an environmental education manual); increasing the number and types of interpretation and outreach programs, photography opportunities, and wildlife observation facilities; constructing an environmental education facility; updating exhibits, building a new visitor center; and hiring more staff to plan, manage, conduct, and operate the public use program. These strategies assume new lands be purchased in the town of Ewell for an environmental education and research facility, outside the sensitive nesting and wintering areas within the existing refuge boundary.

### **(B) Where would the use be conducted?**

A new visitor center would be constructed on vacant land not far from the Middleton House, in the town of Ewell. The Middleton House would be converted to office space and residence for refuge staff, visiting interns, volunteers, and researchers. At the new visitor center, an observation tower would be constructed, along with facilities which highlight Chesapeake Bay ecology, and the waterman culture of Smith Island. Facilities would include displays and hand-on exhibits such as crab shedding tanks, fishing gear demonstrations, fish and oyster rearing tanks, duck traps, and wetland and submerged aquatic vegetation nurseries. Tours to the refuge proper would be conducted by refuge staff during times of the year when disturbance to trust resources (e.g., nesting colonial waterbirds) can be minimized. Although the refuge can prohibit migratory bird hunting within the Proclamation Boundary, waters surrounding and interior to the refuge are outside the jurisdiction of the Service. Scheduled refuge tours should help minimize boating disturbance on State of Maryland waters. Environmental education, in particular with school groups, will be done jointly with the Chesapeake Bay Foundation environmental education program

**(C) When would the use be conducted?**

Wildlife observation and photography will be conducted at the new visitor center daily, year-round, from dawn to dusk (i.e., daylight hours only), unless a conflict with a management activity or an extenuating circumstance necessitates deviating from these procedures. Boat tours of the refuge would be conducted by refuge staff and the Chesapeake Bay Foundation during the spring, summer, and fall. No tours would be conducted during the winter waterfowl period. No entrance buffer zones will be established around critical colonial water bird nesting rookeries to avoid disturbance. Non-tour boating access throughout Maryland State waters will not change.

**(D) How would the use be conducted?**

Because Smith Island is only accessible by boat, public visitation to the visitor center will be restricted to foot traffic. The new visitor center will be within an easy walking distance from the boat ferry which runs between Smith Island and Crisfield, Maryland. The observation tower, examples of habitat restoration, and fishing and crabbing operations will be on the visitor center property. Tours of the refuge property will be conducted by boats operated by refuge staff and the Chesapeake Bay Foundation, and landing areas will be designated and restricted. Opportunities will be provided for refuge visitors to leave the boats in order to experience the wetland and beach habitats on foot.

**(E) Why is the use being proposed?**

These uses will be conducted to provide compatible educational and recreational opportunities for visitors to enjoy the resource and to gain understanding and appreciation for fish and wildlife, wildlands ecology and the relationships of plant and animal populations within the ecosystem, and wildlife management. They will enhance the public's understanding of natural resource management programs and ecological concepts to enable the public to better understand the problems facing our wildlife and wildlands resources, to realize what effect the public has on wildlife resources, to learn about the Service role in conservation, to better understand the biological facts upon which Service management programs are based, and to foster an appreciation as to why wildlife and wildlands are important to them. The authorization of these uses will produce a more informed public, and advocates for Service programs. Likewise, these uses will provide opportunities for visitors to observe and learn about wildlife and wildlands at their own pace in an unstructured environment and to observe wildlife habitats firsthand. Professional and amateur photographers will also be provided opportunities to photograph wildlife in their natural habitats. Photographic opportunities obviously will result in increased publicity and advocacy for Service programs. These uses will also provide wholesome, safe, outdoor recreation in a scenic setting, with the realization that those who come strictly for recreational enjoyment will be enticed to participate in the more educational facets of the public use program, and can then become advocates for the refuge and the Service.

**Availability of Resources**

Requested additional staff will develop and conduct more environmental education programs for different age groups, types of groups (including scouts, 4-H, college, adults, etc.) and for larger

numbers of groups; develop an Envirothon for middle and elementary schools; develop communication workshops and meetings with other environmental education organizations and institutions; hold teacher workshops; recruit and train more volunteers; prepare and present more interpretive programs; develop a video; revise leaflets and develop new ones; update kiosk information; develop needed signs; catalog and store slide, photos, and historical items; develop habitat demonstration areas; plan and conduct photography programs; organize and conduct more events; regularly schedule programs for the public; work with Somerset County Tourism, National Park Service, Gateways Program and other organizations to plan events and activities; display off-site exhibits at more local events; develop ecotourism with Somerset County Tourism; participate in the development of watershed-wide cooperative outreach groups; develop better relationships with media providing monthly reports; and be able to respond immediately to public inquiries.

**Cost Breakdown**

The following is the list of costs to the refuge required to administer and manage programs for wildlife observation and photography and environmental education and interpretation.

Yearly Service Staffing Costs

Refuge Operations Specialist GS-0485-12 (20%) .....	\$17,616
Outdoor Recreation Planner GS-0023-5/7 (75%) .....	31,034
Biologist GS-0486-5/7 (10%) .....	4,138
Small Craft Operations WG-5786-9 (20%) .....	11,930
Maintenance Worker WG-4749-4 (20%) .....	7,392
SCEP (Refuge Manager, 0.5 FTE) GS-0499-5/7 (20%) .....	4,138
Law Enforcement Officer GS-0025-5/7 (20%) .....	\$8,276
	<b>Total</b> \$84,524

Facility and Equipment Costs

Construct observation platform .....	\$38,000
Construct new visitor center .....	1,500,000
Land acquisition .....	500,000
Construct aquaculture and nursery facilities .....	100,000
Construct demonstration wetland habitat restoration .....	500,000
Exhibits, outreach and materials for waterman culture interpretation .....	124,000
Install traveler’s station .....	38,000
Construct photo blind .....	15,000
Two tour boats .....	\$30,000
	<b>Total</b> \$2,845,000

**Anticipated Impacts on Refuge Purposes**

The environmental, socioeconomic, and cultural and historical impacts summarized below are more thoroughly described in the Environmental Assessment prepared for the Chesapeake Marshlands NWR Complex Comprehensive Conservation Plan.

*Physical Impacts.*—Construction of the visitor center, observation tower, traveler’s station, aquaculture and nursery facilities, photo blind, and habitat restoration projects will occur in prior disturbed habitats. The property includes an old house site, former dredged material disposal area, and bare soil areas used by local youth for bicycling and dirt bike riding. Fallow areas associated with the house site consists of early successional weeds, shrubs, and young trees. Construction of the visitor center will include habitat landscaping with native plant species, which will improve the locations habitat value to passerine bird species and butterflies. Wetland habitat restoration will improve habitat for waterfowl, wading birds, and estuarine aquatic resources. No expanded footprint of existing roadways will be required with the exception of a new driveway for refuge staff access to the visitor center. Because the site will be accessed by the public by walking from the ferry landing to the visitor center, parking will not be required. During construction activities, best management practices and storm water runoff and sedimentation plans would be implemented to minimize erosion or degradation to water quality. Overall, physical impacts should be very minimal, with an end result in improvement to the acreage and quality of habitat over existing conditions.

*Biological Impacts.*—At Martin NWR, public use can potentially interfere with normal migratory bird and other wildlife habits in several ways. One is the disruption of normal foraging and social behavior of wildlife by feeding (Edington and Edington, 1986). Van der Zande (1980) defined such disturbance as “emission of stimuli to which animals may respond by avoiding the vicinity....” Several studies have also found correlations between human use levels and bird densities (Erwin, 1980; Madsen, 1985; Werschkul et al., 1976). High levels of disturbance may keep ducks from building up enough energy reserves over the winter to meet subsequent reproductive requirements (Hohman et al., 1988). Pair-bonding may likewise be adversely affected when disturbance is high (Anderson et al., 1988). In addition, the effects of common human actions, including specific recreational activities, have been examined by Burger (1981, 1986) and Vos et al. (1985), and these actions can, at certain levels, influence a wide diversity of migratory waterbirds (Klein, 1989).

The concern, therefore, is whether or not these disturbances are sufficient to adversely affect the subject purposes for which the refuge was established. Several major evaluation criteria will be used to make this determination: the percentage of refuge habitats affected; the number of visitors; location of boating and landing destinations and their juxtaposition to important habitats; types of human behavior (treatments) and the types of activities visitors participate in; timing of visitation; importance of visitation area to migratory birds; species composition; enforcement and education; presence of “escape cover;” and location of high-quality foraging areas in relationship to line of sight from human intrusion.

All of the new proposed facilities will be sited in existing low value habitat; therefore, no increased disturbance to wildlife is anticipated. Conversely, habitat improvements will attract new species and greater numbers of these species to the visitor center and observation tower area. Boat tours and public landings on Martin NWR will be scheduled and managed to minimize disturbance to Service trust resources. Time of year restrictions on boat tours during the winter waterfowl season will minimize disturbance to migratory ducks and geese. The availability of the tours should help decrease unmanaged access throughout the waterways surrounding and interior to Martin NWR, which are outside the regulatory authority of the



Service. Critical water bird rookeries will be posted, and an adequate no-access buffer zone will be established for the boat tours. Public landing areas associated with the boat tours will be sited outside of critical habitats. No public landings will be allowed on Martin NWR outside of the Service and Chesapeake Bay Foundation boat tours.

Additional facilities would result in moderate disturbance to wildlife while under construction. These impacts would be short lived and should not significantly affect Federal trust resource species in the long term. The photo blind may negatively impact a few wildlife while being constructed, but should have little or no impact on wildlife and their habitats after construction. These facilities would be sited to avoid endangered species habitats and sensitive areas. After construction, the photo blinds would actually help to minimize disturbance by focusing photographic opportunities on specific areas where photographers are out of view of wildlife and where they are not as likely to wander into sensitive areas. Impacts attributable to environmental education and interpretation would be mitigated by the benefits of educating the public about refuge resources and the environment.

Obviously, with improved facilities, there would be increased visitation. Disturbance, however, would remain minimal overall since most of these public use facilities will be sited in an area of low habitat value. Increased boating by Service staff will be managed as previously stated. Also, the expanded facilities would occur in areas where wildlife have habituated to human activities over the course of more than 400 years since the Town of Ewell was established.

*Socioeconomic Impacts.*—A new Visitor Center at Martin Refuge with new exhibits, environmental education materials, and increased number of activities and facilities would reach a much greater segment of the public. Up-to-date information that promotes Martin Refuge and the Service mission and goals will create support for wildlife both on and off the refuge. As facilities are enhanced, the possibilities for a quality experience are enhanced. As more people enjoy quality experiences, visitation would increase. Thus, the communities surrounding Martin Refuge would benefit through increased use of their facilities, service stations, lodging, and restaurants.

Somerset County is developing a Tourism Management Plan that will increase and facilitate ecotourism. Developing environmental education programs with other educational institutions and groups in the community would create a good working relationship with the community and public, increasing their interest in working with Martin Refuge to help develop ecotourism. Working with the County Tourism Office and the community to increase ecotourism would help increase the economy of the local area even more. Working with the community, community organizations, tourism, schools, local businesses, news media, congressional entities, constituent groups, and state and local government agencies to develop programs, events, and activities can only increase the good association with the community and help establish a better understanding of these refuges, their missions and goals, wildlife, and wildlife habitats.

Interest in wildlife observation has been steadily increasing throughout the area. Refuge programs would add some structure and regulation to these activities, which would be more compatible with wildlife and sensitive habitats. Increased visitation to this refuge would have a

positive impact on the local economy and would not adversely impact wildlife if properly planned.

**Public Review and Comment**

This compatibility determination will be submitted for public review and comment as an appendix to the Environmental Assessment for the Draft Comprehensive Conservation Plan for the Chesapeake Marshlands NWR Complex, in full compliance with NEPA.

**Determination (Check One)**

This use is compatible  X . This use is not compatible \_\_\_\_.

**Stipulations Necessary to Ensure Compatibility**

These wildlife observation and photography and environmental education and interpretation uses have been conducted for many years, and their special regulations, restrictions, and general operations have been structured to ensure compatibility. If future monitoring indicates that this use materially interferes with or detracts from fulfilling the National Wildlife Refuge System mission or the purposes of the refuge, we would curtail or eliminate it.

Special Regulations governing our programs will are listed in the Code of Federal Regulations, Title 50, Parts 26 and 27, and will be subject to Maryland State regulations.

**Justification**

The justification for allowing the subject uses is described in detail throughout both chapter 2, “Alternatives,” and chapter 4, “Environmental Consequences,” of the Environmental Assessment prepared for the Chesapeake Marshlands NWR Complex Comprehensive Conservation Plan. Wildlife observation and photography and environmental education and interpretation will not materially interfere with or detract from the mission of the National Wildlife Refuge System or the purposes for which the refuge was established.

**Signature—Refuge Manager** \_\_\_\_\_  
(Signature and Date)

**Concurrence—Regional Chief** \_\_\_\_\_  
(Signature and Date)

**Mandatory 10- or 15-year Reevaluation Date** \_\_\_\_\_

## References

- Anderson, D.W., and J.O. Keith. 1980. The human influence on seabird nesting success: conservation implications. *Biol. Conserv.* 18:65-80.
- Burger, J. 1981. Effect of human activity on birds at a coastal bay. *Biol. Conserv.* 21:231-241.
- , 1986. The effect of human activity on shorebirds in two coastal bays in northeastern United State. *Environ. Conserv.* 13(2):123-130.
- Edington, J.M., and A.M. Edington. 1986. *Ecology, Recreation and Tourism*. Cambridge Univ. Press, Cambridge, UK, 200pp.
- Erwin, R.M. 1980. Breeding habitat use by colonially nesting waterbirds in two mid-Atlantic U.S. regions under different regimes of human disturbance. *Biol. Conserv.* 18:39-51.
- Hohman, W.L., T.S. Taylor, and M.W. Weeler. 1988. Annual body weight changes in ring-necked ducks (*Aythya collaris*). Pages 257-269 in M.W. Weller, ed. *Waterfowl in Winter*. Univ. of Minnesota Press, Minneapolis, MN.
- Klein, M.L. 1989. Effects of high levels of human visitation on foraging waterbirds at J.N. "Ding" Darling National Wildlife Refuge. Final Research Report. Florida Coop. Fish and Wildlife Research Unit. Work Order No. 42. 103pp.
- Madsen, J. 1985. Impact of disturbance on field utilization of pink-footed geese in West Jutland, Denmark. *Biol. Conserv.* 33:53-63.
- Van der Zande, A.N., W.J. ter Keurs, and W.J. van der Weijden. 1980. The impact of roads on the densities of four bird species in an open field habitat: evidence of a long-distance effect. *Biol. Conserv.* 18:299-321.
- Vos, D.K., R.A. Ryder, and W.D. Gaul. 1985. Response of breeding great blue herons to human disturbance in north central Colorado. *Colon. Waterbirds* 8(1): 13-22.
- Werschkul, D.F., E. McMahon, and M. Leitschuh. 1976. Some effects of human activities on the great blue heron in Oregon. *Wilson Bull.* 88(4):660-662

[Back to Volume 2 titles](#)