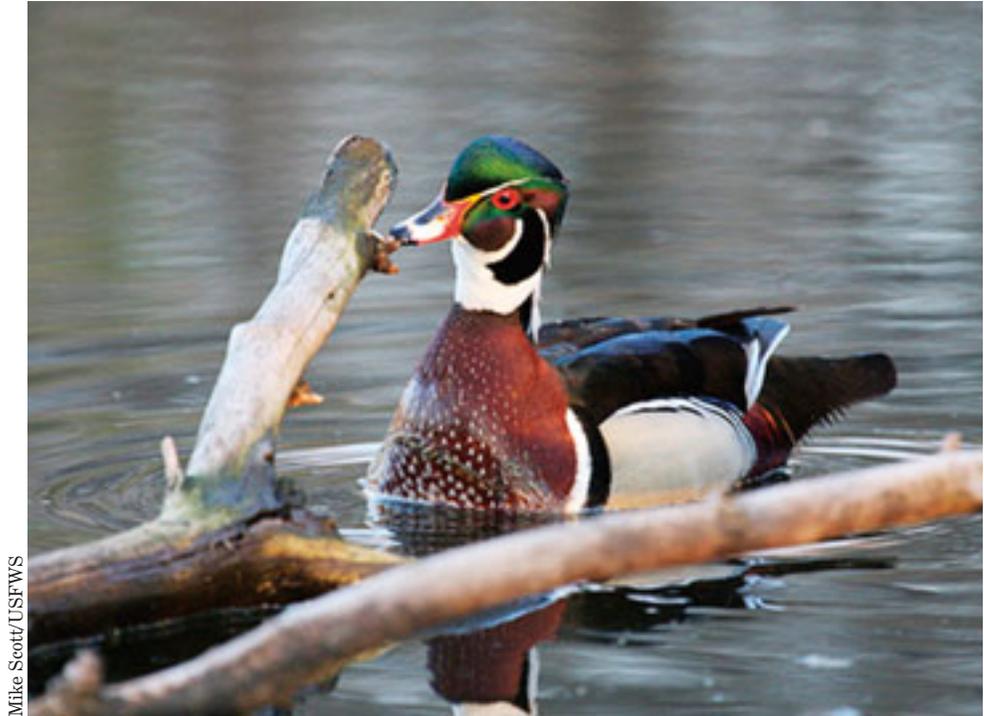


Appendix L



Mike Scott/USFWS

Wood duck

Finding of No Significant Impact (FONSI)

Finding of No Significant Impact (FONSI) Great Bay National Wildlife Refuge Comprehensive Conservation Plan

In February 2012, the U.S. Fish and Wildlife Service (Service, we, our) published the draft Comprehensive Conservation Plan and Environmental Assessment (CCP/EA) for Great Bay National Wildlife Refuge (Great Bay Refuge, the refuge). Great Bay Refuge was established in 1992 when lands from the former Pease Air Force Base were transferred to the Service. The 1,103-acre refuge is located in the town of Newington, New Hampshire. The refuge's forested, wetland, shrubland, and grassland habitats support a wide diversity of waterfowl and waterbirds, shorebirds, landbirds, and other native wildlife species of conservation concern. Great Bay Refuge also includes the Karner blue butterfly conservation easement in the city of Concord, New Hampshire. The 29-acre conservation easement is part of a fragmented, but important, complex of remnant pine barrens that supports rare moths and butterflies and is managed specifically for the federally endangered Karner blue butterfly. Great Bay Refuge and the Karner blue butterfly conservation easement are administered by Parker River Refuge located in Newburyport, Massachusetts.

Chapter 1 of the draft CCP/EA identifies the purpose of, and need for, a CCP and summarizes the laws, policies, and other mandates we follow in developing the plan. It describes international, national, and regional conservation plans that were used as references, and defines our project analysis area. Chapter 1 also presents the refuge's purposes, and describes the vision and goals we set for the refuge over the next 15 years. Finally, chapter 1 describes the planning process, including public and partner involvement, and the issues and concerns that are addressed in the plan. Chapter 2 describes the current physical, biological, and socioeconomic environments of the refuge, as well as its surroundings. Chapter 3 describes three proposed management alternatives for the refuge. The alternatives include a detailed description of their respective objectives and strategies designed to help achieve refuge purposes, vision, and goals, and contribute to the mission of the National Wildlife Refuge System (Refuge System). We identified alternative B as the Service-preferred alternative. Chapter 4 carefully considers and evaluates each alternative's direct, indirect, and cumulative impacts on the environment. Chapter 5 includes a listing of who we consulted and coordinated with during development of the plan, and includes a list of document preparers.

The draft plan's 10 appendixes provide additional information supporting the assessment and specific proposals in the Service-preferred alternative. A brief overview of each alternative follows.

Management Alternatives

Alternative A (Current Management): Alternative A satisfies the National Environmental Policy Act of 1969 (NEPA) requirement of a "no action" alternative, which we define as "continuing current management." It describes our existing management priorities and activities for Great Bay Refuge and Karner blue butterfly conservation easement, and serves as a baseline for comparing and contrasting alternatives B and C.

Alternative B (Habitat Diversity and Focal Species Emphasis): Alternative B is the Service-preferred alternative. It combines the actions we believe would best achieve the refuge's purposes, vision, and goals, and respond to public issues. Under alternative B, we would emphasize the management of specific refuge habitats to support focal species whose habitat needs also benefit other species of conservation concern that are found in the Great Bay region. In particular, we would focus on providing habitat for priority migratory birds, such as waterfowl, waterbirds, shorebirds, and forest-interior landbirds; for rare and declining species, such as the New England cottontail and tree bats; and for estuarine and aquatic species of concern, including shellfish and migratory fish. We propose removing the Lower Peverly Pond Dam to restore stream habitat to benefit migratory fish, while maintaining the dams at Upper Peverly Pond and Stubbs Pond to benefit a range of fish and wildlife. We would expand our conservation, research, and management partnerships to help restore and conserve the Great Bay Estuary ecosystem. This alternative would enhance our visitor services programs by improving the main access to the refuge, creating new interpretive materials, expanding our existing volunteer program, and offering visitors more opportunities to learn about the refuge and the surrounding landscape. On the Karner blue butterfly conservation easement, we would continue to maintain habitat to support recovery of this species. We would enhance interpretive opportunities by installing new interpretive signs, offering guided interpretive walks, and enhancing our Web-based information.

Alternative C (Emphasis on Natural Processes): Alternative C would rely primarily on ecosystem processes and natural disturbances to restore the biological integrity, diversity, and ecological health of Great Bay Refuge. All grassland and shrubland habitat on the refuge would be allowed to naturally transition to forest. All three refuge impoundments would be removed, restoring Peverly Brook to stream habitat and returning Stubbs Pond to salt marsh to the extent practicable. Under this alternative, we would expand the refuge visitor services program and allow public pedestrian access to areas of the refuge previously closed. For example, we would construct two new trails. Also, as sensitive shrubland and grassland habitats transition to forest, we would open those areas to public use. The management of the Karner blue butterfly conservation easement would be the same as that proposed under alternative B.

Selection of Management Alternative for the Final CCP

We distributed the draft CCP/EA for a 39-day period of public review and comment from February 10, 2012, to March 19, 2012. We received 25 written responses representing individuals, organizations, and Federal, State, and local agencies. Appendix K in the final CCP includes a summary of those comments and our responses to them. After reviewing the proposed management actions, and considering all public comments and our responses to them, I have determined that the analysis in the EA is sufficient to support my findings. I am selecting alternative B, as presented in the draft CCP/EA, with the following modifications listed below, to implement as the final CCP:

- We added a strategy under objective 2.3 that states: “Within 5 years, evaluate wildlife use and response in the 41 acres of grassland and shrubland we are allowing to naturally transition to forest. If these areas are providing regionally important habitat to shrubland-dependent species of conservation concern, evaluate whether the resources are available to actively manage these areas as shrubland, and adjust management accordingly, rather than allowing them to continue to transition to forest.”
- We added a strategy under objective 1.3 that states: “Within 3 years of CCP approval, work with partners to detect and remove “hot spots” of DDT contamination in Upper Peverly Pond, if determined feasible, and contingent upon funding and staffing.”
- We edited an existing strategy on evaluating the Stubbs Pond fish ladder under objective 1.3 to say: “If this evaluation recommends that the fish ladder be updated or repaired, we will implement those recommendations within 3 years of the review, or as soon as funding allows.”
- We revised an existing strategy under objective 2.2 to state: “Inventory, map, and assess the quality of forested and scrub-shrub wetlands, including vernal pool habitat, rare plants, and rare natural communities. Identify actions that will sustain or enhance these areas, including treating invasive plants, as warranted.”
- We also corrected all formatting and typographical errors that were brought to our attention.

I concur that alternative B, with the above changes, and in comparison to the other alternatives, will best:

- Fulfill the mission of the Refuge System.
- Achieve the refuge’s purposes, visions, and goals.
- Maintain and, where appropriate, restore the refuge’s ecological integrity.
- Address the major issues identified during the planning process.
- Ensure consistency with the principles of sound fish and wildlife management.

Specifically, in comparison to the other two alternatives, alternative B provides the best balance in sustaining or improving the biological integrity, diversity, and environmental health of the refuge. Compared to alternative C, alternative B would provide a wider diversity of habitat types, since it maintains some grassland, shrubland, and freshwater impoundments. Because alternative B has a greater level of habitat diversity than alternative C, alternative B supports a wider range of species of conservation concern, including the State-listed upland sandpiper, the Federal candidate New England cottontail, and wintering migrating waterfowl. In comparison to alternative A, alternative B would increase the biological integrity of the refuge by reducing habitat fragmentation by consolidating grassland and shrubland fields into larger, more effective blocks of habitat, and by removing Lower Peverly Pond Dam and restoring approximately 1,100 feet to native stream habitat.

Alternative B also offers the best opportunity to enhance and expand recreational opportunities, while still maintaining a diversity of habitats and protecting sensitive wildlife areas from disturbance. Compared to alternative A, alternative B would expand the refuge's visitor services program by improving and adding trails, adding interpretive panels, and offering guided interpretive walks. An expanded hunt program would also be evaluated, including opportunities for a turkey hunt and fall bow season for deer. Although alternative C would open a larger portion of the refuge to public access than alternative B, the quality of wildlife observation and photography opportunities would likely be impacted. Under alternative C, the refuge would primarily become forest which would affect mid- and long-range viewing opportunities, in comparison to the longer views afforded by the mix of grassland and shrubland habitats under alternative B.

Finally, the plans to increase staffing and develop a new visitor contact station/refuge headquarters under alternative B are reasonable, practicable, would result in the most efficient management of the refuge, and would best serve the American public by providing quality interpretive and outreach opportunities.

This Finding of No Significant Impact includes the EA and its analysis by reference. I have reviewed the predicted beneficial and adverse impacts associated with alternative B that are presented in chapter 4 of the draft CCP/EA, and compared them to the other alternatives. I specifically reviewed the context and intensity of those predicted impacts over the short and long term, and considered cumulative effects. Socioeconomic, natural resources, cultural resources, and visitor impacts would generally be positive or result in negligible adverse impacts over the long term. My review of each of the NEPA factors to consider in assessing whether there will be significant environmental effects is summarized here (40 C.F.R. 1508.27).

Beneficial and adverse effects—We expect the management actions in the final CCP to provide far more substantial benefits to the natural and human environment than it will cause adverse effects. Important benefits include the following:

- Improved biological integrity, diversity, and environmental health from controlling invasive species and consolidating forested, grassland, and shrubland habitat into larger, contiguous blocks reducing edge effect and fragmentation.
- Protection of regionally important habitats, including estuarine habitats, rocky shoreline, salt marsh, and Stubbs Pond, the largest freshwater impoundment in the region.
- Conservation of rare, threatened, and endangered species including the federally endangered Karner blue butterfly and the Federal candidate New England cottontail.
- Removal of Lower Peverly Pond Dam and restoration of 1,100 feet of stream habitat to benefit migratory fish and restore this reach of stream to more natural hydrology.
- Expanded, high-quality public use opportunities.

We anticipate minor adverse effects from habitat management activities, maintenance of buildings and public use facilities, demolishing and removing old building and facilities that are no longer in use, and from visitors engaged in wildlife-dependent recreation. Most of these effects would be incremental in their impacts, as they do not represent any major changes to current management. We also anticipate negligible, short-term impacts from construction of a new, energy-efficient visitor contact station/refuge headquarters building. In order to reduce the likelihood of causing adverse impacts we would:

- Allow only compatible and appropriate public uses and limit visitors to designated areas and trails.
- Use energy-efficient practices and vehicles, whenever possible.
- Use best management practices for habitat management and the construction and maintenance of facilities.

Given these considerations, there should be no significant impacts on the natural and human environment from the implementation of the CCP.

Public health and safety—We expect the refuge’s good safety record to continue under the final CCP. Public health and safety is a paramount consideration in designing and implementing all activities on the refuge, whether those activities support habitat or visitor services programs. Adherence to spill prevention plans, pesticide use plans, best management practices, and the protective actions provided in the stipulations of the compatibility determinations for authorized public uses on the refuge, will be a priority. Given these considerations, there should be no significant impact on public health and safety from the implementation of the CCP.

Unique characteristics of the area—We expect the unique and regionally significant character of the refuge and conservation easement to be maintained under implementation of the final CCP. These unique characteristics include the following:

- The 1,103-acre refuge is the largest parcel of protected land on Great Bay Estuary.
- The 44-acre Stubbs Pond is regionally unique because it is one of the largest freshwater impoundments in the Great Bay area, supports the greatest diversity of waterfowl found in coastal New Hampshire, and supports wild rice, a rare and important source of food and cover for wildlife.
- The refuge supports numerous rare, threatened, and endangered fish, wildlife, and plant species, as well as five exemplary natural communities.

We expect the management actions outlined in the CCP would continue to protect these unique characteristics. These actions include the following:

- Maintaining and managing Stubbs Pond impoundment.
- Managing forested, grassland, and shrubland habitats to benefit species of concern.
- Prohibiting public access to sensitive estuarine, grassland, and shrubland habitats.
- Evaluating land protection focus areas.

Given these considerations, there should be no significant impact on the unique characteristics of the area due to implementation of the CCP.

Highly controversial effects—We do not predict that any highly controversial effects would occur from implementing the final CCP. We have extensive experience protecting rare, threatened, and endangered species; conducting forest, shrubland, and grassland habitat management; managing freshwater impoundments, controlling invasive plants and pests, controlling deer populations through hunting, and other activities to support wildlife-dependent recreational uses. The effects of these actions are widely known from our past management and monitoring. There is no scientific controversy over what these effects will be. Given these considerations, there is little risk of any unexpected, highly controversial effects on the quality of the human environment.

Highly uncertain effects or unknown risks—We do not predict any highly uncertain effects or unknown risks with implementing the final CCP. The management actions in the final CCP are mostly refinements of existing management that we have used since the refuge and conservation easement were established. However, there is the potential for some small amount of uncertainty with the following two management actions: 1) removing Lower Peverly Pond Dam and restoring approximately 1,100 feet to native stream habitat, and 2) starting a captive rearing program for New England cottontail. In addition, there is some uncertainty with regard to how climate change will impact refuge resources.

The possible uncertain effects or unknown risks from removing Lower Peverly Pond Dam may include the following:

- Lower Peverly Pond Dam has been in place for several decades. During this time, the hydrology of the area has been highly altered and sediments have collected in the impoundment. Removing the dam will release some of these sediments and will change the hydrology of the area. Our objective is to restore it back to native stream habitat, but we cannot predict how quickly and effectively this will occur.

- The existing Lower Peverly Pond impoundment may contain aquatic invasive species and contaminated sediments that are not known at this time. Removing the dam prior to addressing these issues may result in the spread of invasive species and contamination downstream.
- We have not yet finalized our design for removing the dam and restoring the area to native stream habitat. Our objective is to work with experts within and outside the Service to evaluate the characteristics of the stream habitat (e.g., stream substrate, water depth, and water speed), and develop a design to benefit our focal species and habitats. However, at this time, there is still some level of uncertainty with regards to how effective it will be.

We feel that the benefits of removing Lower Peverly Pond Dam and restoring the area to stream habitat far outweigh the potentially uncertain impacts and risks. Lower Peverly Pond Dam is currently in poor condition and continues to deteriorate. Without intervention, the dam will eventually fail. By working with experts to carefully design the dam removal and subsequent habitat restoration, we would have greater control over the type of habitat that is created, the species that benefit, and the new stream's hydrology. We would mitigate against the potential for uncertain effects and risks by controlling invasive species, and assessing and removing sediment contamination, prior to removing the dam. We would also assess the current habitat condition of the impoundment and then monitor the change in vegetation after dam removal.

The possible uncertain effects or unknown risks from starting a captive rearing program for New England cottontail may include the following:

- There are currently no New England cottontail rabbits on the refuge, and therefore, we would be introducing an extirpated species to the refuge.
- We cannot be certain that the program will be successful, as captive rearing of this species is a relatively new program.

We feel the potential of this project to benefit the New England cottontail, which is a Federal candidate species, far outweighs the small potential for uncertain impacts or unknown risks. We will try to mitigate for these potential effects and risks by consulting and working with experts in New England cottontail captive rearing, following agreed upon protocols established by those experts for introducing the rabbits into fenced-in outdoor pens, and continually monitoring the program to see if it is successful and should continue.

There are many predictions of climate change impacts, but all have a degree of uncertainty. Generally, on a broad scale, it is predicted that the greatest effects of climate change will be on regional air and water temperatures, precipitation patterns, storm intensity, and sea levels, although the degree to which those changes will occur varies among climate change models. Those broad scale changes are anticipated to influence natural disturbances patterns and result in a decrease in freeze periods, decreased snow cover, increased storm intensities and frequencies, increased intensity and frequency of summer droughts, damaging ozone, and an increase in the spread of invasive species and disease. The resulting effects on wildlife and habitats are expected to be variable and species-specific. There are no site-specific models for the refuge.

We feel the final CCP adheres to the main guiding principal of the Service's climate change adaptation planning which is to establish baseline conditions and monitor changes to those conditions, through the inventory and monitoring strategies we have identified, and by maintaining or increasing the resiliency of the refuge's habitats and ecological processes through forest, aquatic, and shoreline restoration activities. We are also safeguarding against the uncertainty and unpredictability of future climate change effects by using an adaptive management approach.

Despite the potential for some small amount of uncertainty from these the two management actions and climate change impacts, we do not find a high degree of uncertainty or unknown risk that the final CCP will cause any significant direct, indirect, or cumulative impact on the environment. This conclusion is based on available data about the impacts of our current management actions, and our use of education, monitoring, expert consultations, outreach, and enforcement to help identify and address any unplanned effects.

Precedent for future actions with significant effects—We developed actions and strategies to support the purpose of the CCP, which is to develop a strategic management plan to best meet the refuge’s purposes and goals, and the Refuge System mission for up to 15 years. The effects of management are designed as gradual improvements over the existing conditions, not global or expansive changes. For example, strategies, such as controlling invasive plants and working with others to improve water quality in Great Bay Estuary, and removing one of three dams on Peverly Brook, provide small incremental gains with impacts that may take several years to realize any benefits. Given these considerations, we do not expect the actions in the final CCP to set a precedent for future actions that may cause any significant impact on the environment.

Cumulatively significant impacts—We do not predict that any cumulatively significant impacts would result from implementing the final CCP based on our NEPA analysis that accompanies the draft CCP/EA. However, since the CCP provides 15-year strategic direction for the refuge, there are actions that provide some cumulative benefits to the Great Bay Estuary region when considered along with other past, present, or reasonably foreseeable future actions on or in the vicinity of the refuge. For example, we plan to continue to coordinate with surrounding land managers to promote common goals, such as improving water quality in Great Bay Estuary, providing wildlife-dependent recreational uses, and conducting research. Our participation in established partnerships, such as Piscataqua Region Estuaries Partnership, Great Bay National Estuarine Research Reserve, and Great Bay Resource Protection Partnership, will also promote long-term protection of Great Bay resources. Given these considerations, we do not foresee any of these coordinated activities rising to the level of a significant cumulative effect on the environment.

Effects on scientific, cultural, or historical resources—We have developed actions that would improve our knowledge and understanding of the refuge’s resources through scientific investigations, as well as benefit the refuge’s archaeological, historical, and cultural resources. Goal 3 in the final CCP specifically identifies research partnerships to maintain or initiate. Goals 1 and 2 also list strategies for conducting compatible research, and inventory and monitoring projects in support of refuge goals and objectives. With regards to cultural and historic resources, we submitted our plan for review by the New Hampshire State Historic Preservation Officer who concurred that alternative B complies with section 106 of the National Historic Preservation Act. We would continue to consult with the Service’s regional archaeologist and the New Hampshire State Historic Preservation Officer to ensure compliance with Federal and State cultural resource laws as we implement ground disturbing activities. Although there would be some risk that visitors could damage or disturb cultural resources on the refuge and easement, these risks would be reduced by limiting public access to designated trails and areas only. We would couple that protection with increased outreach, education, and interpretation of those resources and the importance of conserving them. Given these considerations, we do not anticipate any significant effects on scientific, cultural, or historical resources.

Effects on Endangered Species Act (ESA)-listed species and habitats—We have completed a consultation with the Service’s Ecological Services Field Office under section 7 of the ESA. Their endangered species specialists have concurred that the actions planned in the final CCP are not likely to adversely affect any ESA-listed species. The only federally threatened or endangered species that occurs on the refuge is the Karner blue butterfly, which only occurs on the Karner blue butterfly conservation easement.

No other federally listed species currently occurs on either the conservation easement or Great Bay Refuge. However, several candidate species occur, or may occur in the future, on the refuge and another listed species occurs near the refuge. River herring (alewife and blueback herring), a Federal candidate species, currently occurs on the refuge and in Great Bay Estuary. We are also evaluating starting a captive rearing program for New England cottontail, a Federal candidate species, on the refuge. Finally, the federally threatened Atlantic sturgeon occurs in Great Bay Estuary, but off of the refuge.

We have designed our management activities to benefit and reduce the potential to adversely impact to all of these species. For example, we would enhance our partnership with New Hampshire Fish and Game to actively manage for Karner blue butterflies on the conservation easement. Also, we will expand the amount of shrubland habitat at Great Bay Refuge to benefit New England cottontail and support a captive rearing program for the species. Additionally, we will maintain Stubbs Pond and restore 1,100-foot stretch of native stream habitat for migratory fish, including alewife and blueback herring. Finally, we would work with partners to increase water quality in Great Bay Estuary to benefit numerous estuarine species, including the Atlantic sturgeon. Given these considerations, we do not anticipate any significant effects on these ESA-listed resources.

Threat of violating any environmental law—Our habitat management actions are designed to benefit the environment. They will comply with all applicable laws, such as the Clean Water Act, the Clean Air Act, Coastal Zone Management Act, ESA, and the National Historic Preservation Act. We have specifically consulted with the State's Historic Preservation Office and Coastal Program Office to obtain concurrence that our actions are consistent with the National Historic Preservation Act and Coastal Zone Management Act, respectively. We have obtained concurrence on ESA compliance through our New England Field Office. Our existing and proposed public hunting opportunities will be consistent with State regulations. Given these considerations, we do not anticipate a threat that the CCP will violate any environmental law or cause any significant impact on the environment.

Based on this review, I find that implementing alternative B will not have a significant impact on the quality of the human environment in accordance with Section 102(2)(c) of NEPA. Therefore, I have concluded that this Finding of No Significant Impact is appropriate and an Environmental Impact Statement is not required.

ACTING



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Hadley, Massachusetts

29 Aug 2012

Date