

## Draft Summary Comparison of Management Actions by Alternative

The table below includes multiple potential actions under three alternatives and the no action alternative. These actions were identified during the alternatives workshop process. For the purposes of this initial matrix some actions relating to a specific topic (e.g. grasslands, forest, etc.) will be repeated across more than one alternative.

### Draft Refuge Goals

**Goal 1:** Provide high quality diverse freshwater emergent wetlands with naturally varying hydric regimes, including wet meadows, freshwater emergent marsh, and open water wetland habitats dominated by native plants for migratory birds, endangered and threatened species, and priority conservation species.

**Goal 2:** Create and maintain an interspersed of scrub-shrub, grassland and successional wet meadows comprised of native vegetation at various successional stages to enhance breeding and foraging habitat for priority species on conservation concern.

**Goal 3:** Maintain a mosaic of wetland and upland forest, consisting of native understory species of varying densities and structure, to maximize the potential utilization by priority resources of concern.

**Goal 4:** Provide opportunities for visitors of all ages and abilities to enjoy wildlife-dependent recreation, appreciate the cultural and natural resources of Great Swamp National Wildlife Refuge, and increase their understanding and support of the refuge's mission.

**Goal 5:** Collaborate with the local communities and partners to complement biological and visitor services programs on the refuge and in the surrounding landscape.

### Common to All Alternatives:

- Using an adaptive management approach, including strategic habitat conservation, where appropriate;
- Controlling pest plants and animals;
- Monitoring and abatement of diseases affecting wildlife health;
- Facilitating or conducting biological research and investigations;
- Addressing climate change;
- Issuing special use permits;
- Protecting cultural resources;
- Developing an off-site interpretation program;
- Completing findings of appropriate use and compatibility determinations;
- Providing Refuge staffing and administration; and
- Completing Refuge step-down plans.
- Continuing the shotgun and muzzle-loader deer hunting season.
- Continue operation and maintenance of contaminated sites, and provide environmental interpretation opportunities.

Last Revised 1/27/2012

**DRAFT ALTERNATIVES MATRIX**

Alternative A: <i>Current Management</i>	Alternative B: <i>Enhance Biological Diversity and Public Use Opportunities</i>	Alternative C: <i>Emphasis on Maximizing Natural Vegetation</i>	Alternative D: <i>Emphasis on Expanding Priority Public Uses</i>
<p><b>Goal 1:</b> Provide high quality diverse freshwater emergent wetlands with naturally varying hydric regimes, including wet meadows, freshwater emergent marsh, and open water wetland habitats dominated by native plants for migratory birds, endangered and threatened species, and priority conservation species.</p>			
<p><b><i>Non-Forested Wetlands and Open Water</i></b></p>			
<p>Maintain approximately 1,000-1,050 acres of high quality non-forested wetland habitat. Emergent wetlands consist of wet meadows, freshwater emergent marsh, and open water wetland habitats.</p> <p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ Continue to conduct invasive species management (i.e., beetles for purple loosestrife, herbicide treatment for <i>phragmites</i>, etc.).</li> <li>▪ Continue to perform some restoration and maintenance of bog turtle and wood turtle habitats.</li> <li>▪ Continue to allow the release of raptors, waterfowl and other species (from Raptor Trust) at refuge.</li> </ul>	<p>Maintain 1,000-1,050 acres of emergent wetlands, as described in Alternative A. In addition to Alternative A:</p> <p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ Increase management and/or restoration of open, spring-fed wetlands for the purpose of benefiting the Federally-threatened bog turtle; continue or increase monitoring of bog turtle.</li> <li>▪ Where feasible, suppress woody plant succession to maintain emergent areas and/or reclaim forest for emergent habitat to improve habitat diversity and wildlife visibility.</li> <li>▪ Reintroduce bog turtle hatchlings at historic sites to increase population on refuge.</li> </ul>	<p>Same as Alternative B.</p>	<p>Same as Alternative B.</p>
<p><b><i>Impoundments</i></b></p>			
<p>Maintain 5 impoundments, encompassing approximately 485 acres for the benefit of wildlife, particularly waterfowl.</p> <p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ Continue to conduct draw-downs as necessary to mimic natural drought cycle.</li> <li>▪ Continue to manage as natural</li> </ul>	<p>Evaluate the ecological costs and benefits of maintaining, expanding, or allowing succession of the five refuge impoundments.</p> <p>In addition to Alternative A:</p> <p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ Within 5 years, evaluate contribution</li> </ul>	<p>Reduce open water habitat to 350 acres of high quality, open water habitat to provide resting, staging and foraging habitat for migrating waterfowl.</p> <p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ Perform draw-down to allow succession (consider existing open water habitat in surrounding areas).</li> </ul>	<p>Increase open water habitat within existing impoundments to provide resting, staging, and foraging habitat for migrating waterfowl and to provide additional public viewing opportunities.</p> <p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ Increase open water habitat, to promote waterfowl use and viewing.</li> </ul>

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<p>marsh habitat with similar vegetation and characteristics as marsh habitat in northern New Jersey (minimal manipulation).</p> <ul style="list-style-type: none"> <li>Continue to conduct repair and/or maintenance of water control structures as needed.</li> </ul>	<p>of impoundments to waterfowl (i.e., benefits, maintenance, seasonal use, and food availability).</p> <ul style="list-style-type: none"> <li>Based upon findings, develop and implement management strategies (maintain, enhance or allow to succeed).</li> <li>Consider controlling or discouraging use by Canada geese (resident); perform quantitative monitoring.</li> </ul>	<ul style="list-style-type: none"> <li>Remove water control structures from Pools 3A&amp;B.</li> </ul>	<ul style="list-style-type: none"> <li>Expand public access to currently closed open water sites.</li> </ul>
<p><b>Goal 2:</b> Create and maintain an interspersed of scrub-shrub, grassland, and successional wet meadows comprised of native vegetation at various successional stages to enhance breeding and foraging habitat for priority species on conservation concern.</p>			
<p><b>Scrub Shrub</b></p>			
<p>Maintain approximately 315 acres of actively managed scrub-shrub habitat for the benefit of wildlife, especially American woodcock.</p> <p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>Perform rotational mowing/cutting on two to six year cycles to maintain desired vegetative structure and prevent succession to forest habitat.</li> </ul>	<p>Maintain approximately 350 acres of managed scrub-shrub habitat with the attributes described in Alternative A, such that scrub-shrub habitat is consolidated into large (&gt;50 acre) patches.</p> <p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>Where appropriate, use prescribed burning to maintain desired stage of succession.</li> <li>Cut some shrub fields more frequently to regress back to grasslands, where appropriate.</li> </ul>	<p>Reduce actively managed brushland acreage to approximately 250 acres of high quality scrub-shrub habitat with characteristics similar to those described in Alternative A. These areas would be configured to maximize environmental interpretation opportunities.</p> <ul style="list-style-type: none"> <li>Continue to maintain identified scrub-shrub habitats by performing rotational mowing/cutting, as described in Alternative A.</li> </ul>	<p>Same as Alternative B.</p>
<p><b>Grasslands</b></p>			
<p>Maintain approximately 375 acres of high quality grassland habitat.</p> <p><u>Strategies</u></p> <ul style="list-style-type: none"> <li>Continue performing rotational mowing of grassland fields within the management area on one to four year basis.</li> <li>Continue to conduct invasive species management, when necessary (i.e., cut and herbicide treatment of</li> </ul>	<p>Maintain approximately 350 acres of high quality grassland habitat such that the grassland areas are consolidated in large (&gt;50 acre) patches in areas that are adjacent to existing scrub-shrub, former agricultural, or off-refuge grassland areas to reduce edge effect for the benefit of native wildlife species.</p> <p><u>Strategies</u></p> <ul style="list-style-type: none"> <li>Reconfigure vegetative communities</li> </ul>	<p>Reduce grassland acreage to approximately 175 acres of high quality grassland habitat such that the grassland areas are consolidated in large (&gt;50 acre) patches in areas that are adjacent to existing scrub-shrub, former agricultural, or off-refuge grassland areas to reduce edge effect for the benefit of native wildlife species.</p> <p><u>Strategies</u></p>	<p>Same as Alternative B, except increase signage emphasizing pollinators and grassland birds.</p>

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multiflora rose, etc.).	<p>to maximize patch size, reduce fragmentation, and optimize wildlife use and value.</p> <ul style="list-style-type: none"> <li>▪ Perform rotational mowing of grassland fields within the management area on one to four year cycle.</li> <li>▪ Use prescribed burning in addition to mowing, where possible.</li> <li>▪ Eliminate hedgerows where feasible to create larger grassland patch sizes.</li> <li>▪ Perform native wildflower plantings with a focus on increasing plant and invertebrate diversity.</li> <li>▪ Identify and maintain grassland habitats that support key priority species, such as Northern harrier, Eastern box turtle, and American woodcock.</li> <li>▪ Re-evaluate all existing artificial and roosting structures and only maintain those required to meet the biological needs of priority conservation species. Remove artificial structures for species whose populations are now stable; however, consider maintaining a select number of structures for wildlife observation, photography, and interpretative opportunities.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Perform rotational mowing of grassland fields within the management area on two to four year cycle.</li> <li>▪ Use prescribed burning in addition to mowing, where possible.</li> <li>▪ Eliminate hedgerows, where feasible, to create larger grassland patch sizes.</li> <li>▪ Identify and maintain grassland habitats that support key priority species, such as Northern harrier, Eastern box turtle, and American woodcock.</li> <li>▪ Re-evaluate all existing artificial and roosting structures and only maintain those required to meet the biological needs of priority conservation species. Remove artificial structures for species whose populations are now stable; however, consider maintaining a select number of structures for wildlife observation, photography, and interpretative opportunities.</li> </ul>	
<p><b>Goal 3:</b> Maintain a mosaic of wetland and upland forest, consisting of native understory species of varying densities and structure, to maximize the potential utilization by priority resources of concern.</p>			
<p><i>Forest</i></p>			

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<p>Maintain 6,000 - 6,500 acres (4,000 - 4,500 acres bottomland forest; 1,500 - 2,000 acres upland forest) of forest and approximately 35 acres of known woodland vernal pools.</p> <p><u>Strategies</u></p> <ul style="list-style-type: none"> <li>▪ Continue to conduct invasive species management as necessary (i.e., cutting and applying herbicide for Japanese barberry).</li> <li>▪ Continue to allow dead trees and snags to persist (i.e., no cutting or removal) for Indiana bat.</li> <li>▪ Continue selective cutting using hydro-axing or other techniques.</li> <li>▪ Continue to perform Atlantic white cedar plantings and continue to maintain existing plantings.</li> </ul>	<p>In addition to Alternative A, restore existing small, fragmented grassland and shrubland patches to contiguous forest.</p> <p><u>Strategies</u></p> <ul style="list-style-type: none"> <li>▪ Reconfigure vegetative communities to maximize patch size, reduce fragmentation, and optimize wildlife use and value.</li> </ul>	<p>In addition to Alternative A, restore an additional 500 acres of forest.</p> <p><u>Strategies</u></p> <ul style="list-style-type: none"> <li>▪ Maximize forest habitat to increase carbon sequestration and promote forest-dependent species.</li> <li>▪ Evaluate and consider reintroduction of various native forest species (ruffed grouse).</li> <li>▪ Perform native tree plantings and start active reforestation program.</li> </ul>	<p>Same as Alternative B.</p>
<p><b>Goal 4: Provide opportunities for visitors of all ages and abilities to enjoy wildlife-dependent recreation, appreciate the cultural and natural resources of Great Swamp National Wildlife Refuge, and increase their understanding and support of the refuge's mission.</b></p>			
<p><b>Hunting</b></p>			
<p>Maintain the deer population at a level that does not negatively impact wildlife habitat and the integrity of ecological communities, and provide quality, safe, compatible hunting opportunities according to state regulations and seasons through a refuge permit system.</p> <p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ Continue to host annual deer hunt consisting of one day youth and four day regular season.</li> <li>▪ Continue to coordinate with adjacent land managers, including county environmental education centers, and NJ Division of Fish &amp; Wildlife to</li> </ul>	<p>In addition to Alternative A, but perform the following additional Strategies:</p> <p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ In addition to shotgun and muzzleloader season, allow fall archery deer hunting.</li> <li>▪ Open spring turkey hunting in designated areas of the refuge.</li> <li>▪ Provide additional hunting opportunities for disabled individuals or "wounded warriors" (access, hunting blinds, etc.).</li> <li>▪ Explore additional techniques for surveying and monitoring game species populations.</li> </ul>	<p>Same as Alternative A.</p>	<p>Same as Alternative B</p>

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<p>encourage cooperative, managed deer hunts.</p> <ul style="list-style-type: none"> <li>▪ Continue to permit use of shotgun or muzzleloader.</li> <li>▪ Continue to use antlerless-deer-first or either-sex harvest strategies to regulate the harvest of fawn-bearing females to control deer numbers and protect wildlife habitat.</li> <li>▪ Continue to adjust bag limits to allow for an increase or decrease in antlerless harvest depending on the refuge deer population.</li> <li>▪ Continue to conduct deer spotlight surveys to obtain population trend data.</li> </ul>			
<b>Fishing</b>			
No fishing opportunities on the refuge.	Same as Alternative A.	Same as Alternative A.	<p>Provide limited opportunities for safe, compatible, quality fishing experiences on the refuge.</p> <p><u>Strategies</u></p> <ul style="list-style-type: none"> <li>▪ Consider providing fishing opportunities on the refuge. For example, consider expanding the existing borrow pond near headquarters for fishing opportunities.</li> </ul>
<b>Wildlife Observation, Photography and Public Access</b>			
<p>Provide high quality wildlife observation and photography opportunities by facilitating various forms of access. Allow pedestrian and some vehicle access to large portions of the refuge in ways that minimize impacts to wildlife. Access may be expanded in special circumstances, such as during National Wildlife Refuge Week or through the issuance of a</p>	<p>In addition to Alternative A, enhance or expand the variety of wildlife observation and photography opportunities, and improve quality of access while minimizing impacts to wildlife.</p> <p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ Expand auto tour route from the Great Brook Bridge to the new Visitors</li> </ul>	<p>Same as Alternative A, except:</p> <p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ Eliminate select dead-end or less used trails in the Wilderness Area.</li> </ul>	<p>Maximize wildlife observation and photography opportunities, trail usage and access to the greatest extent practicable, without resulting in significant negative impacts to wildlife, to increase visitation and appreciation of the refuge and refuge system.</p> <p><u>Strategies:</u></p>

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<p>Special Use Permits (SUP).</p> <p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ Continue to maintain 8.5 miles of trails in the Wilderness Area and four (4) parking lots at the trail heads.</li> <li>▪ Continue to provide unlimited daytime access by foot in the Wilderness Area.</li> <li>▪ Continue to maintain 1.5 miles of boardwalk and three (3) wildlife observation blinds at the Wildlife Observation Center (WOC).</li> <li>▪ Continue to provide 31 parking spots at WOC and multiple hunter-designated parking areas.</li> <li>▪ Continue to maintain auto tour route (self-guided, interpretive).</li> <li>▪ Continue to maintain Overlook and Bluebird parking lots.</li> <li>▪ Continue to permit self-guided photography.</li> <li>▪ Continue the general prohibition against public access on refuge management roads in management area.</li> <li>▪ Continue to maintain refuge gate hours [gate near Visitors Center (VC) open during VC hours; gate near headquarters open during daylight hours].</li> <li>▪ Continue to maintain refuge public use infrastructure.</li> </ul>	<p>Center (self-guided interpretive tour).</p> <ul style="list-style-type: none"> <li>▪ Where appropriate to do so, provide 2 additional pull-off or parking opportunities along the auto tour route, New Vernon Road, or Long Hill Road for additional wildlife observation and photography opportunities.</li> <li>▪ Consider constructing an observation tower for viewing and teaching opportunities of moist soil units.</li> <li>▪ Construct additional trails, including handicapped-accessible trails, at VC for viewing and educational opportunities.</li> <li>▪ Increase communication between individuals staffing the WOC and the VC during high visitation periods to minimize overcrowding and improve visitor experience.</li> <li>▪ Increase maintenance of or renovate blinds at WOC when necessary, and consider manipulating habitat around WOC blinds, to improve visitors experience and to provide additional viewing opportunities.</li> <li>▪ Open some management roads seasonally</li> <li>▪ Increase connectivity of Wilderness Area trails to provide additional opportunities to visitors.</li> <li>▪ Additional trail south of White Bridge Road.</li> <li>▪ Coordinate with partners to provide refuge visitors with additional access opportunities (i.e., closed areas, after refuge visitor hours, etc.) by taking advantage of existing programs, such as the Raptor Trust's Owl Prowls. <ul style="list-style-type: none"> <li>➤ Consider jointly sponsoring</li> </ul> </li> </ul>		<ul style="list-style-type: none"> <li>▪ Construct additional trails at VC, including handicapped-accessible trails, for viewing and educational opportunities.</li> <li>▪ Open management roads to pedestrian use</li> <li>▪ Construct observation towers to provide wildlife observation opportunities.</li> <li>▪ Develop and provide interactive Touch-Screen Maps and add locations of local partners, such as the county environmental education centers.</li> <li>▪ Construct a pond near the visitor center for additional wildlife observation and environmental education opportunities.</li> <li>▪ Evaluate need for and potential impacts of increasing parking at WOC.</li> <li>▪ Evaluate other potential improvements or expansions to WOC, including restrooms, wildlife blinds, and boardwalks.</li> <li>▪ Develop trails that connect to adjacent public lands to increase connectivity between partner management agencies</li> <li>▪ Create additional trails by using the existing impoundment dikes. <ul style="list-style-type: none"> <li>➤ If necessary, implement seasonal timing restrictions to reduce or eliminate wildlife disturbance.</li> </ul> </li> </ul>

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	events, such as the Owl Prowls, with partners.		
<b><i>Other Non-Wildlife Recreational Opportunities</i></b>			
<p>Allow select non-wildlife dependent recreational activities that have been determined appropriate and compatible. Certain non-wildlife dependent recreational activities are permitted in very specific locations to avoid impacts to wildlife, plants, and habitats.</p> <p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ Continue to permit jogging, bicycling, horseback riding and walking of leashed dogs on Pleasant Plains Road.</li> <li>▪ Continue to permit walking of leashed dogs in VC and WOC parking lots.</li> <li>▪ Continue to allow berry picking in certain areas (Special Use Permit may be required).</li> <li>▪ Continue to allow beekeeping (native species only).</li> <li>▪ Allow virtual, no-impact geo-caching to promote awareness and use of the refuge.</li> <li>▪ Continue to allow cross-country skiing in areas open to the public.</li> </ul>	Same as Alternative A.	Same as Alternative A.	<p>Maximize non-wildlife dependent recreational uses to the greatest extent practicable to increase visitation and refuge appreciation, while minimizing impacts to wildlife.</p> <p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ Consider constructing a paved bike trail along the gravel section of Pleasant Plains Road.</li> <li>▪ Evaluate canoeing and kayaking on refuge, particularly on the Passaic River and Black Brook. <ul style="list-style-type: none"> <li>➤ If necessary, implement seasonal timing restrictions to reduce or eliminate wildlife disturbance.</li> </ul> </li> </ul>
<b><i>Environmental Education</i></b>			
<p>Provide environmental education opportunities through the refuge internship program, cooperative partnerships, and by supplying educational materials to schools designed to meet state curriculum standards.</p> <p><u>Strategies:</u></p>	<p>Moderately expand standard-based education opportunities, programming and materials for all educational levels.</p> <p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ Increase visitor service staff.</li> <li>▪ Expand the Visitors Center's operational hours.</li> </ul>	Same as Alternative B.	<p>Provide the maximum feasible amount of standard-based educational opportunities through a variety of methodologies. In addition to the strategies described under Alternative B, perform the following strategies:</p> <p><u>Strategies:</u></p>

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<ul style="list-style-type: none"> <li>▪ Friends of Great Swamp continues to provide educational materials to schools ("Swamp in the Box") and host a number of teacher workshops/year.</li> <li>▪ Continue limited partnership with county environmental education centers, which previously utilized refuge for education purposes.</li> <li>▪ Continue to participate in Congressional Youth Advisory Counsel, when possible.</li> <li>▪ Continue refuge internship program providing career development opportunities for aspiring conservation professionals</li> <li>▪ When possible, continue "trading" or sharing interns with partners to provide interns with a broader educational experience and to stimulate interest and motivation.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Increase environmental education opportunities by providing up to three (3) programs per year at the refuge and additional programs off the refuge.</li> <li>▪ Expand partnerships opportunities with county environmental education centers and Raptor Trust.</li> <li>▪ Secure grants through National Fish and Wildlife Foundation and others and assist in grant writing.</li> <li>▪ Allow partner institutions to provide the majority of curricula-based classes and provide educational resources to those partners.</li> <li>▪ Reach out to community colleges, colleges, and universities to promote education on the refuge as part of their curriculum and employment experience requirements.</li> <li>▪ Increase opportunities to trade or share interns with partners to provide interns with a broader educational experience and to stimulate interest and motivation. <ul style="list-style-type: none"> <li>➢ Increase refuge summer interns to six (6) to eight (8) per year (biological, visitor services, and maintenance).</li> </ul> </li> <li>▪ Develop new multidisciplinary programs that meet state curricula standards and relate to current events and issues, such as global conservation, climate change, aquatic resources, biology, and pests and disease.</li> </ul>		<ul style="list-style-type: none"> <li>▪ Open Visitor Center 7 days a week</li> <li>▪ Increase staff involvement in Standard-based education programs.</li> <li>▪ Expand and/or improve "Swamp in the Box" Program.</li> <li>▪ Refuge staff and volunteers provide additional environmental education programs at schools.</li> <li>▪ Consider "America's Great Outdoors" (AGO) program, "No Child Left Inside" and possible environmental literacy plan to help schools meet these criteria.</li> <li>▪ Consider providing formal continuing education programs or certifications at the refuge.</li> </ul>
<p><b>Environmental Interpretation</b></p>			

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<p>Provide environmental interpretation opportunities that foster stewardship of the environment and reflect the refuge's mission, purpose, and resources of conservation concern.</p> <p><u>Strategies</u></p> <ul style="list-style-type: none"> <li>▪ Continue to maintain kiosks, interpretative displays and signs at the Visitors Center, WOC, wilderness trailheads, parking lots, and headquarters.</li> <li>▪ Continue to maintain the existing self-guided, interpretive auto tour route.</li> <li>▪ Continue to host interpretive programs at refuge and in local communities.</li> <li>▪ Continue providing environmental interpretation materials and literature at the WOC.</li> <li>▪ Continue to maintain and expand refuge information on the website, including wildlife and plant lists.</li> <li>▪ Friends of Great Swamp continues to provide the majority of environmental interpretation tours and programs.</li> <li>▪ Continue to request and consider visitor feedback to guide future environmental interpretation programs.</li> <li>▪ Utilize the Visitors Center pavilion for environmental interpretation programs.</li> </ul>	<p>Moderately expand environmental interpretation to incorporate more informal educational opportunities to reach a greater and more diverse audience.</p> <p><u>Strategies</u></p> <ul style="list-style-type: none"> <li>▪ Increase visitors service staff.</li> <li>▪ Expand the Visitors Center's operational hours.</li> <li>▪ Increase environmental interpretation opportunities by providing up to three (3) programs per year at the refuge and additional programs off the refuge.</li> <li>▪ Promote the Visitors Center to increase awareness of the Service's mission, refuge purpose, and refuge resources.</li> <li>▪ Provide and expand opportunities for wildlife connections to inspire, instill appreciation, and raise awareness (partner with Raptor Trust or others).</li> <li>▪ Reach out to broader audiences in urban areas.</li> <li>▪ Provide temporary interpretative signs to inform visitors on the purpose and benefit of management activities, such as rotational mowing and hydro-axing.</li> <li>▪ Increase and incorporate interpretative programs on climate change.</li> <li>▪ Use, promote and provide interpretive programs on green technology.</li> </ul>	<p>Same As Alternative B.</p>	<p>Expand environmental interpretation to the greatest extent practicable, including increased staff time and resources. In addition to the strategies described under Alternative B, perform the following strategies:</p> <p><u>Strategies</u></p> <ul style="list-style-type: none"> <li>▪ Promote awareness on the similarities and differences between refuges and state, county and municipal facilities.</li> <li>▪ Each year, host or attend three (3) "Career Day" at local schools to promote wildlife, conservation and natural resource jobs.</li> <li>▪ Evaluate and determine ways to reach the senior community.</li> <li>▪ Use traveling exhibits on and off the refuge.</li> </ul>

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<b>Goal 5:</b> Collaborate with the local community and partners to complement biological and visitor services programs on the refuge and surrounding landscape.			
<b>Volunteers and Partnerships</b>			
<p>Maintain relationships and cooperate with partners and volunteers.</p> <p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ Friends of Great Swamp continues to volunteer, support and promote the refuge (12,550 hours in 2011; approx. 180 active members). The “Friends” performs biological surveys, organizes events, provides interpretive programs, and provide credentials in their training program.</li> <li>▪ Continue to partner with Great Swamp Watershed Association to provide consistent watershed protection legislation in the communities surrounding the refuge.</li> <li>▪ Refuge continues to partner with Raptor Trust, Morris and Somerset County Education Centers, NJDEP, corporations, and others.</li> </ul>	<p>In addition to Alternative A:</p> <p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ Promote awareness and coordination between volunteers, organizations, and refuge and increase volunteer participation.</li> <li>▪ Partner with Morris and Somerset County tourism to promote eco-tourism.</li> <li>▪ Expand partnerships with educational institutions, such as Morris and Somerset County Colleges, Drew University, Fairleigh Dickinson Univ., College of St. Elizabeth’s, and Rutgers University, to promote formal educational uses and study of the refuge.</li> <li>▪ Partner with organizations providing primary educational (standard-based) programs.</li> <li>▪ Promote Heritage Trail, similar heritage resources and “Crossroads of the American Revolution National Heritage Area”.</li> <li>▪ Re-establish the Youth Conservation Corps summer program as a tool for outreach and recruitment of urban and minority youths.</li> <li>▪ Build stronger partnerships with private companies.</li> </ul>	<p>In addition to Alternative A:</p> <p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ Promote awareness and coordination between volunteers, organizations, and refuge, and increase volunteer participation.</li> <li>▪ Increase focus of regional partnerships (focus on forest core planning, Partners in Flight, global climate, etc.).</li> <li>▪ Reevaluate and expand, as necessary, efforts to strengthen unifying ordinances and other legislation to protect the watershed (increasing water volume and decreased quality, and reducing forest fragmentation).</li> <li>▪ Build stronger partnerships with private companies.</li> </ul>	<p>In addition to Alternative B:</p> <p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ Aggressively expand the Friends program to approximately 20,000 hours/year to facilitate increases in partnerships and programs.</li> <li>▪ Consider expanding partnerships with assisted living facilities to promote environmental education and interpretation in 55+ adults.</li> <li>▪ Increase partnerships to include organizations watershed-wide and regionally.</li> <li>▪ Partner with various interest groups, such as cultural resource groups, school biology clubs, or the private sector to promote understanding and compatible use of refuge.</li> </ul>
<b>Public Outreach</b>			
<p>Participate in events with local partners to advocate resource conservation and stewardship and to promote the mission of the Refuge System.</p> <p><u>Strategies:</u></p>	<p>Expand outreach in such a way that increases visitation and usage without negatively impacting the diversity of wildlife on the refuge.</p> <p>In addition to Alternative A:</p>	<p>Similar to Alternative B with more emphasis on forest habitats and related issues.</p> <p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ Develop programs that focus on</li> </ul>	<p>Maximize public outreach to promote refuge and refuge purposes. In addition to the strategies described under Alternatives A and B, perform the following strategies:</p>

Alternative A: <i>Current Management</i>	Alternative B: <i>Enhance Biological Diversity and Public Use Opportunities</i>	Alternative C: <i>Emphasis on Maximizing Forest Habitats</i>	Alternative D: <i>Emphasis on Expanding Priority Public Uses</i>
<ul style="list-style-type: none"> <li>▪ Continue to maintain and improve the refuge website, including E-Bird Trail Tracker.</li> <li>▪ Continue to maintain key partnerships with the Raptor Trust, Great Swamp Watershed Association, and the Somerset County and Morris County Environmental Education Centers.</li> <li>▪ Friends of Great Swamp continues to provide most outreach.</li> <li>▪ Refuge staff continues to participate in outreach on a limited basis. Refuge staff participates in several large outreach events each year.</li> <li>▪ Continue use of nest box cams at the VC for wildlife viewing to reach a broader audience.</li> </ul>	<p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ Expand the use of web cams for viewing wildlife to reach a broader audience. Make cam feeds available through refuge website.</li> <li>▪ Promote public awareness in neighboring communities and develop partnerships to reduce invasives and increase use of native species.</li> <li>▪ Develop a "virtual tour" to reach a broader audience on the internet.</li> <li>▪ Improve configuration of and information on refuge website.</li> <li>▪ Increase media and publicity by promoting the refuge in local and regional papers, such as the Chatham Patch.</li> <li>▪ Reach out to minority groups and partner with organizations in the New York metro area to raise awareness appreciation, and visitation.</li> <li>▪ Develop cell phone applications ("apps") to provide tours, maps, etc. to increase use and interest in refuge.</li> <li>▪ Develop a "Watershed Wagon" or a mobile visitor center, similar to the region's "Watershed on Wheels", to reach out to the local communities and schools.</li> <li>▪ Create educational videos to reach a broader audience on the internet ("You Tube").</li> </ul>	<p>forest fragmentation, forest dependent species, including neotropical migrants, and carbon sequestration.</p> <ul style="list-style-type: none"> <li>▪ Coordinate and cooperate with partnerships, including surrounding parks and agencies, with similar forest habitats.</li> </ul>	<p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ Increase staff involvement and presence in public outreach events.</li> <li>▪ Produce additional press releases/year.</li> <li>▪ Conduct additional TV or radio interviews/year.</li> <li>▪ Produce regular podcasts.</li> <li>▪ Increase use of social media by creating Facebook and Twitter accounts.</li> </ul>
<b><i>Climate Change</i></b>			
<p>Great Swamp NWR and the refuge System recognizes and is responding to global climate change issues. The refuge continues to incorporate the USFWS</p>	<p>Increase efforts to address global climate change through outreach, interpretation and education; refuge habitat planning and water management, partnerships;</p>	<p>Same as Alternative B, but perform the following additional Strategy:</p> <p><u>Strategies:</u></p>	<p>Increase efforts to address global climate change through research, partnerships and monitoring.</p>

Alternative A: <i>Current Management</i>	Alternative B: <i>Enhance Biological Diversity and Public Use Opportunities</i>	Alternative C: <i>Emphasis on Maximizing Forest Habitats</i>	Alternative D: <i>Emphasis on Expanding Priority Public Uses</i>
<p>Strategic Plan (finalized September 2010) as guidance for policy. Multiple initiatives are currently being considered.</p> <p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ Continue use and expansion of green technology to reduce carbon footprint and impact on natural resources (water): solar panels (proposed), rain barrels, light sensors/timers, high efficiency lighting and HVAC systems, and faucet sensors.</li> </ul>	<p>green technology, and maintenance. In addition to the strategies described under Alternative A, perform the following strategies:</p> <p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ Increase education and awareness of climate change.</li> <li>▪ Increase monitoring for species impacts, disease, and vegetation shifts.</li> <li>▪ Use adaptive management and/or mitigation, if practical and necessary.</li> <li>▪ Increase monitoring, early detection, and rapid control of invasive species that may increase as a result of climate change.</li> <li>▪ Stay informed, up to date, and educated on climate change.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Quantify carbon sequestration based on increased forest growth to offset impact of climate change.</li> </ul>	<p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ Reach out to scientists and develop climate change research partnerships for the refuge</li> <li>▪ Apply for grants to perform climate change monitoring.</li> <li>▪ Participate in Project Budburst.</li> <li>▪ Use Wilderness Area as a natural control and compare to more intensively managed areas on the refuge and beyond.</li> </ul>
<b>Wilderness Area</b>			
<p>Existing 3,660 acre Wilderness Area is managed to preserve wilderness character and provide opportunities for solitude and primitive, unconfined recreation.</p>	<p>In addition to A, propose 168 acre addition to Wilderness.</p>	<p>Same as B.</p>	<p>Same as B.</p>
<b>Nuisance Wildlife Control</b>			
<p>Maintain biological integrity, diversity, and environmental health through control of nuisance wildlife, as necessary.</p> <p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ Continue to conduct trapping and relocation of raccoons prior to annual waterfowl banding to prevent waterfowl predation.</li> <li>▪ When necessary, continue to eradicate mute swans and diseased wildlife.</li> <li>▪ When necessary, continue to collect</li> </ul>	<p>In addition to Alternative A:</p> <p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ Promote public awareness of negative impacts of nuisance wildlife.</li> </ul>	<p>In addition to Alternative A:</p> <p><u>Strategies:</u></p> <ul style="list-style-type: none"> <li>▪ Increase management of beaver and other species (such as brown-headed cowbirds) that may impact forest or forest-dependent species.</li> <li>▪ Consider use of deer exclusion devices (fencing, etc) to promote succession and forest regeneration, as well as provide opportunities to study and document browsing impacts by deer.</li> </ul>	<p>Same as Alternative B.</p>

Alternative A: <i>Current Management</i>	Alternative B: <i>Enhance Biological Diversity and Public Use Opportunities</i>	Alternative C: <i>Emphasis on Maximizing Forest Habitats</i>	Alternative D: <i>Emphasis on Expanding Priority Public Uses</i>
<p>non-native turtle species (red-eared sliders) and transfer to licensed holders.</p> <ul style="list-style-type: none"> <li>▪ When necessary, continue to capture feral cats and turn over to animal shelters.</li> <li>▪ Continue to relocate beaver from impoundments to other areas of refuge to prevent undesired flooding and associated damage.</li> <li>▪ When necessary, continue to perform control of nesting resident geese.</li> <li>▪ Continue to monitor and control unauthorized releases of wildlife on the refuge.</li> </ul>		<ul style="list-style-type: none"> <li>▪ Promote public awareness of negative impacts of nuisance wildlife.</li> </ul>	
<b>Administrative Facilities</b>			
<p>Most staff are split between the headquarters building on Pleasant Plains Road and the Dorothy C. Fenske Visitor Center.</p>	<p>Explore opportunities to expand the Visitor Center area to include offices to house all refuge staff and potential co-location of other US Fish and Wildlife Service programs.</p>	<p>Same as Alternative B.</p>	<p>Same as Alternative B</p>