

Management Plan

Jug Bay Wetlands Sanctuary

January 2005

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## **Management Plan Objectives**

The objectives of this Management Plan are to outline how the 1,365-acre Jug Bay Wetlands Sanctuary will be managed. Another objective is to describe the proposed expansion of the Chesapeake Bay National Estuarine Research Reserve in Maryland (CBNERR-MD) to 1,061 acres of Jug Bay. The Sanctuary is managed with fundamentally different objectives than are the other Anne Arundel County parks. The Sanctuary is managed to preserve critical wetland and upland habitats adjacent to a major tributary of the Chesapeake Bay and to protect wildlife populations. Ecological research and environmental education are key activities. Additionally, the Sanctuary is one of only three County parks in the state of Maryland that are components of CBNERR-MD. CBNERR-MD is a cooperative program between Anne Arundel County, the Department of Natural Resources and the National Oceanographic and Atmospheric Administration. The goal of the program is to protect estuarine reserve resources, provide public education and interpretation of the reserve, conduct research within the reserve, and make results of this research available to others. More detailed explanation of this cooperative program can be found in the MOU attached to this management plan.

## **Sanctuary History and Background**

Anne Arundel County's Department of Recreation and Parks operates the Sanctuary. The Sanctuary was opened to the public in 1985 and consisted of about 172 acres. Through the purchase of land from neighboring property owners, about 1,195 additional acres have been incorporated into the Sanctuary. This property was purchased from a variety of land protection programs. County land preservation appropriations have been supplemented from Program Open Space, Land & Water Conservation Fund and Green Print appropriations to purchase the property that makes up the Sanctuary. Currently the Sanctuary consists of 1,365 acres of wetlands, forests, meadows and stream valleys. The Sanctuary also contains a Wetland Study Center complete with offices, lab, exhibit room and conference room, plus five barns, four houses and many small outbuildings. Three areas within the Sanctuary have been given specific names: the River Farm (south-central region) and the Parris Glendening Nature Preserve (region on the north bounded by Wrighton Rd. and Route 4) and the Riggelman Preserve in the south.

The Sanctuary is comprised of seven properties, the first of which was purchased in 1974. These property acquisitions (acreage and Liber/Folio numbers) are summarized as follows:

- Dodson Property (161.3 acres; L3322, F706) purchased in 1974
- Polluck Property (10.4 acres; L3941, F666) purchased in 1974
- Spicknall Property (140.2 acres; L5551, F252) purchased in 1992
- Hofford Property (2.8 acres; L7344, F544) purchased in 1995
- Hoover Property (137.0 acres; L7885, F236) purchased in 1997
- Jacoby Property (610.2 acres; L10785, F624) purchased in 2001
- Riggelman Property (303 acres; L3382, F128) purchased in 2004

The Sanctuary is supported by the Friends of Jug Bay (FOJB), an active group of citizens. This non-profit organization was incorporated in 1986. The 950 FOJB members raise funds to support educational and research activities, and they communicate with County, State & Federal staffs and elected officials about issues that impact the Sanctuary.

In 1990, a portion of the original Sanctuary (172 acres) was made part of the Chesapeake Bay National Estuarine Research Reserve in Maryland (CBNERR-MD or the Reserve). This program is part of the federal National Oceanic and Atmospheric Administration (NOAA) and the State's Department of Natural Resources, and it focuses on estuarine research and education. Our participation in CBNERR-MD is described in a Memorandum of Understanding signed by Anne Arundel County and the State of Maryland (Exhibit A). The MOU requires that this site be used for education and ecological research and that the land be managed using acceptable stewardship methods.

In addition to the CBNERR-MD designation, the Sanctuary has been recognized for its diversity and abundance of birds and in 2000, the American Bird Conservancy and National Audubon Society made the Sanctuary a Nationally Important Bird Area. Also, because of the large turtle populations and high variety of turtle species, the North Carolina's non-profit turtle and tortoise conservation organization, The Tortoise Reserve, declared the Sanctuary an official Tortoise Reserve in 2000.

In this report, the 451-acre "original" sanctuary is referred to as the Jug Bay Area. The Parris Glendening Nature Preserve is referred to as the Glendening Preserve and the Rigglesman Property is referred to as the Rigglesman Preserve. "Sanctuary" will be inclusive of all areas.

## **Sanctuary Strategic Plan: Missions and Land Stewardship Initiatives**

### **A. Sanctuary Missions**

A Strategic Plan, completed by Sanctuary staff in 2000, guides current management and decision-making. (Copies of the Strategic Plan are available at the Sanctuary office or online at [www.jugbay.org](http://www.jugbay.org)). That plan describes management in terms of broad policies, missions and initiatives. This Management Plan is consistent with the Strategic Plan and provides guidance to accomplishing the goals of that plan. The Strategic Plan provides staff guidance in carrying out four missions: land stewardship, ecological research, environmental education and volunteer programs.

1.) Land Stewardship Mission: Sanctuary staff will practice stewardship that avoids or minimizes environmental damage to the Sanctuary in order to maintain diverse and healthy natural habitats. Education programs, research projects, public access and other activities will be conducted in a way that prevents long-term damage to habitats and natural features. We will restore areas that were impacted by past actions.

2.) Research Mission: We will conduct research and monitoring that teaches the public of all ages about natural history and wetland ecology. Research objectives are to investigate local environmental quality, to investigate plant and animal ecology and to study biogeochemical cycling and water quality in the Patuxent River and its wetlands. Studies will focus on relevant conservation issues and will be linked to ongoing local or national research and monitoring efforts whenever feasible.

3.) Education Mission: We will provide science-based, discovery-centered and hands-on educational activities about natural history and ecological interrelationships. Observation, description and experimentation will be important elements of these programs. Activities will focus on habitats (especially wetlands), ecosystems and the Patuxent River watershed.

4.) Volunteer Mission: We will maintain a supportive, educational volunteer program in which volunteers learn about the natural world while they contribute to scientific understanding and habitat protection. Stewardship, research and education activities will be conducted in ways that respond to volunteer interest and abilities.

## **B. Land Stewardship Initiatives**

The land stewardship mission of the Strategic Plan relates closely to this Management Plan. Most of the initiatives (except possibly public access at the two Preserves) described in the Strategic Plan should be applied to all land that is now part of the Sanctuary. The following are the initiatives outlined in the Strategic Plan:

1.) Maintaining the peaceful, primitive character at the Sanctuary.

- We will manage and operate the Sanctuary to maintain its quiet, peaceful conditions for the benefit of wildlife and for the long-term enjoyment of the public.
- The Sanctuary will be a site primarily for ecological research, environmental education, nature study, hiking, habitat management, bird watching and canoeing.
- Educational programs will emphasize environmental awareness and scientific research,
- Activities will foster an understanding and appreciation of the natural world.
- Public safety and access will be addressed as they relate to the peaceful nature of the Sanctuary.
- Activities and/or facilities that would have a significant impact on the natural character of the Sanctuary are discouraged. Activities, projects and structures will be evaluated prior to construction to consider long-term impacts.

2.) Limiting public access as a conservation tool. Restricting the amount of available parking and the number of days the facility is open to the public will limit the

amount of use the facility receives. Controlling public access minimizes ecological damage, disturbance to wildlife and potential damage to research studies. Visitors and groups will be asked to call ahead to make reservations and to report to the Sanctuary office upon arrival, so staff can monitor the amount of use the Sanctuary receives.

3.) Minimizing or prohibiting environmentally harmful activities. We will avoid or prohibit actions that have a potential to harm the Sanctuary environment. Field mowing, forest thinning or tree removal, tree planting and poison ivy or invasive species control must be evaluated in advance. The training and experience of the Sanctuary Director will be important in determining if these activities would have a short or long-term impact on the facility. Any proposed use of chemical pesticides must also be approved. Habitat conservation efforts or public access construction projects (wildlife viewing blinds, boardwalks, etc.) must be evaluated prior to implementation. Construction plans will be submitted to regulatory agencies for review and permits.

4.) New Road or Trail Construction. The amount of increased use and environmental impacts created from new roads and trails would need to be considered prior to construction. If the road or trail could significantly increase the public activities in the Sanctuary or damages environmentally sensitive areas, then all alternative routes should be considered before impacting the Sanctuary. Proposals to build new trails or boardwalks will be evaluated in order to weigh benefits versus negative environmental impacts.

5.) Hunting, trapping and fishing are prohibited except if required to accomplish specific stewardship, research or population control goals.

## **Jug Bay Area Management Practices**

### **A. Land-Use Practices**

1.) Wetland Restoration - The primary restoration project in the Jug Bay Area is an effort to re-establish hundreds of acres of wild rice in the tidal wetlands. A combination of wire fencing in the wetlands, seeding and controlled hunting of resident Canada Geese (in Prince George's County only) are helping to re-establish the wild rice stands. This project will continue in the short term, in cooperation with Patuxent River Park and CBNERR-MD. The fence wire should be removed after the wild rice has been firmly re-established and resource management professionals deem the fencing no longer necessary.

*Phragmites* is an invasive wetland plant species that can crowd out other plant species. Burning and spraying of herbicides have been used to control the spread of *Phragmites*. To date fire and herbicides have not been used in the Sanctuary because of concerns that damage caused by the control techniques may be greater than the perceived negative impact of *Phragmites* on the wetland ecosystem. Additionally, recent research suggests that *Phragmites* provides benefits to the wetland ecosystem and that a variety of wildlife species do make use of *Phragmites* stands. We will continue to monitor the spread of *Phragmites*. Potential control of *Phragmites*

through herbicides and/or burning may be used in the future if is determined through available research that it's negative impacts outweighs it's environmental benefits.

2.) Cooperative Land-use Agreements - Anne Arundel County's management of the Jug Bay Area is guided by two existing cooperative land-use agreements. One agreement is formalized as a Memorandum of Understanding (MOU) between the County and the State of Maryland. Additionally, there is an MOU with former landowners (Hoover Family) who sold property to the County.

CBNERR-MD: When a portion of the Sanctuary was designated as a CBNERR-MD component, the County signed an MOU with the state of Maryland and NOAA. The County retains ownership of the land and is responsible for day-to-day management of the Sanctuary. This MOU guides some management decisions and prohibits or restricts the following activities:

- No industrial or commercial activities, except commercial fishing.
- No billboards or signs.
- No dumping.
- No excavation, mining or dredging except for combating erosion.
- No diking, draining or filling.
- No building, facility or other structure shall be built without the written approval of CBNERR-MD and NOAA.

Hoover Family: The County signed an MOU with Ms. Hoover and Ms. Divine in 1997 when the County purchased their property in 1997. This MOU contains the following restrictions and agreements:

- There shall be no new clearing, cutting or improvement activity within a 250 foot-wide natural buffer along Pindell Rd. (This buffer measures about 1500 ft. by 250 ft).
- The seller (Hoovers) retain the sole right to harvest "greens" from all natural vegetation found on the property within the 1500 ft. by 250 ft. buffer area along Pindell Rd.
- Anne Arundel County shall make no new egress or ingress roads along Pindell Rd.

3.) Herbicide Use - Herbicides are used only by certified pesticide applicators and may only be used with authorization from the Sanctuary director. Herbicides will be used to kill certain invasive plant species [Tree-of-Heaven (*Ailanthus*) and Mile-a-Minute vine (*Polygonum perfoliatum*)] and as a treatment during the creation of warm season grass meadows.

4.) Meadow Management and Mowing - The meadow adjacent to the Wetlands Center and the warm season grass meadow at River Farm will continue to be managed primarily for wildlife habitat. In the future, additional herbicide application or burning may be required to maintain the correct mixture of desired plant species or to reduce unwanted species. These meadows will be mowed only once each year,

between February and early March. Limited mowing is cost effective and provides significant ecological benefits:

- The number of months that the meadow provides valuable wildlife habitat is maximized.
- Seeds and berries persist as long as possible on erect, dried plant stalks, thus providing maximum food for birds and other wildlife.
- Mowing is scheduled to avoid bird and turtle nesting seasons and to avoid the seasons when turtle hatchlings emerge from underground nests (mid-March through early November)
- Limited mowing reduces the accidental mortality to wildlife that occurs when mower blades strike turtles, snakes, birds and small mammals.

5.) Power Line Clearing and Snag Removal - Utility companies and line clearing contractors cut and trim trees to keep power line rights-of-way clear. Prior to line clearing, BGE and Verizon (and their contractors) must contact Sanctuary staff. Snags near power line rights-of-way should not be cut without consultation with Sanctuary staff.

6.) Community Garden - Two acres of agricultural land at River Farm are used as a community garden, called the South County Community Farm. This organic garden (termed community supported agriculture, or a "CSA") is maintained collectively by a small group of gardeners. Garden members pay an annual fee to their organization to cover the cost of seeds and supplies, and may or may not be required to pay a fee to the Sanctuary for use of the land. The gardeners consume all the produce they grow and extra harvest is given to senior citizen and other organizations. No produce is sold. Gardeners are permitted the use of the Sanctuary tractor for plowing and storage space is provided in a barn and shed. The gardeners have agreed to the following conditions: the tractor is to be used only within the garden or on the periphery road immediately surrounding the garden; tractor drivers must be authorized, by the Sanctuary director; no pesticides may be used in the garden; no wildlife are to be harmed or harassed; the garden may not be expanded. A high, electric fence, provided by the County, surrounds the entire garden to prevent deer from entering the garden. A freestanding green house is used for growing seedlings in the spring.

7.) Future Land Acquisition - The County will continue the practice of expanding the size of the Jug Bay Area by purchasing land or development rights from willing, neighboring property owners if funds are available.

## **B. Visitor Management**

1.) Public Access - The Jug Bay Area is managed on a "limited-use" basis. As a result the Jug Bay Area is not open to public visitation at all times. This policy protects sensitive habitats from damage by over-use and it protects wildlife from excessive human disturbance. The policies below apply to Jug Bay Area visitors:

- Public access is by reservation only.
- The Sanctuary is open from 9:00 am. to 5:00 p.m. on Wednesdays and weekends. Closed on Sundays from December through February.
- The Jug Bay Area is not open to the public when the main entrance gate is closed.
- Entrance fees are charged in accordance with the fee structure established by the Department of Recreation and Parks.
- Visitors may not remove plants or animals without authorization.
- Picnicking is allowed at the two picnic areas.
- Visitors are encouraged to stay on marked trails and boardwalks.
- The Sanctuary director must approve research studies and a research study information form must be completed prior to initiating a study.
- Archeological remains and artifacts are protected and cannot be disturbed or removed.
- No smoking anywhere except in the parking lot.
- No public fishing or boat launching access.
- No hunting in the Jug Bay Area, except as required for wildlife population control.
- No pets or horseback riding.
- Study plots, markers and flags must not be disturbed.

2.) Boat Launching - There are no public boat launching facilities within the Jug Bay Area, although boating and fishing are permitted in the tidal portions of the Sanctuary and Preserve. The site is not amenable to boat launching because the mudflats are shallow and are exposed at low tide and the only access to the deep river channel is a one-lane road to the River Pier. Boaters may launch hand-carried boats at Patuxent Wetland Park at Hill's Bridge on Route 4 or trailered boats at Jackson Landing in Patuxent River Park in Prince George's County.

3.) Hunting and Wildlife Control - Hunting is currently prohibited in the Jug Bay Area. The County will continue to retain control of waterfowl hunting blind sites that border the total Sanctuary along the edge of the river. This is done to prevent hunting. Blind sites on the Patuxent River in Anne Arundel County, from Route 4 south to Pindell Point (and excluding the private property at Pig Point) will be withdrawn annually from the list of available sites that are licensed and controlled by the Department of Natural Resources. By lease, hunting will be allowed on the Riggelman Preserve. In the future, hunting may be permitted as a wildlife management tool to reduce the size of animal populations that cause ecological damage to Jug Bay Area habitats. Currently, populations of White-tailed Deer and resident Canada Geese are being monitored as potential threats to the ecological balance of the Jug Bay Area.

4.) Trails and Boardwalks - Trails will remain unpaved. Unpaved trails inhibit movements by small animals (especially amphibians) less than paved paths do. Also, unpaved trails are in keeping with the general management philosophy of maintaining the Jug Bay Area in as natural a condition as possible. Trails will be maintained for

hikers and will not be usable by bicycle riders or for other uses. New boardwalks will be narrow and unobtrusive.

### **C. Wildlife Management**

1.) Resident Canada Geese Population Growth - Resident Canada Geese have been identified as the cause of a dramatic reduction in wild rice stands in the Jug Bay area. Sections of the tidal wetlands are now fenced to prevent geese from foraging on the young growth of native wild rice in the spring and early summer. The Sanctuary has, and will continue to apply for, a U.S. Fish and Wildlife Service permit to addle goose eggs as a population control measure. There are no managed hunts to reduce the size of the goose population within the Sanctuary, however managed hunts do take place in Patuxent River Park (Prince George's County) on the west side of the river. To date, these hunts have been effective in maintaining the goose population. If additional controls were needed in the future, a resident goose hunt would be conducted at Jug Bay.

2.) White-tailed Deer Population Growth - Deer are abundant in the Jug Bay Area and the Glendening Preserve. For approximately 20 years a private hunting club used the Preserve for hunting. Hunting is not allowed in the Sanctuary so the hunt club was disbanded in 2001 when the County acquired this land. With the end of hunting, the deer population is growing and as a result ecological damage is certainly occurring to Jug Bay Area habitats. Controlled hunting will probably be necessary to reduce the deer population in order to reduce damage to Sanctuary habitats. We will work with the Department of Natural Resources to develop a plan to manage the deer in the Sanctuary.

### **D. Infrastructure**

1.) Creek Footbridges - The footbridge and boardwalks across Two-run Creek in the vicinity of the upper Railroad Bed Trail need to be repaired and improved. Heavy public use of this area has caused erosion and the vegetation has been denuded adjacent to the creek. We propose building a raised boardwalk and a higher footbridge to reduce the environmental damage here.

2.) Roads - The entrance road to the Jug Bay Area will remain graveled and will not be paved. Paved, asphalt roads can inhibit the movement of small animals such as salamanders and turtles. No new roads should be built through the Jug Bay Area. Roads fragment the habitat and degrade habitat for wildlife. Although it is inconvenient to drive from the Wetlands Center to River Farm, the environmental integrity of the Two-run Creek floodplain in the Jug Bay Area would be seriously degraded if a road and bridge were to span this relatively pristine floodplain.

3.) Intern House at River Farm - The Intern House was determined to be structurally unsound by the county Facilities Maintenance Department in July 2004. This house was used extensively by university students, visiting researchers and volunteers

who work on Sanctuary projects. Until the house is replaced, it will not be available for intern use.

Contingent on outside sources of funding, the Intern House should be removed and replaced with a new building that will serve as field station and education center. This new building will serve the public, university and public school students, and researchers. Ideally, it will have a classroom, meeting room, bunkrooms for extended stays by students and researchers and a large kitchen. The building will need to comply with zoning and building regulations. Sources of foundation and state funding will be identified.

4.) Tenant Houses - Tenants currently occupy two houses in the Jug Bay Area. The presence of tenants living on site contributes greatly to the safety and enjoyment of visitors and volunteers, and helps reduce illegal activities such as poaching, horseback riding and trespassing. The County Real Estate office manages both houses and they are in good shape. In the event that leases are terminated, these houses could be used for more immediate Sanctuary programs or needs.

5.) Barns - The two barns at River Farm will be maintained and used for equipment storage and programs.

### **Glendening Preserve Management Practices**

The Preserve will be managed using the same basic principles and missions that have been employed since the creation of the original Jug Bay Area. Basically, the Preserve will be managed as a nature preserve, in keeping with the intent of Maryland's Green Print land preservation program, which provided the funding for its purchase. Public access and other policies, however, may be different in the Glendening Preserve from those that are in use at the Jug Bay Area.

#### **A. Land-use Practices**

1.) Hazardous wastes such as old oil storage tanks, septic tanks, and horse manure piles will be located and removed. Trash dumps and old barbed wire fence will be removed.

2.) Old deer hunting stands will be removed.

3.) Preserve lands will be surveyed to describe plant communities, breeding birds, and the potential for endangered species. Existing reports on the wildlife, biotic communities or natural resources will be assembled. Dr. Sue Ricciardi (ornithologist), Jonathon McNight (Department of Natural Resources biologist), and Dr. Jim Stasz (Environmental Planner with Maryland National Capital Park and Planning Commission) will be contacted as they have conducted surveys in the Preserve.

4.) Wetlands, creeks, and floodplains will be identified and inspected. Stream restoration and re-forestation areas will be identified and prioritized. Areas where invasive plant species are growing will be mapped and control efforts will be initiated.

5.) The County archeologist will be contacted to determine if archeological resources and artifacts exist on the site.

6.) The Critical Area boundary will be mapped and marked with markers on site.

7.) Old horse-grazing pastures at the Preserve will remain as pastures. The most efficient and ecologically sound methods for doing this will be explored by consulting with resource management professionals. In the interim these pastures will be mowed twice a year to prevent tree growth and succession to shrub/forest habitat.

8.) Fire as a habitat management tool — The Glendening Preserve forest is not mature. Herbaceous plants are common in the forests here and these species may benefit from periodic, low-intensity fire. Additionally, the barren area in the northwest part of the Glendening Preserve, where a gravel mine was once existed, now supports plants that are adapted to poor soil conditions. Pines and cedars are encroaching here.

## **B. Boundary Area Issues**

There are several problem areas along the Preserve boundary. Trash dumping is chronic along the frontage road that borders the north edge of the Preserve and is parallel to Route 4. Staff, volunteers and State Highway Administration employees clean up here regularly. “No Dumping” signs at one turnout along this road may reduce this practice. A major roadside dumping area has largely been eliminated along the west part of the frontage road, near the point where Galloway Creek closely approaches Route 4.

Another problem is due to poachers who enter the Preserve along Plummer Lane and along the Route 4 frontage road. Sanctuary staff regularly remove deer stands that have been placed illegally, and we call State Natural Resources and County police when firearms are discharged in the Sanctuary.

Local horseback riders have entered the Preserve and the Jug Bay Area in recent years, in spite of signs prohibiting horseback riding. The horses have damaged trails, especially where trails cross creeks. County Police have been helpful in ejecting riders and in issuing tickets for trespassing.

The construction of several new houses built on land adjacent to the Preserve on Wrighton Road could present future issues. If new home construction takes place, the staff will meet with our new neighbors to explain Preserve operating policies and management objectives.

## **C. Visitor Management**

1.) Public Access - Public access at the Preserve may be less restrictive than it is in the Jug Bay Area. The Wrighton Road entrance gate, where a parking lot has already been created, could be opened on weekends or weekdays for hikers. The gate would be opened in the morning and closed at dusk. Hikers would not pay an entrance fee, because staff would not necessarily be on site at all times to collect fees. Reservations would not be required, but visitors would sign a visitor logbook at a kiosk. Visitor policies will be posted at the trailhead. These same procedures could be followed at the Plummer's Corner access point.

To make the Preserve accessible to the public, it will be desirable to hire additional part-time staff to open and close gates at the two access points. Additional staff to patrol the Preserve may be necessary. Additionally, if the Preserve is to remain open until dusk, arrangements for after-hours security assistance from the Anne Arundel County police may be needed. The ability to fill these positions will depend on available funds.

2.) Hiking Trails, Boardwalks and Roads - The location of hiking trails and boardwalks will be identified. Currently there are about five miles of old logging roads that now serve as vehicle access roads and hiking trails. The location of trails along the west edge of the Preserve on the bluff above the wetlands and boardwalks will be located, surveyed and prioritized for construction. Any necessary permits will be obtained before construction. As trails are completed they will be signed and marked. Trails maps will be provided for the public. A plan will be prepared by October 2005 to identify new trails and to indicate the existing roads that will be abandoned and allowed to revert to forest. These trails will not be paved.

3.) Existing House - A two-story, three-bedroom house in the Preserve can be converted into a visitor contact station and staff office. This house is located at the main entrance to the Preserve where it could be used as a point of contact for visitors. Staff could have office space and the living room could hold trail maps, brochures and other items. Funding from NOAA to rehabilitate this house is a possibility with the expansion of this property into the CBNERR-MD program. This building could also house an office for CBNERR-MD staff.

The County's Facilities Maintenance staff have made a preliminary inspection of the water supply, septic system, electrical wiring, heaters and furnaces. The house requires \$20,000 to \$30,000 to bring it in to compliance with County building and safety codes and to make it habitable as a public building. Additional public restrooms would be needed either outside or inside the contact center.

4.) Dogs and bicycle riding will not be permitted.

5.) Horseback riding - Horseback riding will be restricted until the initial research survey can be completed of the Preserve's flora and fauna. Staff and volunteers will carry out this habitat assessment survey in consultation with Smithsonian Institution scientists. This survey will be completed by the spring of 2005. The Jug Bay Scientific Advisory Committee will produce a report summarizing survey results. Equestrian activities will be allowed if it is determined that this activity can be conducted without any significant damage endangered flora or fauna. Upon completion of the report the Sanctuary staff will work closely with the Maryland Horse Council to develop a trail system that will be environmentally sensitive of the Glendening Preserve and surrounding areas.

#### **D. Infrastructure**

1.) Unsafe Buildings - There are 10 small outbuildings at the Preserve that were used as shelters for boarded horses. These structures are unsafe, are of no use and will be removed. They will be signed "No Trespassing" until they are removed.

2.) Barns - There are three barns at the Preserve. The two barns (Barns #1 and #2) are in reasonably good condition and will be used for equipment storage and educational programs. A third barn (#3) is in poor condition. We have received permission from County officials to remove this barn. It will be signed "No Trespassing" until it is removed.

3.) Parking Areas - The main entrance to the Preserve is off Plummer Lane. A graveled parking lot for up to 25 cars will be created here to serve visitors to this section of the Preserve. The partially paved entrance road may need re-paving or this road may need to be graveled over its entire length. A parking lot for approximately 20 cars has already been established at the Wrighton Rd. entrance to the Preserve.

4.) Road Maintenance - Culverts under two roads must be inspected to determine that these roads are safe for vehicles. After inspection we will determine if the roads should be maintained or abandoned.

#### **E. Restrictions**

1.) State Environmental Easement - Anne Arundel County's management of the Preserve is guided by an environmental easement with the State of Maryland. In 2001, when the State of Maryland purchased the Glendening Nature Preserve lands and transferred ownership to the County, a State Conservation Easement was placed on 571 of the 610 acres. The purpose of this Easement is to preserve and protect the environment of the Preserve, and to prevent activities that might harm the ecological diversity and natural landscape. The terms, conditions, and restrictions of the Easement are available at the Sanctuary office and the conditions are included here in abbreviated form:

- No industrial or commercial activities other than horticulture or silviculture.

- Billboards, signs or advertisements are prohibited (except where expressly permitted).
- No dumping.
- No livestock grazing.
- No excavation, mining or dredging.
- No diking, draining or filling.
- No building, facility or other structure shall be constructed, except where expressly permitted for the specific reasons outlined in the Easement.
- There shall be no residential structures built in the easement area.
- A vegetated buffer, using native plants, shall be established to maintain a 300-foot wide strip along all streams and non-tidal wetlands, as reasonable for erosion control, and forest or wildlife management. Pesticides shall not be used within 50 ft of streams.

2.) Region Excluded from the Environmental Easement - Thirty-nine (39) acres in the northeast corner of the Preserve (this “Plummer’s Corner” area includes the old horse stable area, existing house and several meadows) is excluded from this Easement. This area will be managed using the guidelines of this Management Plan to provide visitor information and education. It may be possible to develop this area in the future, but overall management and use of this area will be consistent with the Sanctuary’s Strategic Plan and restrictions outlined in the CBNERR-MD Memorandum of Understanding.

3.) Commercial Activities - There will be no commercial activities in the Preserve. A gift shop in a visitor contact center is acceptable here as well as activities that support special events.

4.) Rentals and Leases — One of the requirements of the CBNEER-MD Memorandum of Understanding is that industrial and commercial activities are Prohibited. As a result of this, the ability to enter into an agreement with an individual, organization or business would be restricted. We will continue to rent the two residences that exist on the site until such time that these residences are needed to enhance the operation of the Sanctuary.

### **Riggleman Preserve Management Practices**

In Spring 2004, the County purchased the 303-acre Riggleman Farm and incorporated it into the Sanctuary. This land is now called the Riggleman Preserve. This preserve borders the south boundary of the Sanctuary along Pindell Creek and consists of forests, a mile of river shoreline, tidal and non-tidal wetlands and about 65 acres of agricultural fields. The Preserve also contains two houses and several barns. A combination of County, State and Federal land preservation funds were used to make his purchase. The Rigglemans retain the right to occupy the residence house for ten (10) years, until 2014, and option to extend the lease for an additional five (5) years. A formal lease has been signed by the Riggleman family and the County. The lease outlines conditions of their tenancy, and the obligations of the tenants and the County

regarding public access and maintenance. The lease applies to both the Riggleman residence and a tenant house.

For the next decade (until 2014) the Riggleman Preserve will not be open for public access except under certain conditions. Access is restricted to the forest and wetlands that are outside the areas delineated as the "Homestead" in the Lease. Public access is allowed only for research and environmental education, under the supervision and coordination of Sanctuary staff.

Hunting is permitted in designated areas of the Riggleman Preserve and from several waterfowl blind sites along the river shore. The Riggleman family also has a Deer Management Permit, which allows them to hunt deer in order to control damage to agricultural crops.

## **Funding**

The Sanctuary is the largest park operated by the Department of Recreation and Parks. Many initiatives in this Management Plan require additional staff and equipment. For example, some public activities will require on-site staff. Also, in order to open a Visitor Contact Center at the Preserve, the existing house will need to be rehabilitated and brought in compliance with current building codes. Restrooms and drinking water will be required.

Staffing at the Sanctuary currently consists of three full-time and three part-time employees. These positions include: a full-time director (Superintendent), one full-time education coordinator, one full-time maintenance worker, two part-time naturalists, and one part-time administrative assistant. This level of staffing has been sufficient to manage and carry out programs at the original Sanctuary. Additional staff would be required if programming and access at the Glendening Preserve is expanded.

The expansion of the Sanctuary from 451 to 1,365 acres has resulted in increased public demands to use this land, a greater need to expand research and education projects and a need to ensure adequate public safety. Additional staffing would be needed to accomplish these tasks.

### **A. Staffing**

The current Office Support Specialist position should be converted from a part-time to a full-time position. There will be an increased workload due to the increase in educational, research and volunteer programs. There is also an increase in public contact and other office duties.

Another Maintenance Worker I would be needed. The current full-time maintenance worker often needs help to carry out projects safely and efficiently. In addition to Jug Bay, the Sanctuary staff currently manages two other geographically - separated park properties: Wooton's Landing Wetland Park and Patuxent Wetland Park.

Another part-time employee will be needed to open and close gates at the Glendening Preserve on weekends. This could be a person who lives in the local community. The gate would need to be opened in the morning and closed at dusk. In the case of hikers who stay late, this employee may need to contact the County police on occasion.

**B. Equipment, repair and utility needs**

- All-terrain vehicle to access property trails, meadows and dirt roads
- Telephone service
- Electrical service with BG & E

**C. Building renovations required for existing house at Preserve**

- New water heater
- New house furnace
- Upgrade of main electrical breaker panel
- New water well
- New septic tank

**Proposed CBNERR-MD Expansion**

**A. Background**

Currently, only 172 acres of the original Sanctuary are designated within the CBN ERR-MD. In summer 2004, County and State officials completed preliminary steps to expand Reserve designation to include 1,061 acres (does not include the Riggelman Preserve) of the Sanctuary. Expansion of the CBNERR-MD has the support of County, state and federal officials, as well as the support of the Friends of Jug Bay.

**B. Benefits of Partnership**

The partnership between Anne Arundel County and CBNERR-MD has provided important benefits for County citizens. Working in close cooperation, Reserve and Sanctuary staff have organized many educational programs, workshops, research initiatives, and construction projects that have improved wetlands stewardship and provided valuable experiences for all involved. The major benefits of the County's partnership with CBNERR-MD, fall into four categories, which are described below:

1.) Increased Funding - A major benefit of the County's partnership in CBNERR-MD is that the County receives funding for projects. Over the past 13 years, CBNERR-MD has provided funding (figures are approximate) to Anne Arundel County for numerous projects at the Sanctuary:

Construction & Exhibits	\$ 150,000
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Volunteer Program	\$ 50,000
Research Program Support	\$ 68,000
Scientific equipment and supplies	\$ 20,000
<u>Education program and activities</u>	<u>\$ 5,000</u>
Total	\$238,000

As additional acreage is incorporated into the Estuarine Research Reserve, the County becomes eligible through the Reserve program (CBNERR-MD) for NOAA funding for research, education and construction projects that take place on these lands.

2.) Expanded Environmental Protection - A requirement of Reserve status is that lands must be managed according to stewardship goals and that building or other development be severely limited. For example, the Department of Natural Resources and NOAA must approve any plans for new construction within the Reserve. These policies are covered in the MOU between the County, the State of Maryland and NOAA. With Reserve designation over the entire Sanctuary, the citizens of Anne Arundel County can be confident that these lands will be protected during the terms outlined in the agreement and will be managed wisely for the benefit of wetlands, water quality, wildlife and public use.

3.) Enhanced Research Opportunities - Promoting scientific research at the various Reserve sites is a main objective of CBNERR-MD. Graduate students and scientists gain new knowledge about wetlands and estuaries through on-site studies. The result is improved management of the Chesapeake Bay, its tributaries and watersheds. The Sanctuary also benefits from our relationship with CBNERR-MD because it gives us ready access to the resource specialists at the Department of Natural Resources and with NOAA. Since the Jug Bay component is part of a nationwide network of Reserves, our staff and volunteers have access to the estuarine scientists who manage these other sites. These specialists provide advice and information that is extremely useful to management and research projects of the site.

4.) Research Grants - CBNERR-MD also provides grants to graduate students through their Graduate Research Fellow program and they provide grants to senior scientists through their CICEET program. Students and scientists in these programs have carried out the following studies in the Sanctuary:

- University of Maryland scientists conducted research on rates of sedimentation and erosion in wetlands.
- University of Maryland doctoral student conducted research on denitrification processes in marsh sediments and wetlands.
- Johns Hopkins University doctoral student conducted research on the sedimentary processes in freshwater tidal wetlands.
- University of Maryland doctoral student conducted research on groundwater movement between tidal and nontidal habitats.

New research studies of animal populations, plant communities and wetland science will be initiated in the Glendening Preserve and other areas of the Sanctuary after these areas are brought into CBNERR-MD designation.

5.) Increased Opportunities for Education and Partnership - There are four full-time staff devoted to the CBNERR-MD program statewide. These individuals often work closely with Sanctuary staff on programs and activities. These educators and researchers greatly enhance the programs that are offered to the public, in addition to the restoration and research activities that are conducted. Many teacher training programs, educational videos, workshops and habitat restoration trainings have been held. This partnership makes it possible for Sanctuary staff to provide more programs for the public and better resource management than might be otherwise possible.

Management Plan Adopted:

//s// Dennis Callahan

//1-26-05//

\_\_\_\_\_  
Dennis Callahan, Director  
Department of Recreation and Parks

\_\_\_\_\_  
Date