

Chapter 4

Erin Victory/TCI



Refuge shrubland

Management Direction and Implementation

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Introduction

This CCP includes an array of management actions that, in our professional judgment, work towards achieving the purpose, vision and goals for the Refuge, and state and regional conservation plans. In our opinion, it effectively addresses the key issues identified in Chapter 2. We believe it is reasonable, feasible and practicable.

In all program areas, this CCP will enhance the quality and sustainability of current compatible activities, develop long-range and strategic step-down plans, and promote partnerships.

Relating Goals, Objectives, and Strategies

Refuge goals are intentionally broad, descriptive statements of the desired future condition of refuge resources. By design, they define the targets of our management actions in prescriptive rather than quantitative terms. They also articulate the principal elements of the refuge purposes and vision statement, and provide a foundation for developing specific management objectives and strategies.

Objectives are essentially incremental steps toward achieving a goal and further define management targets in measurable terms. Typically, they provide the basis for developing detailed strategies that monitor refuge accomplishments and evaluate progress. “Writing Refuge Management Goals and Objectives: A Handbook” (USFWS 2004) recommends writing “SMART” objectives that are: (1) specific; (2) measurable; (3) achievable; (4) results-oriented, and (5) time-fixed.

Where possible, we incorporated the principles of Strategic Habitat Conservation in the development of our objectives and strategies. According to Strategic Habitat Conservation: A Report from the National Ecological Assessment Team (2006), “This approach focuses on the ability of the landscape to sustain species as expressed in measurable objectives. Developing a strategy to attain a biological outcome, such as a population objective, requires documented and testable assumptions to determine whether the objective is met.” Not only will this approach ensure refuges are contributing to the NWRS and FWS mission and goals in a strategic, standardized and transparent way, but also refuges can ensure that they contribute to local and regional conservation priorities and goals as well (USFWS 2008b).

A rationale accompanies each objective to explain its context and importance. We will use the objectives to write the Refuge step-down plans, which we describe later in this chapter.

Next we identified strategies, or the actions, tools, or techniques we may use to achieve each objective. The list of strategies in each objective represents the potential suite of actions we may implement. We will evaluate most of them further as to how, when, and where we should implement them when we write our Refuge step-down plans. We will measure our successes by how well our strategies achieve our objectives and goals.

General Refuge Management

The actions presented in this section represent those that were common to all three alternatives evaluated in the EA/draft CCP. These are actions required by law or policy, or represent actions that have undergone a separate NEPA analysis, public review, agency review, and approval. Or, they are administrative actions that do not necessarily require public review, but are actions we wanted to highlight in our implementation plan. Finally, most of the actions outlined in this part of Chapter 4 support multiple goals and objectives, or represent general administrative or compliance activities. We present them below.

Adaptive Management

We will include flexibility in management to allow us to respond to new information, spatial and temporal changes and environmental events, whether foreseen or unforeseen, or other factors that influence management. Our goal is to be able to respond quickly to any new information or events. The need for flexible or adaptive management is very compelling today because our present information on Refuge species and habitats is incomplete, provisional, and subject to change as our knowledge base improves.

In 2007, an intradepartmental working group developed a guidebook to assist managers and practitioners: “Adaptive Management: The U.S. Department of Interior Technical Guide.” It defines adaptive management, the conditions under which we should consider it, and the process for implementing it and evaluating its effectiveness. You may view the guidebook at <http://www.doi.gov/initiatives/AdaptiveManagement/documents.html>.

Adaptive management, as it relates to refuge management, promotes flexible decision-making through an iterative learning process that responds to uncertainties, new information, monitoring results, and the natural variability in ecosystems. It is designed to facilitate more effective decisions and enhanced benefits. At the refuge level, monitoring management actions, outcomes and key resources will be very important. The refuge manager is responsible for changing management actions and strategies if they do not produce the desired conditions. Substantial changes from what we present in this CCP may warrant additional NEPA analysis and public comment. Minor changes will not, but we will document them in our project evaluation reports or annual reports.

Generally, we can increase monitoring and research that support adaptive management without additional NEPA analysis, assuming the activities, if conducted by non-Refuge personnel, are designated a Categorical Exclusion (Department of Interior Manual 516 DM 2.3A(2) and 516 DM 6, Appendix 1, January 16, 1997) and determined to be compatible by the Refuge manager in a compatibility determination. Increases in these activities are likely to be limited at Nomans Land Island NWR, however, due to the presence of UXO. Many of our objectives identify monitoring elements. Our Inventory and Monitoring Plan will determine future survey efforts. Implementing an adaptive management approach supports all three goals of the Refuge.

Strategic Habitat Conservation

Strategic Habitat Conservation is a framework that utilizes adaptive management to redefine broad scale conservation from the general pursuit of conserving “more” habitat and species, to a more planned approach based on scientific data, at a landscape level, and in cooperation with partners. It starts with explicit, measurable objectives that are based on testable assumptions that can be evaluated, and is enacted through an iterative process of biological planning, conservation design, conservation delivery, assumption-driven research, and outcome-based monitoring. The goal is to set specific population objectives for species that are limited in some way by habitat (though this would be effective for other limiting factors as well), and to use targeted habitat management approaches to meet those objectives. Inherent in the process is a continual evaluation of biological outcomes and approaches, with the intent to adapt the overall conservation strategy to respond to changing circumstances and new information.

Controlling Pest Plants and Animals

At times, native plants and animals interfere with management objectives. The Refuge Manual (7 RM 14.4A) defines a pest as “Any terrestrial or aquatic plant or animal which interferes, or threatens to interfere, at an unacceptable level, with the attainment of refuge objectives or which poses a threat to human health.” This definition also includes non-native invasive species (see below).

Integrated Pest Management (IPM)

In controlling pests, whether non-native or native species, we use an integrated approach. The Refuge Manual (7 RM 14.4C) defines integrated pest management as “A dynamic approach to pest management

which utilizes a full knowledge of a pest problem through an understanding of the ecology of the pest and ecologically related organisms and through continuous monitoring of their populations. Once an acceptable level of pest damage is determined, control programs are carefully designed using a combination of compatible techniques to limit damage to that level.”

The Refuge’s IPM program will be written and on file at the refuge complex headquarters when complete. The IPM is a step-down plan from the CCP and supplements both the CCP and HMP with documentation on how to manage invasive or pest species. Along with a more detailed discussion of IPM techniques, this documentation describes the selective use of pesticides for pest management on the Refuge, where necessary. Pesticide uses with appropriate and practical best management practices (BMPs) for habitat management would be approved for use on the Refuge where there likely would be only minor, temporary, and localized effects to species and environmental quality based upon non-exceedance of threshold values in the chemical profiles. Our control program would address the most critical problems first and can be adjusted to reflect regional Service priorities, the availability of new information, or a new resource.

Managing Invasive Species

The establishment and spread of invasive species, particularly invasive plants, is a significant problem that reaches across all habitat types. For the purposes of this discussion, we use the definition of invasive species contained in the Service Manual (620 FW 1.4E): “Invasive species are alien species whose introduction does or is likely to cause economic or environmental harm, or harm to human health. Alien species, or non-indigenous species, are species that are not native to a particular ecosystem. We are prohibited by Executive Order, law, and policy from authorizing, funding, or carrying out actions that are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere.” This discussion focuses solely on invasive plant species.

At least 14 species of invasive plants have been identified on Nomans Land Island NWR (see Appendix B), and our management of these invasive plants will be subject to Minimum Requirements Analysis (MRA) under a wilderness scenario (Appendix C) upon implementation of this CCP.



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Phragmites on Nomans Land Island NWR

The unchecked spread of invasive plants threatens the biological diversity, integrity and environmental health of all national wildlife refuge habitats. In many cases, they have a competitive advantage over native plants and form dominant cover types, reducing the availability of native plants as food and cover for wildlife. Over the past several decades, government agencies, conservation organizations, and the public have become more acutely aware of the negative effects of invasive species. Many plans, strategies, and

initiatives target the more effective management of invasive species, including “The National Strategy for Management of Invasive Species for the National Wildlife Refuge System” (USFWS 2003a), “Silent Invasion—A Call to Action,” by the National Wildlife Refuge Association (2002), and “Plant Invaders of Mid-Atlantic Natural Areas,” by the Service and the National Park Service (Swearingen et al. 2002).

Guidance on managing invasive species on refuges appears in the Service Manual (620 FW 1.7G). The following actions define our general strategies on the Refuge.

1. Manage invasive species on refuges under the guidance of the National Strategy for Invasive Species Management and within the context of applicable policy.
2. Manage invasive species to improve or stabilize biotic communities to minimize unacceptable change to ecosystem structure and function and to prevent new and expanded infestations of invasive species.
3. Evaluate native habitat management activities with respect to their potential to accidentally introduce or increase the spread of invasive species and modify our habitat management operations to prevent increasing invasive species populations.
4. Conduct Refuge habitat management (including working through partners) to prevent, control, or eradicate invasive species using techniques described through an integrated pest management plan, or other similar management plan. The plans comprehensively evaluate all potential integrated management options, including defining threshold/risk levels that will initiate the implementation of proposed management actions.
5. Refuge IPM planning addresses the abilities and limitations of potential techniques including chemical, biological, mechanical, and cultural techniques. See the additional discussion on IPM below.

The following actions define our specific strategies for the Refuge.

1. Treatment of the most problematic species as funding and staffing permit in accordance with the selected alternative.
2. Develop early-detection/rapid-response readiness regarding new invasions.
3. Remove the parent sources of highly invasive species (e.g., species that are high seed producers or vigorous rhizome producers).
4. Maintain accessibility to affected areas for control and monitoring if possible.

Monitoring and Abating Wildlife and Plant Diseases

The Service has not yet published its manual chapter on Disease Prevention and Control. In the meantime, we derive guidance on this topic from the Refuge Manual and specific directives from the Director of the Service or the Secretary of the Interior. The Refuge Manual (7 RM 17.3) lists three objectives for the prevention and control of disease.

1. Manage wildlife populations and habitats to minimize the likelihood of the contraction and contagion of disease.
2. Provide for the early detection and identification of disease mortality when it occurs.
3. Minimize the losses of wildlife from outbreaks of disease.

The Service published these objectives in 1982. Since then, in addition to diseases that cause serious mortality among wildlife, diseases transmitted through wildlife to humans have received more attention.

One example is Lyme disease. In 2002, the Service published a Service Manual chapter (242 FW 5) on Lyme Disease Prevention to inform employees, volunteers, and national service workers about this disease, its prevention, and treatment.

Another serious wildlife disease that receives considerable attention worldwide is avian influenza. Of particular concern is the highly pathogenic Eurasian form (H5N1). In 2006, the Service instructed all refuges to prepare an Avian Influenza Surveillance and Contingency Plan. This plan covers all eight refuges in the Eastern Massachusetts NWR Complex, and was completed in 2007.

In addition to the diseases of wildlife, we will be attentive to the diseases and pests that affect the health of the ecosystems that Nomans Land Island NWR supports, and we would continue to opportunistically monitor for, and report, seabird mortality events on Refuge beaches. In addition, we would record and report instances of seal entanglements or strandings, because these are instances that could lead to increased susceptibility to disease mortality. It is likely that other monitoring efforts would be minimal, and the occurrence of any wildlife or habitat disease element would be responded to only if they posed an immediate or serious threat to indigenous wildlife and habitat. The Service would respond at a level commensurate with staffing and funding.

These are the general strategies for preventing or controlling disease.

1. Continue to conduct disease surveillance in conjunction with other fieldwork.
2. Cooperate with state agencies, particularly the Massachusetts Department of Fish and Game by providing access for sampling and following protocols in the event of an outbreak.
3. Inform volunteers and others who work in the field about the dangers of Lyme disease and measures to avoid contracting it.
4. Monitor habitats for indicators of the increased occurrence of pests or disease. For example, anecdotally note changes in flowering or fruiting phenology that do not appear to be linked to global climate change, and be vigilant for signs of physical damage, decay, weakening, sudden death, particularly of major host species, and changes in wildlife use of habitats, such as the absence of breeding birds that used to appear regularly.
5. Follow the protocols in national, state, and refuge disease prevention and control plans.

Biological and Ecological Research and Investigations

The Refuge Manual and the Service Manual both contain guidance on conducting and facilitating biological and ecological research and investigations on refuges. In 1982, the Service published three objectives in the Refuge Manual for supporting research on units of the Refuge System (4 RM 6.2):

1. to promote new information and improve the basis for, and quality of, refuge and other Service management decisions;
2. to expand the body of scientific knowledge about fish and wildlife, their habitats, the use of these resources, appropriate resource management, and the environment in general; and,
3. to provide the opportunity for students and others to learn the principles of field research.

In 2006, the Service Manual provided supplemental guidance on the appropriateness of research on refuges: “We actively encourage cooperative natural and cultural research activities that address our management needs. We also encourage research related to the management of priority general public uses. Such research activities are generally appropriate. However, we must review all research activities to decide if

they are appropriate or not as defined in section 1.11. Research that directly benefits refuge management has priority over other research” (603 FW 1.10D(4)).

All research conducted on the Refuge must be determined in writing to be both appropriate and compatible, unless we determine it to be an administrative activity. Because Nomans Land Island is closed to public access, no research will take place for any of the priority public uses. Research projects also must contribute to a need identified by the Refuge or the Service. Because of the restrictions posed by the continued presence of UXO, we expect research will be extremely limited on the Refuge. In addition, researchers will be considered agents of the Service, and must conform to safety guidelines and protocols. If we consider research to be absolutely necessary to address resource management concerns, we will follow the guidance in the manuals, and will employ the following general strategies to determine the appropriateness and compatibility of future research proposals.

In general, we will employ the following strategies:

1. Seek qualified researchers and funding to help answer Refuge-specific management questions.
2. Participate in appropriate multi-refuge studies conducted in partnership with the USGS or other entity.
3. Coordinate with partners to initiate or conduct research on priority issues identified at local and regional scales.

All researchers will be required to submit detailed research proposals following the guidelines established by Service policy and Refuge staff. Special use permits will also identify the schedules for progress reports, the criteria for determining when a project should cease, and the requirements for publication or other interim and final reports. All publications will acknowledge the Service and the role of Service staff as key partners in funding and/or operations.

Climate Change

Climate change is an issue of increasing public concern because of its potential effects on land, water, and biological resources. The issue was pushed to the forefront in 2007 when the IPCC, representing the world’s leading climate scientists, concluded that it is “unequivocal” that the Earth’s climate is warming, and that it is “very likely” (a greater than 90 percent certainty) that the heat-trapping emissions from the burning of fossil fuels and other human activities have caused “most of the observed increase in globally averaged temperatures since the midtwentieth century” (IPCC 2007). The Northeast is already experiencing rising temperatures, with potentially dramatic warming expected later this century under some model predictions. According to the Northeast Climate Impacts Assessment (NECIA) team, “continued warming, and more extensive climate-related changes to come could dramatically alter the region’s economy, landscape, character, and quality of life” (Frumhoff et al. 2007).

Other predicted climate-related changes, beyond warming temperatures, include changing patterns of precipitation, significant acceleration of sea level rise, changes in season lengths, decreasing range of nighttime versus daytime temperatures, declining snowpack, and increasing frequency and intensity of severe weather events (Inkley et al. 2004). Since wildlife species are closely adapted to their environments, they must respond to climate variations, and the subsequent changes in habitat conditions, or they will not survive. Unfortunately, the challenge for wildlife is all the more complicated by increases in other environmental stressors such as pollution, land use developments, ozone depletion, exotic species, and disease. Wildlife researchers and professionals, sportsmen, and other wildlife enthusiasts are encouraging positive and preemptive action by land managers. Some recommendations for action include: reducing or eliminating those environmental stressors to the extent possible; managing lands to reduce risk of catastrophic events; managing for self-sustaining populations; and, looking for opportunities to ensure widespread habitat availability (Inkley et al. 2004).

The Service is becoming more aware and knowledgeable about the impacts of climate change on national wildlife refuges. A draft Climate Change Strategic Plan and a Five-Year Action Plan have been drafted to provide specific direction to the Service's climate change response initiatives (see Chapter 1). Nomans Land Island could be a prime location for long term and remote research and monitoring. To date, a SLAMM (Clough and Larson 2009) analysis has been conducted to predict Refuge shoreline changes over the next century under four different sea level rise scenarios (see Chapter 3 and Appendix I). At the Refuge, we recognize the need for an increase in biological monitoring and inventories, two actions that are critically important for land managers to undertake in order to effectively respond to the uncertainty of future climate change effects. This would primarily be based on the availability of staff and funds. In addition, it will be important to coordinate with the state's climate change strategies as they are further refined. The establishment of the North Atlantic LCC (see Chapter 3) will also facilitate the exchange of information and coordination among agencies in the region to implement climate change strategies.

Special Use Permits

Because the Refuge is administratively closed to the public, the number of special use permits that will be issued will be extremely limited. It is up to the Refuge manager to evaluate activities that require a special use permit for their appropriateness and compatibility on a case-by-case basis. We will only approve permit requests that provide a direct benefit to the Refuge, or for research that will strengthen our decisions on managing natural resources on the Refuge. The Refuge manager also may consider requests that do not relate directly to Refuge objectives, but to the protection or enhancement of native species and biological diversity in the region and support the goals of recognized ecoregional conservation teams, such as the ACJV.

Protecting Cultural Resources

As a federal land management agency, we are responsible for protecting all cultural resources; specifically, archaeological sites and historic structures eligible for listing or listed on the National Register of Historic Places.

We will evaluate the potential for impact on archaeological and historical resources as required for management actions, or the absence thereof, that would potentially lead to disturbance of those sites. We will develop and implement protocols for coordination, emergency response, and proper handling and disposition of such resources in coordination with local, state and federal partners and policies. These protocols will be incorporated into the Refuge's Law Enforcement Management and Cultural Resources Management step-down plans. We will consult with the Massachusetts State Historical Preservation Office (MA SHPO, also MHC) and the Tribal Historic Preservation Officers (THPO) for the Wampanoag Tribe of Gay Head (Aquinnah) and the Mashpee Wampanoag Tribe. These activities will ensure that we comply with section 106 of the National Historic Preservation Act. Compliance may require a State Historic Preservation Records survey, literature survey, or field survey. In addition, any cultural activities requiring site disturbance would be evaluated through a MRA to comply with wilderness policy guidelines upon implementation of this CCP. In all cases, any ground disturbance activities would require UXO Tech Support, and would therefore require coordination with the Navy.

Off-Site Interpretation

The National Wildlife Refuge System Improvement Act of 1997 designated six priority public uses on national wildlife refuges: hunting, fishing, wildlife observation, photography, environmental education, and interpretation. Nomans Land Island NWR, however, presents a unique situation because of the ban on public access. Due to the presence of UXO throughout the island, we are obligated to maintain this requirement for public health and safety (see section on Unexploded Ordnance below). Therefore, none of the six priority public uses are offered on the Refuge.

We expect an increase in off-site visitor services on Martha's Vineyard upon implementation of this CCP, dependent upon the availability of staff and resources. We will also continue to further strengthen

partnerships within the region so that through combined resources (staffing, infrastructure, programming), we can expand our capacity to provide more environmental education and interpretation programs, and support other conservation efforts and land protection on Martha's Vineyard.

The following criteria are provided to ensure quality wildlife-dependent recreation on national wildlife refuges by the General Guidelines for Wildlife-Dependent Recreation, Fish and Wildlife Service Manual, 605 FW 1:

1. promotes safety of participants, other visitors, and facilities;
2. promotes compliance with applicable laws and regulations and responsible behavior;
3. minimizes or eliminates conflict with fish and wildlife population or habitat goals or objectives in an approved plan;
4. minimizes or eliminates conflicts with other compatible wildlife-dependent recreation;
5. minimizes conflicts with neighboring landowners;
6. promotes accessibility and availability to a broad spectrum of the American people;
7. promotes resource stewardship and conservation;
8. promotes public understanding and increases public appreciation of America's natural resources and our role in managing and conserving these resources;
9. provides reliable/reasonable opportunities to experience wildlife;
10. uses facilities that are accessible to people and blend into the natural setting; and,
11. uses visitor satisfaction to help to define and evaluate programs.

To the extent possible, we will strive to follow all guidelines applicable to off-site environmental education and interpretation. The other four priority uses are sufficiently provided for on Martha's Vineyard, to some degree, by partners. Both Martha's Vineyard and Nomans Land Island NWR have similarities in wildlife and habitat, and also provide access to freshwater and marine environments. Therefore access restrictions on the Refuge do not locally eliminate those opportunities, and equivalent experiences can be had on Martha's Vineyard for the priority public uses.

In recent years, the Service has recognized the importance of connecting children with nature. Scholars and health care professionals are suggesting a link between a disconnection with the natural world and some physical and mental maladies in our nation's youth (Louv 2005). We intend to promote the concept of connecting children and families with nature in all of our compatible recreational and educational programming and will work with local partners to provide environmental education and interpretation programs.

Appropriateness and Compatibility Determinations

Chapter 1 describes the requirements for determinations of appropriateness and compatibility for refuge uses. As previously discussed, we will continue to maintain and enforce the ban on public access on the Refuge for public safety reasons. Given these circumstances, there are no activities allowed on the Refuge except as allowed by the Refuge manager and in compliance with agreements set forth with the U.S. Navy. Therefore, activities typically addressed by findings of appropriateness and compatibility determinations do not apply to Nomans Land Island NWR.

Refuge Staffing and Administration

Our proposals in this document do not constitute a commitment for staffing increases or funding for operations or maintenance. Congress determines our annual budgets, which our Washington headquarters and regional offices distribute to field stations. Chapter 3 presents our levels of staffing, operating and maintenance funds for the Refuge. We describe below some activities that pertain to staffing, administration, and operations: some are new; others are ongoing. Implementing them supports all our Refuge goals.

Permanent Staffing and Operational Budgets

Our objective is to sustain levels of annual funding and staffing that allow us to achieve Refuge purposes, as interpreted by the goals, objectives, and strategies in this CCP. Often, many highly visible projects are conducted through special project funds that typically have a one- to two-year duration. Although those funds are very important, their flexibility is limited, because we cannot use them for any other priority project that may arise. Additionally, we cannot anticipate when or if we will receive these funds.

In response to declines in operational funding nationwide, we developed the “Strategic Workforce Plan for the National Wildlife Refuge System in Region 5” (Phase 2; January 16, 2007) to support a new base budget approach. Its goal is a maximum of 75 percent of a refuge station budget to cover salaries and fixed costs, while the remaining 25 percent or more will be operating and maintenance funds. Our strategy is to improve the capability of each refuge manager to do the project work of the highest priority, and not to have the refuge budget tied up in inflexible, fixed costs. Unfortunately, in a level or declining budget environment, that also may have implications for the level of permanent staffing.

In 2008, the Service approved a national staffing model which identifies the number of staff needed at each refuge or refuge complex throughout the country. The model indicated that the Eastern Massachusetts NWR Complex should have 39.5 permanent positions. As previously indicated, there are currently 16 permanent employees in the refuge complex. Within the guidelines of the new base budget approach, we would seek to fill positions which we believe are necessary to accomplish our highest priority projects, though it is unlikely that all 39.5 positions would be filled. Appendix E identifies our plan for current and future staffing growth.

Facilities Construction and Maintenance

We will continue to install and maintain Refuge and regulatory signs on the Refuge, and maintain the existing access pathways on the island, including the water control structure on the wetland near Rainbow Pond, and the two moorings. Upon implementation of this CCP, these activities would be subject to evaluation through a MRA, however, and will be modified if necessary to comply with wilderness guidelines. We will continue to build relationships with the Tribe and our partners to display and distribute Refuge informational material.

Refuge Operating Hours

Again, due to the presence of UXO on Nomans Land Island, we are obligated to maintain and enforce the ban on public access on the Refuge (see the Unexploded Ordnance section below). Warning signs will continue to be posted around the island, pending approval of a MRA, and trespassers in violation of this policy will be held accountable by Service law enforcement personnel. The U.S. Coast Guard patrols and enforces the water restriction area around Nomans Land Island NWR.

Cooperating with the Navy in its UXO Removal Program and the Prohibition of Public Access

In 1998, all of Nomans Land Island became part of the Refuge System when the Service was granted management responsibility from the U.S. Navy. Prior to that time, the island was first leased and then sold to the Navy for both live and practice bombing. Live bombing occurred from 1943 to 1952, and practice bombing continued until 1996 when all range operations ended to prepare for the transfer to the Service.

Because of the safety and liability issues associated with 54 years of bombing, conditions were included in the transfer document (see Appendix G) for both the Navy and the Service to uphold in order to make the transfer feasible. The document states that the Navy will continue the “investigations, studies and remedial action” necessary for the environmental cleanup of the unexploded ordnance on the island, and states that they will continue to take responsibility for that unexploded ordnance so long as the Service “shall administratively close the island to all public access, conduct periodic surveillance and install and maintain appropriate and adequate warning devices” (Conditions, Covenants, and Reservations of Transfer, attached to June 26, 1998 letter to Secretary of the Interior Bruce Babbitt from Assistant Secretary of the Navy Robert Pirie, Jr.).



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Two of the eight Refuge warning signs

The island is not cleared of UXO to levels that would permit access under safety regulations to the general public. In addition, natural processes such as frost heave and erosion will continue to expose subsurface UXO over time. Volunteers or researchers acting as agents of the Service to accomplish objectives set forth in this CCP are permitted on the island provided they are accompanied by Service personnel. Only certain portions of the island are cleared for use by Service staff. Service staff, volunteers and researchers undergo a safety briefing prior to visiting the island. Given safety and liability concerns, we are obligated to maintain and enforce the ban on public access, and we will continue to post regulatory signs and conduct patrols. Though it is not in our jurisdiction, the waters surrounding the island are also restricted to public use because of the danger of unexploded ordnance; this closure is monitored and enforced by the U.S. Coast Guard.

At present, the Service and Navy have been operating under the terms of the transfer agreement, and the Navy’s draft Operations and Management Plan which closely follows the transfer agreement. This has met the needs and requirements of each agency to date by requiring coordination of management activities that have positively benefited the Refuge. The Navy’s draft Operations and Management Plan outlines responsibilities for the Services as follows: maintenance of warning signs, periodic surveillance of the island, documentation of this surveillance, and reporting any UXO debris discovered during site visits. The Navy’s responsibilities as outlined in their draft Operations and Maintenance Plan are: ongoing site visits for inspection and possible remediation and surface clearances, response to reports of any UXO debris discovered on the island, and the provision of a UXO safety handout to the Service.

Future Navy Involvement

The Navy retains responsibility for contaminants and Munitions and Explosives of Concern (MEC) that remain on Nomans Land Island as a result of past military operations. The Navy’s current management of

residual MEC is based on the Service's designation of Nomans Land Island as an unstaffed wildlife refuge. Any change to this designation that would result in increased exposure to MEC would require additional cleanup at the Service's expense.

As noted elsewhere in this document, the Navy has been working with the Service and the MA DEP on the cleanup of the site since the mid-1990's. Contaminant remediation has taken place and extensive clearance operations were conducted in 1998. In addition there have been two limited follow-up MEC surface clearances, in 2003 and 2008, to address MEC that was exposed by erosion.

Because risk to public safety remains due to pervasive UXO throughout the island, the Navy, in compliance with CERCLA, will conduct ongoing five year reviews of the site so long as human use of the site is restricted. The nature and extent of these five year reviews on Nomans Land Island by the Navy are subject to the alternative chosen in the Navy's Phase III/Feasibility Study Report.

A draft Phase III/Feasibility Study (FS) Report has been prepared for the Navy which identifies and evaluates appropriate Remedial Action Alternatives (RAAs) to address the risk to safety for Nomans Land Island. Risks to the environment, human health, and public welfare have been previously addressed and closure attained. The feasibility of alternatives for remedial actions is evaluated according to criteria set forth in CERCLA and the 2004 Naval Facilities Engineering Command - Guidance for Optimizing Remedy Evaluation, Selection, and Design, and is consistent with the guidance and regulations from the Massachusetts Contingency Plan. The public will be provided an opportunity to comment on the Phase III/Feasibility Study Report in 2010. Once that report is finalized, the Navy will prepare a Proposed Plan to indicate the preferred remedy.

We do not anticipate any conflicts with our proposed management of the Refuge, including wilderness, as a result of these final Navy plans. If the Navy's future actions should result in an invalidation of any of the actions of this CCP, we would then revisit the CCP process and amend our CCP accordingly at that time.

The Service accepted management responsibility and the terms of the transfer agreement for the island with the understanding that it would only be cleared of UXO to meet the requirements of an unstaffed national wildlife refuge. We are obligated to maintain these terms. We will continue to work with the Navy and the federal and state regulators, when the Navy conducts its five-year reviews. If, at some point in the future, there is a major advance in technology that would allow the extraction of UXO without massive ground disturbance or impact to wildlife, then additional cleanup might warrant further consideration. We could then strive to achieve a refuge that is as free as possible from UXO, which would support Service policy on biological integrity, diversity and environmental health (BIDEH) and wilderness management. At this time, however, circumstances prevent additional UXO clearance, as there are currently no techniques or technologies available that would allow for the comprehensive removal of UXO from the island without causing greater environmental harm.

Partnership Agreement with the Wampanoag Tribe of Gay Head (Aquinnah)

This CCP recognizes and takes into account the government-to-government relationship of the Service and the Wampanoag Tribe of Gay Head (Aquinnah). The Service also recognizes the Tribe as an important local repository of cultural knowledge and as an integral part of the history of Nomans Land Island. Since 1999, the Service and Tribe have worked together, through discussions and meetings, to facilitate this government-to-government relationship and to carry out the federal trust responsibility we have towards the Tribe. While the terms of a formal partnership agreement are still being discussed, the Service and Tribe remain committed to the partnership. Representatives of the Tribe are on the core planning team for this CCP, and work with the Service's Native American liaison on fish and wildlife grant opportunities.

We will continue our efforts to facilitate communication with the Tribe in general, and to address issues and concerns regarding cultural resource protocols, and all other aspects of our developing relationship. Discussions to date have focused on access for ceremonial purposes at sites and times to be determined, the

repatriation of Native American remains, cultural and natural resource protection, public outreach, and training and educational opportunities for members of the Wampanoag Tribe. The U.S. Navy also has a government-to-government relationship with the Tribe, and will need to be included in our discussions. Our goal is to create and finalize a mutually reciprocal partnership agreement that takes into account the inherent limitations and safety concerns presented by the presence of UXO on the island while honoring our federal trust responsibilities to the Wampanoag Tribe.

Developing Refuge Step-down Plans

Service planning policy identifies 25 step-down plans that may be applicable on any given refuge. Three have been completed for the refuge complex as a whole, which includes Nomans Land Island NWR. We have identified six additional plans below as the most relevant to this planning process for the Refuge, and we have prioritized their completion. This CCP presents sections of the Refuge HMP that require public review; we will incorporate them into the final version of the HMP within three years of approval of the final CCP.

We will also develop an AHWP and IMP as the highest priority step-down plans. We describe them in more detail below. To keep them relevant we will modify and update them as we obtain new information. The completion of these plans supports all Refuge goals.

The following plans have already been completed, and apply to the entire Eastern Massachusetts NWR Complex:

- Fire Management Plan—completed in 2003
- Avian Influenza Surveillance and Contingency Plan—completed in 2007
- Hurricane Action Plan—completed in 2009

This CCP schedules the completion of these step-down management plans. An updated Fire Management Plan is scheduled to be completed in 2011. Please see Appendix F for general fire program direction.

- Annual Habitat Work Plan, annually
- Safety Management Plan, which includes UXO Inspection Logs, within 1 year of CCP approval
- Habitat Management Plan, within 3 years following CCP approval
- Inventory and Monitoring Plan, within 5 years of CCP approval
- Law Enforcement Management Plan, within 5 years of CCP approval
- Cultural Resources Management Plan, within 5 years of CCP approval

Habitat Management Plan

A HMP for the Refuge is the requisite first step toward achieving the objectives of Goal 1. For example, the HMP will incorporate the habitat objectives developed herein, and will identify “what, which, how, and when” actions and strategies we will implement over the 15-year period to achieve those objectives. Specifically, the HMP will define management areas and treatment units, identify the type or method of treatment, establish the timing for management actions, and define how we will measure success over the next 15 years. In this CCP, the goals, objectives, and list of strategies in each objective identify how we intend to manage habitats on the Refuge. We base both the CCP and HMP on current resource information, published research, and our own field experiences. We will update our methods, timing, and techniques as new, credible information becomes available. To facilitate our management, we will regularly

maintain our GIS (Geographic Information System) database, documenting any major changes in vegetation or shoreline at least every five years, as staffing and funding allow.

Annual Habitat Work Plan and Inventory and Monitoring Plan

The AHWP and IMP for the Refuge are also priorities for completion upon CCP approval. These plans also are vital for implementing habitat management actions and measuring our success in meeting the objectives. Each year, we will generate an AHWP that will outline specific management activities for that year. The IMP will outline the methodology to assess whether our original assumptions and proposed management actions support our habitat and species objectives. The IMP may also be used to monitor the potential effects of global climate change on refuge habitats and wildlife populations. We will prioritize our inventory and monitoring needs in the IMP. The results of inventories and monitoring will provide us with more information on the status of our natural resources and allow us to make more informed management decisions.

Distributing Refuge Revenue Sharing Payments

As described in Chapter 3, we have provided funding in the form of shared revenues to the Town of Chilmark for Nomans Land Island since the Refuge was established. Those annual payments are calculated by formula determined by, and with funds appropriated by, Congress. We will continue those payments in accordance with the law, commensurate with changes in the appraised market value of Refuge lands, and new appropriation levels dictated by Congress.

Additional NEPA Analysis

For all major federal actions, NEPA requires the site-specific analysis and disclosure of their impacts, either in an EA or in an EIS (Environmental Impact Statement). Generally, those include the administrative actions listed in this chapter. Most of the actions proposed in the three alternatives and fully analyzed in the EA/draft CCP were described in enough detail to comply with NEPA, and would not require additional environmental analysis. Although this list is not all-inclusive, the following projects do not require additional NEPA analysis:

- development of the HMP;
- development of the IMP;
- the proposed construction of a new interpretive trail proposed at the Aquinnah Cultural Center (ACC);
- control of invasive plants;
- implementing a predator or pest management program; and,
- enhancing our off-site priority public use programs.

Refuge Goals, Objectives and Strategies

This CCP includes an array of management actions that, in our professional judgment, work best towards achieving the Refuge's purposes, the vision and goals, and would make an important contribution to conserving federal trust resources of concern in coastal southern New England. These goals, objectives and strategies most effectively address the key issues identified in Chapter 2. We believe it is reasonable, feasible, and practicable within the 15-year timeframe.

This management strategy emphasizes managing habitats for priority focal species as necessary; otherwise natural processes will be the primary mechanism at work on Refuge habitats. Shrubland and vegetated

dune habitat in particular will be prioritized for management activities that would maintain or increase suitability for migrating landbirds and breeding shorebirds and waterbirds. In addition, we will evaluate the possibility of introducing New England cottontail to the Refuge's shrubland habitat. Nomans Land Island NWR will remain closed to public access, and off-site visitor services will be expanded compared to current levels as staffing and funding allow.

Additionally, Nomans Land Island WSA will be recommended suitable for designation and inclusion in the NWPS. Since Congress has reserved the authority to make final decisions on wilderness designation, the wilderness recommendation is a preliminary administrative determination that will receive further review and possible modification by the Director, the Secretary of Interior, or the President.

The boundary of the Nomans Land Island Wilderness will coincide with the Refuge boundary, the normal low water mark. The information and analyses in the EA/draft CCP will be used to fulfill the additional steps required to recommend a WSA for wilderness designation. These steps include compiling a wilderness study report and a legislative EIS to accompany the wilderness recommendation.

We will also continue our adaptive management approach of modifying actions based on new information with a concerted effort to collect data upon which to make management decisions. See Chapter 3 for a description of the types of Refuge habitat.

Habitat Management and Protection

Shrubland habitat management will be limited to maintaining quality maritime shrubland for migrating landbirds as needed, relying primarily on natural processes of wind and salt spray to delay succession. Adaptive management, including Strategic Habitat Conservation, will be applied to determine if and when prescription burns would be warranted based on periodic vegetation monitoring, and provided that prescribed fire is found acceptable through a MRA under a wilderness scenario. We will also work with the MA NHESP to evaluate management needs for rare plants and other species on the Refuge; this may also affect the frequency of prescription burns, or result in habitat improvements to foster tern restoration if appropriate.

Any prescribed burns will be coordinated with the Navy's ongoing UXO cleanup and oversight. The analysis for the potential introduction and possible restoration of New England cottontail will be conducted, including via wilderness stewardship policy (610 FW 2.17). If the decision is made to release New England cottontail on the Refuge, shrubland management actions will likely be modified to meet guidelines for that species, but will not deviate from the methods approved through MRA.

Management of other habitat types on the Refuge will largely entail invasive species treatment and/or removal as needed. Possible improvements to vegetated dune habitats to benefit breeding shorebirds and waterbirds will occur when warranted, so long as the methods employed are approved through MRA.

Inventories and Monitoring

The primary focus in shrubland habitat will be vegetation monitoring to ensure habitat conditions are optimal for migrating landbirds and raptors. Invasive species monitoring will also be conducted throughout the Refuge when possible. Inventories for nesting piping plover, terns, American oystercatchers and double-crested cormorants will continue, though productivity would not be monitored for double-crested cormorants or small numbers of nesting terns. Migrating shorebird species will be noted as well. All other inventories, surveys and monitoring activities, including BBS and secretive marshbird callback surveys, will no longer occur. Biologists will continue to monitor for wildlife diseases in conjunction with other activities when possible. If New England cottontail are released on the Refuge, additional monitoring efforts will likely be enacted to determine the success of introduction as well as the vitality of the population and habitat quality.

We will continue to be cognizant of the indicators of climate change, and will continue to work towards reducing non-climate environmental stressors. The Refuge will initiate shoreline monitoring via aerial photos. We will also endeavor to address the State's climate change priorities once they are refined, and would work within the North Atlantic LCC to promote research, education, and collaboration.

Wilderness Management

We will manage the Nomans Land Island Wilderness according to the provisions of the Wilderness Act and Service Wilderness Stewardship Policy (610 FW 1-3). The wilderness area will be managed to accomplish Refuge purposes and the Refuge System mission, while also preserving wilderness character and natural values for future generations. Refuge management strategies and techniques will be chosen to comply with wilderness stewardship principles and prevent degradation of wilderness character.

Uses that are “generally prohibited” in wilderness (use of motorized vehicles, motorized equipment, and mechanical transport) will be allowed within the Nomans Land Island Wilderness for emergency purposes and when necessary to meet minimum requirements for the administration of the area as wilderness and to accomplish Refuge purposes. The island will continue to be accessible by motorboat.

All Refuge management activities and Refuge uses that require “generally prohibited uses” will be evaluated through a MRA, a decision-making process to determine if the activities are necessary and to identify measures to mitigate impacts to wilderness character. We also use the MRA to identify the minimum impact methods and tools to accomplish necessary activities safely and with a minimal amount of impairment to wilderness character.

All Refuge step-down management plans will incorporate guidance to ensure that the strategies, actions, tools, and techniques outlined in the step-down plans are consistent with wilderness management. A stand-alone Wilderness Stewardship Plan would be prepared or combined with the HMP.

Visitor Services

Off-site visitor services will increase slightly from current management. Interpretive programs and materials will incorporate information on the wilderness values of Nomans Land Island. We will propose to partner with the Aquinnah Cultural Center to establish an interpretive trail with informational signs and a spotting scope at their location on Martha's Vineyard (see Map 4-1), and associated brochures about the Refuge. We will also propose to partner with the Tribe to develop a display for their proposed kiosk at the Gay Head cliffs.

Refuge Administration

No new staff will be hired at the refuge complex specifically to work on the actions and strategies identified in this plan for Nomans Land Island NWR. Any additional work on the Refuge will be conducted by current and new staff that we believe will occur over time as the national staffing model is deployed. Some wildlife monitoring and habitat management will occur, some invasive species management will occur, coordination with the Navy on contaminants and UXO issues will continue, an off-site interpretive trail will be developed, existing access paths and the regulatory signs on the island will be maintained, and we will continue to patrol the island for trespassing. We will also explore options to keep a Service-owned boat locally or to see what other options are available to supplement transportation needs. The methods these actions employ will need to be approved for use through MRA to comply with wilderness stewardship policy. We will also maintain communication and partnerships with the Town of Chilmark and the Tribe. We will continue to work on a partnership agreement with the Wampanoag Tribe of Gay Head (Aquinnah) for access to the Refuge for ceremonial purposes and for the other purposes listed in the section of this chapter entitled “Partnership Agreement with the Wampanoag Tribe of Gay Head (Aquinnah).”

The section that follows describes in detail the goals, objectives, and strategies that we would implement in this CCP.



Goal 1. Perpetuate the biological integrity and diversity of coastal island habitats to support native wildlife and plant communities, including species of conservation concern.

Objective 1.1. Native Maritime Shrubland Habitat

Annually provide approximately 400 acres of maritime shrubland stop-over habitat with no more than 10 percent invasive species tolerated, for migrating landbirds, raptors (such as peregrine falcons), butterflies (including monarchs) and other species of high conservation concern.

Shrubland species composition should be composed of no more than 10 percent non-native species and dominated by native fruit-bearing species, including (but not limited to) species from the genera *Amelancier*, *Viburnum*, *Sambucus*, *Prunus*, *Cornus* and *Vitis*, northern bayberry, pokeweed, and other species with persistent fruit (catbrier and *Sumac* species) which will benefit fruit-eating neotropical migrant landbirds. Shrub species composition should provide abundant berries from late August through the end of October and provide a combination of fat, carbohydrate and protein sources.

Evaluate the feasibility of introducing New England cottontail on the Refuge within five years, and if determined to be feasible, introduce the species within three years of determination. If released, provide dense native shrubs and vine tangles with understory habitat density of 20,000 woody stems per acre which are at least 20 inches tall and less than 3 inches in diameter. Minimum patch size is 25 acres (but larger is better) and should be in close proximity to other large patches.

Rationale

Though there is some question as to how much of the pre-European settlement landscape was early successional habitat, there does seem to be agreement that coastal southern New England was much more prone and likely to be susceptible to disturbance, by both natural and anthropogenic processes (Cronon 1983, Covell 2006, Motzkin and Foster 2002). The paleoecological record for coastal islands including Nantucket, Martha's Vineyard, Block Island and Long Island indicate that grasslands were uncommon in these areas in the absence of natural disturbances capable of creating and maintaining them (Motzkin and Foster 2002). Unfortunately the paleoecological record is not as clear in distinguishing between shrublands, early forests and mature forests given similarities in species composition across habitat types, and in typing fossil pollen to species. However, there is indication that shrublands were more common in coastal New England, relative to the rest of New England, prior to European settlement based on a combination of paleoecological data and ethno-historical information (Motzkin and Foster 2002).

Nevertheless, it is widely agreed that during the era of farm abandonment in the late 1800's to 1900's, there was a preponderance of shrubland habitat as farm fields went fallow, which caused a boost in shrubland-dependent bird populations in the region. Since then, much of the landscape has reverted back to forests, and the suppression of natural events such as fire, floods, and beaver activity has minimized disturbances, resulting in a decreasing amount of early successional habitat in the Northeast. Many populations of bird species dependent upon this habitat are declining with them. Out of 40 shrubland-dependent bird species, 22 are experiencing population declines (Tefft 2006).

Shrub habitat comprises various shrub species or a diverse mix of young trees that provide an abundance of insect food for breeding birds that need to consume large amounts of protein for reproduction and feeding young. The structural density in this habitat provides cover from predators and shelter from harsh weather. This habitat on the Refuge is one of the primary reasons the island is a regional landbird focus area in BCR 30 (Steinkamp 2008). This designation highlights an area's importance and relative conservation value across the landscape due to its biological features and habitat characteristics preferred by priority birds.

In addition to its value to breeding birds, shrubland habitat is important because many other birds rely on it at various times during the year. Many shrub species bear fruit in the fall, which helps boost the fat

reserves for migrating or over-wintering birds. The Refuge acquisition boundary lies in an important migratory bird pathway along the Atlantic flyway. The Refuge provides an important stop-over site for many migrating bird species, including raptors. In particular, for peregrine falcons, state listed as endangered, the Refuge is the most important stopover site in Massachusetts (T. French, personal communication; see Chapter 3). Other raptor species that have been documented during migration include bald eagle, Cooper's hawk, northern harrier, sharp-shinned hawk, American kestrel and merlin.



Erin Victory/TCI

Chokeberry

Coastal states have the primary responsibility for most of the native shrubland habitat in the region (Dettmers 2003, Litvaitis 2003). Shrub-dominated communities persist the longest at high elevations and in areas exposed to marine salt spray (Latham 2003). The loss and degradation of naturally maintained shrublands has been extensive throughout the region. Although fragmented by roads and development, coastal Massachusetts, including Nomans Land Island supports persistent maritime shrublands.

Shrubland-associated birds consistently rank near the top of lists of species showing population declines. Vegetation structure, microhabitat conditions, and landscape context are the most important habitat features for these birds, rather than specific plant species (Dettmers 2003).

The Refuge's maritime shrubland is important to migrating landbirds. The use of an area as a migratory stopover depends, in part, on its quality (e.g., presence of fruiting shrubs) and its location in relation to ecological barriers (such as large bodies of water). Coastal habitats support large concentrations of migrating songbirds, particularly young of the year.

Many landbirds shift from a largely insectivorous diet during the breeding season to a diet high in fruits during migration, hence the importance of Nomans Land Island NWR's maritime shrub with its high concentration of fruit-bearing species. This diet shift is particularly well documented in thrushes, vireos, warblers, mockingbirds and their relatives (Parrish 2000). Parrish (2000) captured red-eyed vireos (*Vireo olivaceus*), a highly frugivorous migrant, over ten times more frequently in coastal maritime scrub than in old orchard habitat on Block Island. Observations of migratory landbirds feeding on fruits show that these birds can spend less time and encounter more "prey" while foraging on fruit, an important implication for a bird's energy budget (Parrish 2000).

Nomans Land Island NWR has considerable value to migrating landbirds across many taxonomic groups due to its location along the Atlantic Flyway, array of habitat types, and its abundant fruit-bearing shrubland species. It is anticipated that management of shrublands for migrating landbirds will continue to provide habitat for breeding landbirds, like gray catbirds and eastern towhees, and other species of high conservation concern dependant on maritime shrublands. This will likely include invasive species treatment, though this would be subject to MRA. Vegetation monitoring every five years will provide information on horizontal and vertical structure, stem density, and berry production to evaluate habitat quality for migrating landbird species.

Prescribed fire will still be utilized to achieve habitat objectives if approved through MRA; however, instead of burning on a set periodic schedule, we will burn only as habitat conditions warrant based on vegetation monitoring. Wind and salt spray can considerably delay succession in maritime habitats, and it is not known how long quality Refuge shrubland habitat will persist without fire management and still provide a benefit to species of concern. A similar shrubland site (containing many of the same shrub species) in Aquinnah on Martha's Vineyard has not been burned in approximately 50 years (T. Simmons, personal communication),

though this may be conditional on factors of which we are unaware. There is the potential for variation in burn frequency on the Refuge; ultimately, this determination will be based on habitat metrics. We will collaborate with the MA NHESP to evaluate the appropriateness of adjusting the prescribed fire frequency to incorporate rare plant management.

We will continue to work with Massachusetts Audubon Society to monitor and band raptors when possible. We will also seek a rapid assessment protocol to track trends for raptors and other landbirds utilizing Refuge upland habitats during migration.

We will also explore the option of releasing New England cottontail, a candidate species under consideration for federal listing under the ESA due to population declines, on the Refuge. This species is particularly suited to shrubland habitats and is geographically restricted to the northeast. New England cottontails were known to historically occur on Nantucket and Martha's Vineyard, but with the introduction of eastern cottontails in the late-1800s and early 1900s, along with other factors, are now considered extirpated from these islands. It is possible there was a historic, native population of New England cottontails on the Refuge, given the prevalence of this species on neighboring coastal islands and the historical connectivity between them and Cape Cod. Archaeological evidence from Native American middens may substantiate this, but New England cottontails were likely extirpated once sheep were introduced to the island (A. Tur, personal communication).

Current populations of New England cottontails on Cape Cod are genetically distinct from other known populations and as such should be managed as a distinct unit. These populations exist in an area with tremendous anthropogenic influences, competition from non-native eastern cottontails, mammalian predation, and loss of habitat from succession. Releasing New England cottontails to Nomans Land Island NWR would provide habitat that is free from these disturbances. While densities of New England cottontails in coastal scrub communities have not been assessed, densities of one to two cottontails per acre (target densities for the region are 1.5 cottontail per acre) is a reasonable estimate (A. Tur, personal communication). Given this, the island could support a mid-winter population of 600 rabbits, which would meet one the conservation goals for New England cottontails (Tur undated).

In the last several years, efforts throughout New England have been made to locate remnant New England cottontail populations, and to fill in knowledge gaps about their home ranges, habitat requirements, genetic diversity and population dynamics. Despite these efforts, there is still much that remains unknown about the ecology of the species that would help us better determine the suitability of Nomans Land Island NWR as a host site. This includes confirming the likelihood of their past presence on Nomans Land Island, evaluating similar introductions on coastal islands, evaluating the genetic viability of a population on the Refuge, the feasibility of New England cottontail management on the Refuge, and assessing the impact of such an introduction on other rare or sensitive species located on the Refuge. Prior to any introduction on the Refuge, these and other information gaps need to be filled in order to determine the feasibility of such an introduction. Coordination has already begun with state and federal experts to make the New England cottontail a regional priority, and Nomans Land Island NWR has been identified as a site with high potential for the reasons previously listed. Because this is a time-sensitive issue given the rate of habitat loss, a determination would need to be made as soon as possible, but not before all available information has been compiled to ensure a well-informed decision.

We will consider releasing New England cottontail on the Refuge. The Service will make every effort to compile the needed information to make a determination within five years. Part of this determination would be to attempt to validate the historical presence of this species on the island, in compliance with wilderness stewardship policy (610 FW 2.17). If releasing New England cottontail on the Refuge is determined to be feasible, then we will release New England cottontails on the Refuge within three years of determination.

Strategies

Continue to:

- Coordinate with the U.S. Navy annually to promote communication and to exchange information on their operations and management planning for the Refuge.
- Implement a biologically-based fire regime as habitat conditions warrant during the dormant season to maintain native shrub communities for migrating landbirds and New England cottontails if released on the Refuge.

Within five years of CCP approval:

- Explore the possibility of introducing New England cottontail on the Refuge, taking into account biological and ecological considerations as well as overall feasibility, in one to five years through researching the following factors:
 - Compile information on similar introductions
 - Research/verify Nomans Land Island biogeography
 - Identify the specific habitat requirements for New England cottontail
 - Obtain detailed information about vegetative structure on the Refuge
 - Evaluate the genetic viability of a limited, isolated New England cottontail population on the island
 - Identify Refuge management prescriptions and feasibility required to maintain a New England cottontail population
 - Evaluate impacts of New England cottontail introduction on other rare or sensitive Refuge species
- Initiate a concerted effort to map and control invasive species through chemical, biological, and mechanical means island-wide within one to five years.
- Work with the U.S. Navy to identify areas where additional trails can be established to support monitoring and management actions.
- Provide oversight and coordination with Navy contaminant and UXO cleanup and strive towards actions that benefit shrubland birds.

Monitoring Elements

Conduct appropriate monitoring and survey programs as funding and staffing permits to measure our success in achieving our objectives. The results may trigger adjustments to management strategies or refinement of our objectives. Examples of monitoring or surveys that we may implement include:

- To evaluate benefits for migrating landbirds and raptors, conduct surveys during peak migration to measure relative abundance and diversity every two to three years throughout the life of the CCP and band raptors as time and funding permits.

- To evaluate benefits for pollinator species, conduct surveys every 5 to 10 years to determine species presence and abundance, diversity, phenology and host plant preferences.
- To evaluate habitat quality for Refuge focal species (migrating landbirds and possibly New England cottontail), measure stem density, berry production, shrubland species composition and vertical and horizontal structure, every five years.
- To evaluate the effectiveness of prescribed burning on shrubland habitats conduct post-burn surveys (within one month of burn) to document the area burned and relative intensity of the burn. Measure species composition, vertical and horizontal structure, and berry production to evaluate if burning is producing desired habitat results every one to five years.
- To maintain desired quality and characteristics of shrublands for migrating landbirds and raptors, annually conduct scouting for invasive plant species. Occurrences or stands of more stable patches of invasive plants may be tolerated in the short term as long as their cumulative coverage is no more than 10 percent, and fundamental objectives are not compromised.
- If introduced, annually monitor status of New England cottontail through some combination of live-trapping, track surveys, and/or pellet surveys. Vegetation monitoring to evaluate habitat suitability for this species would likely include stem counts, percent cover, and possibly species composition. Potential impacts on sensitive Refuge resources identified as a result of the introduction assessment would also be monitored and documented.
- Complete an updated habitat map for the Refuge within three years.

Objective 1.2. Vegetated Dune Habitat

Annually conduct minimal management in approximately 15 acres of vegetated dune habitat consisting of American beach grass (*Amophilla* species) and other herbaceous vegetation to benefit rare plants and provide suitable nesting habitat for shorebirds (including American oystercatchers and piping plovers) and terns (including common and roseate terns). In years when piping plovers nest, maintain an average productivity of 1.5 chicks per pair according to state and federal guidelines.

Rationale

Coastal beach and dune habitat continues to be some of the most threatened habitats in the U.S. They are naturally unstable, dynamic ecosystems that are subject to erosion and accretion processes due to wind and wave action (MA DFG 2006). Many species rely upon these variable processes to provide continual habitat and food resources. These primarily include nesting and migrating bird species, mammals such as seals and voles, and a host of invertebrates. The interruption of these natural processes, through development or beach stabilization efforts, and increases in recreational use can reduce available habitat for species of conservation concern (USFWS 1996).

According to the Coastal Barriers Task Force (1992), factors including population growth in coastal areas, and increases in affluence, leisure time, motorized vehicles, accessibility and recreational diversity have led to a greater intensity in human use, development and modification of coastal resources since World War II. These uses are the greatest threats to coastal habitats because of the subsequent alterations that result (MA DFG 2006). Though these threats do not apply directly to Nomans Land Island, they do highlight the need to conserve what intact dune and beach habitats exist along the Atlantic coast. Therefore, the Service has the opportunity and responsibility to protect and maintain these important coastal dynamics to maintain coastal dunes and shoreline processes that provide habitat for declining wildlife species.

The Service has the responsibility for protecting migratory birds under international migratory bird treaties with Mexico and Canada. Providing habitats for declining coastal beach and dune-dependent species on this Refuge will counter habitat loss elsewhere along the Atlantic coastal plain region. We also

consider the needs of birds of conservation concern on a sub-regional or statewide scale, such as colonial waterbirds and shorebirds, as identified in the MA CWCS and BCR 30 Plan, and for which the Refuge appears to be able to contribute towards conservation goals.

Birds that are dependent upon coastal beach and island habitats (i.e., terns and plovers) are some of the fastest declining bird groups because of habitat loss and degradation of these key waterfront areas. Hence, several national bird conservation organizations and federal and state agencies advocate management to benefit beach nesting birds in such plans as the PIF Area 09 Plan, the BCR 30 plan, and the MA CWCS. In fact, in these plans, coastal habitats contain the most species ranked as highest or high priority species of conservation concern in the region (Steinkamp 2008). Arctic, common, and roseate terns are listed in these plans as priority species of conservation concern, are state listed, and roseate terns are federal listed as endangered. Tern populations, once considered to be vast along the coasts of northeastern United States and eastern Canada, are now crowded onto a few nesting places (Kress and Hall 2004).

Nomans Land Island has historically supported breeding colonies of arctic, common and roseate terns. Their breeding populations on the Refuge reached peak levels in the early 1970's, at 35 (arctic tern), 1200 (common tern) and 400 (roseate tern) pairs respectively, but began to dramatically decline by the mid to late 1970's.



Phyllis Cooper/USFWS

Common tern with fish

Today, of these three species, only the common tern continues to use Nomans Land Island NWR to breed, and with recent counts of 2 to 20 nests (2005 to 2008, see Chapter 3), they are in far lower numbers than in previous years. In 2001, statewide population estimates were 1,697 for roseate tern, 14,378 for common tern and 3,420 for least tern (MA DFG 2006). The decline in use by tern species on the Refuge has coincided with the appearance of breeding gulls on the island, and these gull numbers have grown over time. It is well documented that gulls are nest predators of tern and other coastal bird species, and also compete with terns and other species for nesting habitat (O'Connell and Beck 2003, Donehower et al. 2007).

Kress and Hall (2004) found that islands not meeting some or all of the following criteria are usually unsuitable for terns: 1) islands tend to be gull free; 2) have no (or few) predators; 3) are near an abundant supply of available food; and, 4) have suitable nesting habitat (vegetation and substrate) for one or more species of nesting terns. The appearance of nesting gulls (herring, great black-backed, and laughing (*Larus atricilla*) often makes an island or a portion of an island unsuitable for terns. The large gulls nest earlier, displacing terns from potentially high quality nesting sites to alternative sites. The threat of predation or presence of predators (i.e., gulls) on an island may also prevent terns from occupying that site (Kress and Hall 2004).

In recent years, gull numbers along the coast have been decreasing, and we are unsure if the number of nesting gulls in the limited sandy dune habitats has increased, decreased, or stayed stable on the Refuge. Over the last decade, less frequent fires than in the 1980's have allowed Refuge upland habitats to transition into a shrubby vegetative complex, and this may be causing more gulls to seek suitable nesting habitat along Refuge beaches.

During the 2008 tern breeding season on Monomoy National Wildlife Refuge, located off the coast of Chatham, Massachusetts, common tern and least tern colonies on South Monomoy Island were subject to disturbance and depredation from predators including gulls (Iaquinto et al. 2008). Predator control measures were implemented throughout the breeding season to improve hatching and fledging success of tern clutches. On Nomans Land Island NWR, the presence of gulls was likely a contributing factor to the decline in tern abundance. A permit for removal of nesting gulls was secured for use in 2009, but no control actions took place.

According to MANEM (2007), population objectives for roseate tern include increasing the total Mid-Atlantic/New England/Maritimes population to 6,200 to 7,600 breeders, and recommend 1.2 chicks per year per pair for sustainability. Population goals for the common tern are to increase the overall population, though a target number is not specified, and a sustainable productivity of 0.8 to 0.9 chicks per year per pair is suggested. For the least tern, it is recommended that the population be restored, or increased, to 13,600 to 16,600 breeders, and a productivity of 0.6 fledglings per year per breeding adult.

Other shorebirds periodically use the island's beach habitat for nesting. Over the last several decades, there have been occasional confirmed or suspected nesting occurrences by piping plover, spotted sandpiper and killdeer on Refuge beaches. The U.S. Shorebird Conservation Plan (Brown et al. 2001) estimates the Atlantic population of piping plover to be at approximately 2,600, with a tentative population objective of 4,000. The regional estimate for PIF Area 09 is 2,300 (Dettmers and Rosenberg 2000).

The piping plover is a federal and state-listed threatened species. Massachusetts supports the second largest population of breeding piping plovers along the Atlantic Coast. Plovers return to Massachusetts in late March or early April and begin establishing nesting territories along dunes and beach strands. Their nesting season spans from late March through the end of August. Plovers forage along the waterline, on the mudflats, and among the wrack line (MA NHESP 1990). Habitat loss from development has decimated the piping plover along the Atlantic Coast. Predation on eggs and chicks by fox, skunk, raccoon, and other predators is increasing, while OSV users and other beach goers impede foraging or accidentally crush the cryptic plover eggs or chicks. Protection of critical habitat from development and restricting recreational use in plover nesting areas is essential to maintaining healthy piping plover populations (MA NHESP 1990).

Since the piping plover was federally listed in 1986 and specific management guidelines were developed in 1993 by Massachusetts and 1994 by USFWS, both the Service and State (MA NHESP) have worked to coordinate consistent implementation and enforcement of these guidelines on all private and public coastal landowners in the state. Nesting piping plovers on Nomans Land Island NWR are not currently subjected to mammalian predators or OSV use but nearby nesting gulls and occasional trespassers could compromise nesting success. Though piping plovers have only been documented nesting on the Refuge once since 1981 (one nest in 2010), Refuge staff will continue to annually assess potential piping plover habitat refuge-wide, and when found, will monitor for breeding individuals. When piping plovers nest on the Refuge, such as in 2010, Refuge staff will attempt to monitor nests to determine reproductive success.

Historically, the American oystercatcher was believed to have been extirpated from Massachusetts but began recolonizing the state in the 1960's. It is listed in the U.S. Shorebird Conservation Plan, is a species of greatest conservation need (SGCN) in Massachusetts and is a species of highest priority conservation concern in both PIF Area 09 and BCR 30. The U.S. Shorebird Conservation Plan (Brown et al. 2001) estimates the total range-wide population for American oystercatcher to be approximately 7,500, making it very vulnerable to external factors. While more data is needed to better determine American oystercatcher population trends, regional preliminary population estimates are around 2,649 (Steinkamp 2008). In 2004,

there were 189 pairs recorded at 58 sites in Massachusetts, with the largest numbers on Nantucket, Martha's Vineyard, Monomoy National Wildlife Refuge, and Boston Harbor Island (MA DFG 2006). No population objective was provided for this species.

Clearly the Refuge beach and dune ecosystem provides vital habitat for regional and local species of conservation concern amidst a declining trend in this habitat availability throughout the Atlantic Coast. As such, it affords us the opportunity to work with other partners in the region through the North Atlantic LCC (see Chapter 3) to coordinate efforts and apply the latest science to most effectively manage coastal habitats for these species.

Our general philosophy will be to let natural processes shape Refuge habitat, and we will conduct only baseline monitoring activities. This includes annually monitoring invasive species, and monitoring for rare plants and changes to the Refuge shoreline associated with sea level rise as opportunity allows over the next 15 years. Some level of invasive species will be tolerated unless or until they posed a direct threat to dune habitat quality. If that is found to be the case, then invasive species management will be subject to MRA.

Baseline monitoring for piping plovers, nesting terns, American oystercatchers, and any other nesting shorebirds, will continue. We will monitor any piping plover nests according to federal guidelines and similarly evaluate methods for increasing reproductive success. Roseate terns are often found associated with large common tern colonies, which affords them added protection from predators. Therefore, should a common tern colony exceeding 50 pairs become established on the Refuge, we will evaluate the need to conduct predator control measures to ensure the persistence of the tern colony. We will also work with our partners (MA NHESP) to evaluate the appropriateness of tern restoration efforts. Despite a reduction in management activities to allow natural processes to shape Refuge habitat, we will make every effort to be in compliance with federal guidelines should any federal-listed species (e.g., roseate tern, piping plover) become established on the Refuge.

Strategies

Continue to:

- Evaluate the need for predator control strategies if common tern colony exceeds 50 pairs.
- Evaluate potential impact of gulls on any nesting piping plovers and destroy nesting great black-backed and herring gull nests in the immediate vicinity to reduce predation pressures if appropriate.
- Evaluate feasibility of non-lethal means to protect piping plover nests.
- When feasible, control invasive species and map new infestations.

Monitoring Elements

Conduct appropriate monitoring and survey programs as funding and staffing permits to measure our success in achieving our objectives. The results may trigger adjustments to management strategies or refinement of our objectives. Examples of monitoring or surveys that we may implement include:

- To determine presence and numbers of breeding roseate terns and common terns, conduct annual surveys during the breeding season throughout the life of the CCP.
- To determine habitat quality for priority species, visually inspect herbaceous upland vegetation every three to five years.
- To determine the number of nesting pairs of American oystercatchers, conduct annual surveys and monitor productivity incidental to other activities in both vegetated dune and cobble shoreline habitat.

- To determine presence of piping plover, annually monitor dunes for suitable piping plover nesting sites and if found, monitor for nesting pairs.
- To maintain desired quality and characteristics of vegetated dune habitat, annually conduct scouting for invasive species. Occurrences or stands of more stable patches of invasive plants may be tolerated in the short term as long as their cumulative coverage is no more than 10 percent of the vegetation dune habitat type. Control techniques will be monitored for effectiveness.
- Complete updated habitat map for the Refuge within three years.

Objective 1.3. Marine Intertidal Beach and Rocky Shore

Annually passively oversee 100 acres of marine intertidal beach and rocky shore habitat to benefit nesting waterbirds (double-crested cormorants), migrating shorebirds (e.g., semipalmated sandpiper, short-billed dowitcher and lesser yellowlegs), and marine mammals (seals).

Rationale

The intertidal beach and rocky shores of Nomans Land Island NWR provide important nesting and foraging habitat for many priority species of conservation concern, and are regionally important because of the island's land protection status. Throughout the Atlantic coast, quality beach habitat is imperiled due to increases in human uses and development (see the rationale for Objective 1.2). Even those coastal areas that are protected from human disturbance still pose a threat to nesting birds due to the increases in predators that are associated with increased human disturbance. For example, nest predators that occur regionally but that are not native to BCR 30 include red fox (*Vulpes vulpes*), coyote (*Canis latrans*), Norway rat (*Rattus norvegicus*) and Virginia opossum (*Didelphis virginiana*). Other predators that have experienced rapid population increases include Northern raccoon (*Procyon lotor*), gulls (*Larus* species), and crows (*Corvus* species) (Steinkamp 2008). Because Nomans Land Island has been closed to the public for the last sixty or so years and there are no records of mammalian mesopredators on the island, gulls are the only known taxa that adversely impact beach nesting species of priority conservation concern on the island. This is a unique occurrence in an area as heavily populated as southern New England, and highlights the responsibility of the Service to protect and maintain sensitive coastal habitat.

As a part of the Atlantic Flyway, Nomans Land Island NWR serves as an important stop-over site for many migrating birds (Clark and Niles 2000). Species including semipalmated sandpipers rely heavily upon coastal habitats throughout the northern Atlantic as they travel between winter habitat in South America and breeding habitat in the arctic (Steinkamp 2008). The wrack line hosts a number of invertebrates that are food resources for shorebirds. During the breeding season, species including double-crested cormorants nest along these beach strands. American oystercatcher, though typically associated with vegetated dune nesting habitat, are also found nesting along the cobble shoreline. Monitoring and management for oystercatchers would follow that described in Objective 1.2.

Since 1989, double-crested cormorants have nested on the Refuge. Using the highest estimates from available data, counts from 2001 through 2006 show an average of 571 double-crested cormorant nests per year on the Refuge (see Chapter 3). Once extirpated from the region, double-crested cormorants returned to Massachusetts to breed around 1937 (Wires and Cuthbert 2006) and despite some setbacks (population declines due to the effects of dichlorodiphenyltrichloroethane, or DDT), they have been slowly increasing in numbers since. Cormorants are opportunistic piscivores that feed on a diversity of prey, tending towards those species that are most abundant and most easily captured (Trapp et al. 1997). Concomitant with this increase in double-crested cormorant numbers throughout their range over the last several decades is an increasing concern over the perceived impact this species has on aquaculture and fisheries.

In 2003, the Service, in cooperation with the U.S. Department of Agriculture (USDA), released an EIS for double-crested cormorant management on aquaculture facilities and public lands and waters in certain states that allow for the take of this species under particular circumstances, and by permit (USFWS 2003b).

This EIS, however, was considered largely for the Great Lakes and other freshwater systems. Based on available literature, Trapp et al. (1997) concluded that relative to other biotic and abiotic factors, double-crested cormorants have a minor overall impact on sport fisheries, with some localized exceptions. To determine the predatory impact a cormorant population exerts on a fishery, fish mortality from cormorant predation must be compared with total annual fish mortality and other sources of mortality, including angling or commercial fishing (VanDeValk et al. 2002). This requires estimating cormorant diet composition and population size, fish population size and mortality, and sport/commercial catch. Without this information cormorant impacts on fisheries cannot be fully addressed (Diana et al. 2006). Consensus by professionals in the Northeast is that currently not enough evidence exists to verify the concerns regarding losses to fisheries due to cormorant depredation in this region. In addition, cormorants are not impacting Refuge resources, and therefore the Refuge would not initiate research.

MANEM (2007) population goals for double-crested cormorants are to maintain the population at 155,767 to 190,381 breeders, and achieve a productivity of 2.6 young per nest per year for sustainability. In recognition of the perceived conflicts this species has with other species, MANEM also recommends that monitoring be initiated to assess the nature of these conflicts on a case-by-case basis in order to determine specific management needs. We would continue to inventory nesting double-crested cormorants every three years.

The intertidal beaches and rocky shores of the Refuge provide habitat for other species throughout the year as well. Harbor and gray seals are frequently found on the Refuge beaches in the fall and winter, and a leatherback turtle scapula was found on the gravel spit in 1989. The shoreline also provides us with important information about species we normally don't have the occasion to monitor or see. The remains of dolphins and seabirds have been found on several occasions along the shoreline, and particularly with seabirds, give us an indication of mortality events that may be widespread. We will report sightings when possible to SEANet, a regional program to systematically monitor beached birds and track spatial and temporal trends.

We will continue to contribute to landscape scale monitoring efforts (e.g, International Shorebird Survey (ISS)) by conducting baseline monitoring activities. In the event that there is a higher conservation need for shorebird management on the Refuge, the Service will consider allocating additional staff time and funding and reevaluate its monitoring program and incorporate habitat management techniques as appropriate and as approved through MRA.

Based on the results of SLAMM analysis, we know that this habitat is subject to loss under sea level rise scenarios over the next century. Given that these are long-term scenarios, immediate action is not warranted; therefore within the context of this CCP over the next 15 years, we would continue to reduce non-climate environmental stressors. We will also monitor and evaluate shoreline conditions relative to climate change and sea level rise using aerial photos, cooperate with the State on their climate change priorities once refined, and utilize the North Atlantic LCC to facilitate climate change research, education, and collaboration.

Strategies

Continue to:

- Coordinate with partners to respond to emergency bird mortality and marine mammal stranding events.

Monitoring Elements

Conduct appropriate monitoring and survey programs as funding and staffing permits to measure our success in achieving our objectives. The results may trigger adjustments to management strategies or refinement of our objectives. Examples of monitoring or surveys that we may implement include:

- Conduct surveys of double-crested cormorant nesting colony to determine number of nesting pairs every three to five years throughout the life of the CCP.
- Conduct annual migratory shorebird surveys in conjunction with other tasks (as time and funding allows) for ISS reporting.
- Record observations of seal occurrences on the Refuge annually and coordinate with the New England Aquarium to respond to seal entanglements, and report seabird die-off events to SEANet.
- Monitor the intertidal zone and shoreline erosion rate through aerial photos of critical habitats for nesting and migrating shorebirds. Monitor for shoreline changes resulting from rising sea level or other factors associated with climate change.
- To maintain desired quality and characteristics of intertidal beaches and rocky shores, conduct scouting for invasive species within one to five years of CCP completion. Occurrences or stands of more stable patches of invasive plants may be tolerated in the short term as long as their cumulative coverage is no more than 10 percent of the intertidal beach/rocky shore habitat type. Control techniques will be monitored for effectiveness.
- Complete updated habitat map for the Refuge within three years.

Objective 1.4. Scrub Shrub and Emergent Wetlands, Bogs, and Open Water

Annually minimally manage approximately 100 to 150 acres of freshwater wetland communities to support breeding marshbirds (including but not limited to Virginia rail) and native plant and animal communities.

Rationale

A number of different wetland types exist on the Refuge. They range from ponds to permanently flooded marshes to seasonally flooded marshes. These habitats support a small black-crowned night-heron rookery, and waterfowl such as American black ducks, mallards, and American green-winged teal. Mammals including muskrat, reptiles such as spotted turtles, waterbirds including Virginia rails, and passerines including song sparrows and red-winged blackbirds use these Refuge wetlands as well. Other species that may use these habitats on the Refuge are northern pintail, blue-winged teal, northern shoveler, glossy ibis, and least bittern. What remains unknown, however, is the fish and invertebrate composition of these waters, as there has been very little UXO clearance in any of the island's ponds or wetlands. Because of this, access for more comprehensive surveys is limited around these wetlands. Many of the species listed above have been identified as species of conservation concern, or have warranted concern due to regional population declines.

Treatment of invasive Phragmites (common reed; *Phragmites australis*) and purple loosestrife will continue as needed, and surveys for rare plants will occur as opportunity and staff availability arise. All other species will be documented as encountered, and no other habitat management will be conducted. Any habitat management actions will be subject to MRA.

Strategies

Continue to:

- Control purple loosestrife and Phragmites through biological, chemical, and/or mechanical means as needed, and as time and funding permits and map new infestations.
- Work through existing partnerships to meet objectives.



Erin Victory/TCI

Refuge wetlands

Monitoring Elements

Conduct appropriate monitoring and survey programs as funding and staffing permits to measure our success in achieving our objectives. The results may trigger adjustments to management strategies or refinement of our objectives. Examples of monitoring or surveys that we may implement include:

- Continue monitoring invasive plants, particularly Phragmites and purple loosestrife, to prevent unacceptable levels of loss of habitat quality. If the patch sizes of Phragmites attain a solid stand (regardless of size) that reasonably can be sprayed or, it threatens a rare community, initiate appropriate control measures to decrease Phragmites to a tolerable level. We may leave untreated any patches that are static or inaccessible by any currently available means until we determine a feasible solution or efficacious method. Control techniques will be monitored for effectiveness.
- Complete updated habitat map for the Refuge within three years.

Goal 2. Promote awareness and stewardship of our coastal natural resources by working with our partners to provide off-site interpretation, education and outreach opportunities.

Objective 2.1. Environmental Education and Interpretation

Over the next 15 years update existing interpretive materials, develop Refuge brochures and pursue a partnership to develop an interpretive trail and associated viewing area at the Aquinnah Cultural Center.

Rationale

Environmental education is a curriculum-based process designed to develop a citizenry that has the awareness, concern, knowledge, attitudes, skills, motivations, and commitment to work toward solutions of current environmental problems and the prevention of new ones. The National Association of Interpreters defines “interpretation” as a communication process that forges emotional and intellectual connections between the interests of the audience and the inherent meanings in the resource. Both are included in the six wildlife-dependent public use priorities within the Refuge System, according to the Refuge Improvement Act of 1997.

Per the General Guidelines for Wildlife-Dependent Recreation, Fish and Wildlife Service Manual, 605FW 1, we will provide a quality off-site wildlife-dependent recreation program to the extent possible, given staffing and funding limitations and the ban on public access on the Refuge. The characteristics of a quality program are listed in this chapter in the “General Refuge Management” section.

As we have described, the presence of UXO throughout the Refuge and the terms of the original transfer agreement with the U.S. Navy present a unique case where we cannot allow any of the six priority uses on the Refuge itself, including environmental education and interpretation. Any environmental education or interpretation programs for Nomans Land Island NWR will take place off-site on Martha's Vineyard.

The lack of additional staffing limits our ability to increase our environmental education and interpretation capabilities from what they are under current management. However, we recognize that the existing level provided is insufficient; therefore we will endeavor to address this by updating existing information, developing a Refuge brochure, and with the permission of the Aquinnah Cultural Center, we will coordinate with them to develop an interpretive trail with informational panels and a spotting scope. In addition, we will endeavor to add a display to the Tribe's interactive kiosk proposed for the Gay Head Cliffs.



Karen Terwilliger/TCI

ACC entrance sign, Aquinnah, MA

Strategies

Within five years of CCP approval:

- Update existing materials and create Refuge brochure.
- Maintain virtual tour on website.
- Collaborate with ACC and Town of Aquinnah to install interpretive trail and panels on Land Bank property and at ACC Historical Museum.
- Explore opportunities to install interpretative panels on Moshup Beach in Aquinnah.

Within 10 years of CCP approval:

- Collaborate with Wampanoag Tribe to place materials at kiosk and install virtual tour on e-kiosk at Gay Head.
- Coordinate with Town of Chilmark and Marthas Vineyard Cultural Council to provide and distribute Refuge information throughout the town and Island-wide.

Monitoring Elements

- Number of partner projects planned.

- Maintain and update website.

Objective 2.2. Community Partnerships and Outreach

Establish and encourage reciprocal partnerships with Tribal, regional, and local organizations and agencies to ensure that citizens of and visitors to Martha's Vineyard are aware of the biological resources that exist on Nomans Land Island, the Service presence there, and the connection of Nomans Land Island NWR to the Refuge System.

Rationale

Given our current limitations in staff and funding, it is of utmost importance for us to reach out and collaborate with the Tribe and our other conservation partners in the region, including the Town of Chilmark, and Massachusetts Audubon Society among others. It is through these partners that we will strive to develop an effective outreach program targeted at local communities and residents who may be unaware that a national wildlife refuge is nearby.



Erin Victory/TCI

USFWS and MA DFG meet on the Refuge

We will emphasize collaboration with the Tribe and our other partners on Martha's Vineyard to reach a broader audience for raising awareness of the Refuge. We will continue to keep residents of Martha's Vineyard informed of Refuge activities and any initiatives by keeping the Refuge website updated and by submitting press releases as necessary. We will also continue to further strengthen partnerships within the region, and coordinate with these partners to accomplish biological, cultural, off-site visitor use and additional land protection objectives. These partnerships may provide additional resources (e.g., funding, staff, infrastructure, programming, land protection) that will increase our capacity for visitor services and allow for more environmental education and interpretation opportunities on Martha's Vineyard.

Strategies

Continue to:

- Maintain website; issue news releases as needed.
- Participate in one local special event every five years on Martha's Vineyard.
- When funding allows, hire a local resident as a summer visitor services intern to conduct outreach and interpretive programming.

Within 5 years of CCP approval:

- Provide resource information to Town of Chilmark for first and second grade classrooms in conjunction with existing school programs.

Monitoring Elements

- Number of media articles about the Refuge.
- Maintain website.

Goal 3. Recognize the archaeological and cultural importance of the island.

Objective 3.1. Archaeological and Cultural Resources

Follow Service protocol to document and prevent the loss of archaeological and cultural resources on Nomans Land Island NWR when possible over the next 15 years.

Develop a partnership agreement with the Wampanoag Tribe of Gay Head (Aquinnah) that would incorporate limited access for cultural and ceremonial use of the Refuge.

Rationale

Archaeological evidence from Nomans Land Island indicates that it was occupied during the Late Archaic-Early Woodland Periods (5,000 to 2,700 YBP; Jacobson 2000). A collection at the Andover Peabody Museum holds a number of projectile points representative of these time periods, and unambiguously demonstrates the presence of a community on the island, undoubtedly the ancestors of the Wampanoag Tribe of Gay Head (Aquinnah). In addition to this site, there are several other known archaeological sites on the Refuge. The MHC (also SHPO) has five prehistoric sites on record, and one historical ruin. The Service has included the Luce cemetery in its site inventory.

We will note any evidence of new sites or artifacts as encountered during site visits and will notify the proper agencies. We will coordinate with the Tribe and our other partners, the Town of Chilmark, U.S. Coast Guard, U.S. Navy, and MA state law enforcement to establish a protocol for the preservation of archaeological and cultural resources as they are discovered, and will ensure that Navy operations are in compliance with the National Historic Preservation Act. We will continue to develop a partnership agreement with the Wampanoag Tribe of Gay Head (Aquinnah) that provides limited access for cultural and ceremonial purposes.

Strategies

Continue to:

- Coordinate with the Navy to ensure compliance with National Historic Preservation Act coordination as necessary.
- Record cultural and archaeological items and/or sites as encountered annually and contact the appropriate agencies and organizations.
- Collaborate with the Wampanoag Tribe of Gay Head (Aquinnah) to develop a mutually beneficial partnership agreement incorporating cultural and ceremonial use of the Refuge by the Tribe.

Within 10 years of CCP approval:

- Develop a protocol for when archaeological and/or cultural items are found within 10 years.

Within 15 years of CCP approval:

- Conduct a cultural resources overview within the next 15 years.

Monitoring Elements

- Number of archaeological sites protected

Objective 3.2. Burial Site Protection

Maintain the Luce cemetery as staff availability and opportunity allows over the next 15 years. Continue to pursue the possible repatriation of Wampanoag tribal remains on the Refuge and coordinate with the Tribe regarding existing burial sites, if found, through the development of a partnership agreement between the Tribe and the Service.

Rationale

The Luce cemetery is located on the eastern side of the island and has one visible headstone dated from the 1800's. It is believed to contain the remains of Eben, Thomas and Celia Luce, and perhaps bodies of those cast ashore during storms, and other residents of the Nomans Land Island communities (Wood 1978). This cemetery has cultural importance to communities on Martha's Vineyard. Refuge staff will be primarily responsible for maintaining the cemetery while on the Refuge when possible, as staff visits will be generally infrequent, and visits to the Refuge will have a specific itinerary.

It is also likely that there are remains of ancestral Tribe members on the Refuge. While no known sites exist, any remains will be protected if discovered in the conduct of Refuge operations in compliance with NAGPRA and other federal mandates. We will continue to work with the Tribe towards a partnership agreement, including repatriation and the protection of potential future discoveries of burial sites on the Refuge. Any ground disturbance activities will require UXO Tech Support, and would therefore need to be coordinated with the Navy.

Strategies

Continue to:

- Maintain the Luce cemetery by Service staff as opportunity allows.
- Meet with representatives of the Wampanoag Tribe of Gay Head (Aquinnah) to continue to develop a mutually beneficial partnership agreement incorporating repatriation of Wampanoag Tribal remains, and the protection of potential Tribal burial sites on the Refuge.

Within five years of CCP approval:

- Work with the Chilmark Historical Society and other partners to evaluate the threat of erosion to the cemetery and determine the best strategy to protect it within one to three years.

Monitoring Elements

- Protection of Luce cemetery site.

Objective 3.3. Cultural Interpretation

Within the next 15 years, work with partners to provide at least one activity, display or set of materials that interprets the cultural and archaeological resources of the island.

Rationale

Nomans Land Island has a culturally rich history, as described in Chapter 3. Prior to European settlement, Nomans Land Island was used by the ancestors of the Wampanoag Tribe of Gay Head (Aquinnah), at least as early as the Late Archaic-Early Woodland Periods (5,000 to 2,700 YBP; Jacobson 2000). Not much is known about the history of Nomans Land Island between the Early Woodland Period and 1602, the year Bartholomew Gosnold “discovered” the island for Europeans. The island had a number of different ownerships by Wampanoags and Europeans until finally being annexed to the Town of Chilmark in 1714.

European Americans farmed and lived on the island prior to its use as a bombing range by the U.S. Navy. The island was inhabited until 1939 when the last people left and it was leased to the Navy shortly thereafter. Today, what remains of the human history on the island are pre-Contact archaeological sites, the Luce cemetery, stone walls, and cellar holes and other structural remnants from the nineteenth and early twentieth century farms, and remnants of military structures and UXO. Given the human history of the island, and its cultural ties to Martha’s Vineyard communities and the Tribe, the historical and cultural value of Nomans Land Island remains high.

We will endeavor to work with the Tribe and our other partners to provide some level of Refuge cultural resource interpretation to Martha’s Vineyard, despite no change in staffing from present. We will also work with the Chilmark Historical Commission to make available the results of any research conducted on those residents interred in the Luce cemetery.

Strategies

Continue to:

- Work with partners to interpret known cultural and archaeological resources associated with Nomans Land Island as opportunity allows, including maintenance of the virtual tour on the website.

Monitoring Elements

- Number of partner projects planned.
- Number of accessioned museum property collections.

Goal 4. Protect, maintain, enhance, and preserve the wilderness character of Nomans Land Island NWR.

Objective 4.1. Protect and Maintain Wilderness Values

Upon CCP approval, continue to maintain the wilderness character (e.g., naturalness, solitude, supplemental values) of Nomans Land Island. Achievement of this objective will be evaluated by assessing loss or degradation of values that qualified it for potential designation (see Appendix C) over the next 15 years.

Rationale

Nomans Land Island NWR is located in the Atlantic Ocean three miles south of Martha’s Vineyard. The Refuge has been and will remain closed to public access. Human visitors to the island are limited to Refuge and Navy personnel and authorized researchers or volunteers. In 1996, the Navy ceased using the area for military purposes and transferred management responsibility of the island to the Service in 1998. The island has been and will continue to be managed as a wild, natural area. Nomans Land Island generally appears to have been affected primarily by the forces of nature, with the imprint of human uses and activities substantially unnoticeable. Natural processes will continue to be the primary force at work in the island’s habitats.

Pending and after wilderness designation, Nomans Land Island NWR will be managed to accomplish Refuge purposes and the Refuge System mission, while also preserving wilderness character and natural values for future generations. Refuge management strategies and techniques will be chosen to comply with wilderness stewardship principles and prevent degradation of wilderness character. Refuge management activities and Refuge uses will be conducted in such a manner as not to detract from the wilderness values identified in the Wilderness Review (Appendix C).

Strategies

Continue to:

- Evaluate Refuge management activities and Refuge uses through an MRA and use the minimum tool necessary to manage Refuge resources.
- Manage Nomans Land Island as wilderness.
- Monitor values of wilderness character including qualities of “untrammelled,” “naturalness,” “undeveloped,” and “solitude or primitive and unconfined recreation.”
- Provide off-site interpretation opportunities to inform the public about Refuge wilderness values.

Monitoring Elements

- Number of interpretive projects planned regarding wilderness.