



U.S. Fish & Wildlife Service

Edwin B. Forsythe National Wildlife Refuge

Multi-species Hunt Plan

January 2019



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Multi-species Hunt Plan**

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U.S. Fish and Wildlife Service

**Edwin B. Forsythe National Wildlife Refuge
800 Great Creek Road
Oceanville, NJ 08231**

Submitted By:
Project Leader

Virginia Pettig
Signature

1/29/19
Date

Concurrence:
Refuge Supervisor

Robert W. Lyle
Signature

1/29/19
Date

Approved:
Regional Chief
National Wildlife Refuge System

Steve B. Kehring
Signature

1/29/2019
Date

memorandum

EDWIN B. FORSYTHE NATIONAL WILDLIFE REFUGE
 PO BOX 72, GREAT CREEK ROAD
 OCEANVILLE, NEW JERSEY 08231

Date: 3/7/2019

To: File

From: Virginia Rettig

RE: Change to former 5-Day Shotgun Hunt

Based on information provided by the NJ Division of Fish and Wildlife (NJDFW, see below) after finalization of the January 2019 Multi-species Hunt Plan, the approved 5-day shotgun hunt in the headquarters area of the refuge must be reduced to a 3-day hunt to operate within the bounds of regulations for Deer Management Zone 42.

Based on data provided by NJDFW, reduction of the length of the hunt will meet harvest objectives. In the last 5 years, an average of 94% of the harvest was collected in the first 3 days of the 5-day hunt.

The reduction to 3 days will not reduce hunting opportunities for hunters as the refuge now offers three seasons it did not provide previously: fall bow, winter bow, and 6-day firearm. The refuge will provide 105 permits for the bow seasons and 125 permits for firearm.

Forsythe HQ (Zone 56) 3-Day Permit Shotgun Numbers

Year	Total harvest	3-Day Harvest	% Harvest***
2017	15	14	93%
2016	16	16	100%
2015	9	9	100%
2014	8	8	100%
2013	23	20	87%
5 Year Avg.	14.2	13.4	94%

*** The is the % of the total harvest using ONLY 3 out of the 5 days Prediction Analysis (94%) is that Hunters will meet harvest objectives if they are limited to the 3 day (Wed.-Fri.) Permit Shotgun Season format.

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EDWIN B. FORSYTHE NATIONAL WILDLIFE REFUGE MULTI-SPECIES HUNT PLAN

I. Introduction

Edwin B. Forsythe National Wildlife Refuge (NWR, refuge) was established by the Federal Property and Administrative Service Act of 1949 (40 U.S.C. 471-535), as amended; Fish and Wildlife Coordination Act of 1934 (16 U.S.C. 661-666c), as amended; Fish and Wildlife Act of 1956 (16 U.S.C. 742a-742j Stat. 1119), as amended; the Act of May 19, 1948, Public Law 80-537 (16 U.S.C. 667b-667d; 62 Stat. 240), as amended; and the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended.

In order to meet specific refuge and other broader U.S. Fish and Wildlife Service (Service) directives, the following purposes were established for Edwin B. Forsythe NWR:

- For lands acquired under the Migratory Bird Conservation Act of 1929 (16 U.S.C. §715-715r), as amended, "...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds..." (16 U.S.C. §715d)
- "...the development, advancement, management, conservation, and protection of fish and wildlife resources..." (16 U.S.C. §742f(a)(4), Fish and Wildlife Act of 1956)
- "...the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations (regarding migratory birds) ..." (16 U.S.C. §3901(b), 100 Stat. 3583 Emergency Wetlands Resources Act of 1986)
- "...to secure for the American people of present and future generations the benefits of an enduring resource of wilderness." (78 Stat. 890; 16 U.S.C. 1121 (note), 1131-1136, Wilderness Act of 1964, as amended)

Edwin B. Forsythe NWR is managed as part of the National Wildlife Refuge System (Refuge System), whose mission is "to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans" (Refuge System Improvement Act of 1997). The act requires that refuges restore and maintain the integrity, diversity, and environmental health necessary to achieve this mission and the purposes established for each refuge.

The refuge was created on May 22, 1984, by combining the former Brigantine and Barnegat NWRs (98 Stat. 207). The refuge was named in memory of the late conservationist Congressman from New Jersey, Edwin B. Forsythe, through a Congressional Joint Resolution (H.J. Res. 537).

Brigantine NWR was established on January 24, 1939, by the Migratory Bird Conservation Commission, under the authority of the Migratory Bird Conservation Act (16 U.S.C. section 715d). Congress designated 6,603 acres of the Brigantine NWR as the Brigantine Wilderness (Wilderness Area) on January 3, 1975 (P.L. 93-632) to be managed under the Wilderness Act (78 Stat. 890; 16 U.S.C. 1121 (note), 1131-1136).

Barnegat NWR was established on June 21, 1967, under the authority of the Migratory Bird

Conservation Act (16 U.S.C. §715d).

The Reedy Creek Unit was established in 1991 under authority of the Emergency Wetlands Resources Act of 1968 (16 U.S.C. 3901 (b). 100 Stat. 3583), as amended.

The refuge was created primarily to provide wintering habitat for American black ducks (*Anas rubripes*), Atlantic brant (*Branta bernicla*) and rails. It spans almost 50 miles of the New Jersey coastal estuaries, from the Metedeconk River in Ocean County to Reeds Bay in Atlantic County. Over 47,000 acres of coastal beach/dune, salt marsh, freshwater wetlands, wetland forest, upland forest, pitch pine barrens, early successional habitats, and managed wetland impoundments comprise the refuge. The refuge is listed as a Wetlands of International Significance under the Ramsar Convention on Wetlands. The refuge's approved acquisition boundary encompasses 60,082 acres.

There is a long tradition of migratory bird and deer hunting on lands of the southern New Jersey shore. Refuge lands were opened to deer hunting in the 1980s and migratory bird hunting in the 1960s. This plan amends hunting areas, acreages, regulations, and species available for hunting.

II. Conformance with Statutory Authorities

The Refuge Recreation Act of 1962 (16 U.S.C. 460K), as amended authorizes the Secretary of the Interior to administer refuges, hatcheries, and other conservation areas for recreational use. The Refuge Recreation Act requires: (1) that any recreational use permitted will not interfere with the primary purpose for which the area was established; and (2) that funds are available for the development, operation, and maintenance of the permitted forms of recreation.

Fundamental to the management of lands within the Refuge System is the Refuge System Improvement Act of 1997 (Improvement Act; Public Law 105-57), an amendment to the Refuge System Administration Act of 1966. The Improvement Act provided a mission for the Refuge System and clear standards for its management, use, planning, and growth. It recognized that wildlife-dependent recreational uses involving hunting, fishing, wildlife observation and photography, and environmental education and interpretation, when determined to be compatible with the mission of the Refuge System and purposes of the refuge, are legitimate and appropriate public uses. Compatible wildlife-dependent recreational uses are the priority general public uses of the Refuge System and shall receive priority consideration in planning and management. Hunting as specified in this plan is a wildlife-dependent recreational use and the law states that as such, it "shall receive priority consideration in national wildlife refuge planning and management." The Secretary of the Interior may permit hunting on a refuge if it is determined that the use is compatible and the hunting program would not materially interfere with or detract from the fulfillment of the purposes of the refuge, or the mission of the Refuge System.

Recreational hunting authorized by regulations should not interfere with the primary purpose for which Edwin B. Forsythe NWR was established. This determination is based upon the completion of a Compatibility Determination (Appendix A).

The refuge receives approximately 250,000 visitors each year. Though hunter numbers are only tracked for deer, we estimate about 2,500 hunt visits occur on the refuge each year. Deer permit fees are collected and retained by the State of New Jersey. The refuge has not historically required purchase of permits for hunting. Administration costs at the refuge include preparing about 150 hunter information packets, which are mailed to each hunter that purchases a deer hunting permit. No administration of the migratory bird hunts occurs. The primary cost to administer the program is law enforcement and other staff time, which is about \$65,000/year. All costs of the hunts are currently paid for with station funds (generally, visitor services and law enforcement funds). No refuge fees are collected for hunting.

III. Statement of Objectives

The objectives of a white-tailed deer, migratory bird (waterfowl, rails, coots and moorhens), turkey and squirrel hunting program on Edwin B. Forsythe NWR are to:

1. Provide the public with a high-quality recreational experience on refuge lands and increase opportunities and access for hunters;
2. Design a hunting program that is administratively efficient and manageable with existing staffing levels;
3. Implement a hunt program that is safe for all refuge users;
4. Provide hunting opportunities for youth and those that need assistance; and
5. Design a hunting program that is in alignment with refuge habitat management objectives.

IV. Assessment

A. Are wildlife populations present in numbers sufficient to sustain optimum population levels for priority refuge objectives other than hunting?

White-tailed Deer

Regional Analysis:

The deer population in New Jersey increased during most of the 20th century due to efforts of the New Jersey Division of Fish and Wildlife (NJDFW). Deer harvest was halted in New Jersey in the early 1900s due to unregulated harvest. The NJDFW slowly reopened a hunting season beginning in 1948 with a special archery season after the population rebounded due to an active stocking program. Today there are over 100,000 deer in New Jersey (NJDFW 2017).

Local Analysis:

Refuge staff work annually with NJDFW deer biologists to review the refuge's hunt program. We largely view management of deer on the refuge as meeting State-determined goals and objectives combined with local habitat or population concerns. There are currently four Deer Management Zones (DMZ) specific to the refuge. DMZ 58 is the northernmost zone and is located in Lacey and Barnegat Townships in Ocean County; DMZ 70 is located in Stafford and Eagleswood Townships in Ocean County, and Bass River Township in Burlington County; DMZ 57 is located entirely in Galloway Township, Atlantic County; and DMZ 56 is a zone that was created for a 5-day shotgun hunt in Galloway Township in the vicinity of the refuge Administration Building and Visitor Information Center.

Hunt harvest data since 2011 for each zone and equipment type are shown below (provided by NJDFW). An average of 60 deer per year were harvested on refuge lands. During that time, there were estimated to be about 120,000 deer State-wide (NJDFW 2017).

DEER MANAGEMENT ZONE 56

Year	Permit Bow	P. Muzzle	P. Shotgun	Total Harvest
2016	NA	NA	16	16
2015	NA	NA	9	9
2014	NA	NA	8	8
2013	NA	NA	23	23
2012	NA	NA	23	23
2011	NA	NA	28	28
Total	NA	NA	107	107
Avg.	NA	NA	17.8	17.8

DEER MANAGEMENT ZONE 57

Year	Permit Bow	P. Muzzle	P. Shotgun	Total Harvest
2016	2	1	6	9
2015	2	0	12	14
2014	6	1	20	27
2013	4	1	18	23
2012	4	3	13	20
2011	2	3	3	8
Total	20	9	72	101
Avg.	3.3	1.5	12.0	16.8

DEER MANAGEMENT ZONE 58

Year	Permit Bow	P. Muzzle	P. Shotgun	Total Harvest
2016	10	1	15	26
2015	11	0	19	30
2014	3	1	9	13
2013	5	2	8	15
2012	5	3	6	14
2011	9	3	19	31
Total	43	10	76	129
Avg.	7.2	1.7	12.7	21.5

DEER MANAGEMENT ZONE 70

Year	Permit Bow	P. Muzzle	P. Shotgun	Total Harvest
2016	2	1	1	4
2015	4	0	0	4
2014	2	0	0	2
2013	1	2	0	3
2012	2	0	0	2
2011	2	1	1	4
Total	13	4	2	19
Avg.	2.2	0.7	0.3	3.2

Migratory Birds

Regional Analysis:

Migratory birds are managed through a Continental-wide cooperative effort with multiple agencies and partners, although ultimately the Service establishes the annual framework regulations (season length, bag limits, and framework dates). Framework regulations for various species or guilds (*e.g.*, ducks) are adjusted as needed based on established harvest strategies, population assessments, habitat conditions and productivity estimates. Results of the 2017 waterfowl assessment are found in the annual report (USFWS 2017). Individual states select migratory game bird hunting seasons within the Federal framework. The refuge follows all Federal regulations for migratory birds and season dates selected by the State of New Jersey. Virginia and clapper rails (*Rallus limicola*, *R. crepitans*) are surveyed annually through the Breeding Bird Survey. Both species show a stable population trend. During 2011, the Saltmarsh Habitat-Avian Research Program (SHARP) estimated 253,000 clapper rails from Maine to Virginia (Wiest et al. 2016) with 80,000 birds estimated in New Jersey (Hodgman et al. 2015).

Local Analysis:

Migratory waterbird hunting has occurred in the local area since before the refuge's inception. It was famously known for the excellent hunting opportunities and has a long tradition in coastal New Jersey. Until 2015, mid-winter surveys were conducted annually for waterfowl and coots (*Fulica americana*). These are coarse observations to inform the Atlantic Flyway Council, but local numbers indicate most waterfowl species are generally stable. There is year-to-year variation, which is affected by multiple variables, including those outside of the local area. Coots are observed in very low numbers in the area (Pers. comm. Ted Nichols).

Clapper rails were surveyed on the refuge by University of Delaware researchers for 3 years (2012 to 2014). Depending on location, they can be very abundant (heard during every visit) or rare (never heard), varying due to habitat conditions. They are generally considered common on the refuge. Other hunted rail species (Sora [*Porzana carolina*]; Virginia rail and common gallinule (*Gallinula galeata*) are found in extremely low numbers on the refuge and are unlikely to be encountered by hunters.

Wild Turkey

Regional Analysis:

By the mid-1800s, turkeys (*Meleagris gallopavo*) disappeared in New Jersey and other northeastern states due to habitat changes and subsistence hunting. NJDFW biologists, in cooperation with the New Jersey Chapter of the National Wild Turkey Federation, reintroduced wild turkeys in 1977 with the release of 22 birds. In 1979, birds were live-trapped and re-located to establish populations throughout the State. By 1981, the population was able to support a spring hunting season, and in December 1997, a limited fall season was initiated. There is now an abundance of wild turkeys throughout the State with turkeys found wherever there is suitable habitat. In southern New Jersey, where wild turkeys were struggling, intensive restoration efforts have improved population numbers significantly. The Statewide population is now estimated at 20,000 to 23,000 turkeys with an annual harvest of approximately 3,000 birds (NJDFW 2017).

Local Analysis:

Refuge staff will work with NJDFW turkey biologists to review the refuge's hunt program. There are currently two Turkey Hunting Areas (THAs) that encompass the refuge. THA 14 is the northernmost zone and is located north of Interstate 195; THA 16 is located south of the Interstate 195. Hunters interested in turkey hunting in these areas typically apply for permits during late winter.

Gray Squirrel

Regional Analysis:

Gray squirrels (*Sciurus carolinensis*) are abundant throughout their range in the United States. Although very few states have formal squirrel population surveys, most wildlife agencies consider squirrel harvest to be underutilized when considering harvest potential. In New Jersey, squirrel harvest is tracked through biennial hunter surveys. Since 2010, about 66,000 firearm hunters harvest about 55,000 squirrels annually. The hunting season encompasses the fall and winter for about 4.5 months with a daily bag limit of 5 squirrels per day (NJDFW 2017).

Local Analysis:

Gray squirrels are abundant on areas of the refuge that are comprised of mast tree species such as oaks, hickories and walnut. Although these tree species are most often associated with upland soils, several species of oak (e.g. willow and white oak [*Quercus phellos*, *Q. alba*]), and associated squirrels, also occur in lower abundance on wetter soils more common on the refuge (NJDFW 2017).

B. Is there competition for habitat between target species and other wildlife?

There is no competition among migratory birds, deer, turkey or squirrels for habitat on the refuge. While deer, turkey and squirrels use some of the same foods, the refuge squirrel population is small due to limited, quality squirrel habitat and do not compete with other species. Turkey range very widely and will readily move to higher quality food sources, if necessary. The abundant acreage available to wildlife in general on the refuge also tends to distribute species widely.

C. Are there unacceptable levels of predation by target species on other wildlife?

No.

V. Description of Hunting Program

A. Areas of the Refuge that Support Populations of the Target Species.

The refuge is known to be used by 290 species of birds, 32 species of mammals, and 33 species of reptiles and amphibians. The refuge contains approximately 32,000 acres of saltmarsh, 8,000 acres of forested habitat, and 1,600 acres of barrier beach and dune. Deer are found on a variety of refuge habitats and hunting will be provided in forested upland and wetlands in both deciduous and coniferous forest types. It will also be permitted in upland shrub and cedar islands that dot the salt marsh landscape. Wintering waterfowl and other migratory game birds are found throughout the over 32,000 acres of tidal marshes found in the refuge. Wild turkeys are slightly more specific in their habitat needs than deer, but are also found throughout the refuge in forested areas. Squirrels are found in small pockets of preferred habitat throughout the refuge. Due to the linear configuration of the refuge along the New Jersey shore, populations to support target species occur throughout the site.

B. Areas to be Opened to Hunting

White-tailed Deer

Deer hunting areas are shown in the maps in Appendix B. The refuge will be open to 8,645 acres of hunting and divided into a North Forsythe, a South Forsythe, and an HQ hunt area. Regulations and seasons set by NJDFW in DMZs 22, 42, and 51 will be followed where the refuge overlaps each DMZ. State regulations are different for each DMZ. Hunting information sheets and maps are updated annually by refuge staff and made available to hunters on the refuge website prior to hunting season. A general refuge hunting permit is required to hunt on the refuge and can be obtained online. The refuge will work with NJDFW to determine the number of refuge permits to be issued for all hunts on the refuge, to include archery seasons, permit muzzleloader, permit shotgun, the State 6-day firearm season, and the 5-day shotgun hunt near headquarters. The number of permits issued will change as acreage open to deer hunting changes and/or as herd size changes. Deer hunting permits will be distributed through an online lottery system.

Migratory Birds

Migratory game bird hunting areas are shown in a map in Appendix B. The refuge will be open to 18,993 acres of hunting. This is 40 percent of refuge lands, as permitted by law. All hunt dates are set by the State of New Jersey within Federal guidelines. Edwin B. Forsythe NWR is located entirely within the Coastal Zone and those regulations apply to all hunt areas. In addition, refuge-specific regulations geared toward improving hunt quality are observed throughout the refuge. These include a 6-decoy minimum and prohibition of jump shooting. The intention is to have hunters hunting over decoys at all times. Numbered signs formerly posted to identify individual ponds will no longer be maintained or enforced.

About 3,193 acres of the migratory bird hunting area contains the Special Goose hunting zone encompassing the Wildlife Drive and perimeter marshes in Galloway Township. That hunt

would be opened if goose (generally snow or Canada [*Chen caerulescens*; *Branta canadensis*], including resident Canada) over-population occurs. The season would be coordinated with NJDFW.

Hunting information sheets and maps are updated annually and made available to hunters on the refuge website and at various boat launches adjacent to refuge migratory bird hunting areas. There is no limit on the number of hunters permitted on the refuge for migratory bird hunting. State and Federal stamps and licenses and participation in the Harvest Information Program are required. A refuge hunt permit is not required if hunters remain on the water. A general refuge hunt permit is required if hunters access refuge land for hunting or retrieval.

Wild Turkey

Wild turkey hunting is open on 8,187 acres—all deer hunt areas except the 5-day shotgun area for the spring male-only season only (Appendix B). Areas open to archery-only for deer are also open for archery-only during turkey season. Correspondingly, those areas open to all equipment types for deer are open for all legal equipment types for turkey season. There are no refuge-specific Turkey Hunting Areas (THA). All THA 14 and 16 regulations apply, which includes lottery-issued permits from the NJDFW. Hunting dates are set by NJDFW biologists. Hunting information sheets and maps are updated annually and made available to hunters on the refuge website. A general refuge hunting permit is required and can be obtained via an online website.

Gray Squirrel

Squirrel hunting is open on 8,187 acres—all deer hunt areas except the 5-day shotgun area for the State squirrel season (Appendix B). All equipment types and seasons permitted by State regulations are permitted on the refuge. Hunting dates are set by the State of New Jersey. Hunting information sheets and maps are updated annually and made available to hunters on the refuge website. A general refuge hunting permit is required and can be obtained via an online website. No dogs are permitted while hunting squirrels on the refuge.

C. Species to be Taken, Hunting Periods, and Hunting Access

White-tailed Deer

Deer will be taken according to State of New Jersey regulations throughout the refuge. Access is from public roads and adjoining public lands and water, where they occur. Refuge staff will work with partners to identify areas that provide access. Hunting periods on refuge lands will be the same as the coordinating DMZ 22, 42, and 51 seasons. This provides approximately 132 days of deer hunting to hunters (subject to change according to State regulations). The number of permits issued by the refuge will be coordinated each year with NJDFW deer biologists. Baiting is prohibited on national wildlife refuges.

Migratory Birds

Species taken during the migratory game bird hunting season and known to usually occur in and around the refuge include American coot, common gallinule, rails (sora, clapper, Virginia), Canada and snow goose, Atlantic brant, and over 20 duck species such as mallard (*Anas platyrhynchos*), gadwall (*Anas strepera*), northern pintail (*Anas acuta*), bufflehead (*Bucephala albeola*), and scaup (*Aythya* sp.). Access is from public roads and adjoining public lands and

water, where they occur. Former unit names have been eliminated and all refuge lands open to migratory bird hunting will have similar regulations. All refuge lands are within the New Jersey Coastal Zone. Approximately 76 days of hunting will be provided to the public under current regulations, but that may change due to Flyway Council recommendations (subject to change based on Federal and State hunting regulations). Special goose hunts in the Wildlife Drive area would increase the number of days in those years it is offered. The Refuge Manager, upon annual review, may impose restrictions if public safety or endangerment to refuge resources becomes a concern.

Wild Turkey

Wild turkey hunting will be permitted on all lands open to deer hunting except the 5-day shotgun area. The season will mirror the dates of the NJDFW spring, male-only hunt. Those refuge lands open to turkey hunting will be included in the State's Turkey Hunting Areas 14 and 16. Access is from public roads and adjoining public lands and water, where they occur. About 33 days of hunting will be provided to the public (subject to change based on New Jersey State hunting regulations).

Gray Squirrel

Squirrel hunting will be permitted on all lands open to deer hunting except in the 5-day shotgun area. The season will mirror the NJDFW squirrel season. Access is from public roads and adjoining public lands and water, where they occur. About 120 days of hunting (subject to change based on New Jersey State hunting regulations) will be provided to the public. A refuge permit must be purchased online for squirrel hunting access.

D. Justification for the Permit, if one is required

A general refuge hunting permit is required to hunt on the refuge. The permit allows access for all hunt types during a given year and is available online. When the hunter purchases the permit, they will select the types of hunts they intend to participate in to assist the refuge in assessing demand and to provide an opportunity for communication with hunters. The online system will allow hunters to print their own permits and other refuge information. Permit deer hunts will be available online via a lottery at no extra cost to hunters. The general refuge hunt permit is available for \$25, which includes a \$5 fee that is collected by the vendor administrating the permit website.

Refuge permits are also required for access to the Wildlife Drive in Galloway Township for non-hunting access. The fee is \$4/car/day (\$2/pedestrian/day), or \$12 for an annual permit. That permit allows access to the Wildlife Drive and foot trails in the area. Conversely, the annual hunt permit will allow hunters to access over 25,000 acres of refuge lands. These lands are not open to any other refuge users at any time. Each year about \$30,000 is collected from Wildlife Drive users, who primarily engage in wildlife observation and photography. While we do not know the number of refuge hunters, it is anticipated that about 300 people could seek to hunt on the refuge each year. This could result in the collection of \$7,500/year (with \$1,500 going to the vendor). When refuge's collect fees, 80 percent is returned to the refuge for on-site use; therefore, the refuge would receive \$4,800. Those hunt permit fees will be used towards funding the refuge's law enforcement position in years when the base budget does not provide enough funding to

support that position as more time will be spent conducting hunting-related law enforcement with the addition of new seasons. The funds would also be used to maintain sites managed for special hunts and mobility impaired access.

E. Consultation and Coordination with the State

Edwin B. Forsythe NWR and NJDFW staff work together to ensure safe and enjoyable recreational hunting opportunities. Hunter participation and harvest data are shared annually and law enforcement officers from both agencies work together to patrol, safeguarding hunters, visitors, and both game and nongame species. Refuge staff worked in close consultation with NJDFW staff in preparation of this plan and their comments have been incorporated into this document.

F. Law Enforcement

Enforcement of refuge violations associated with management of a national wildlife refuge is the responsibility of commissioned Federal law enforcement officers. Other fish and wildlife officers, special agents, State conservation officers, and the local Sheriff's Department occasionally assist the full-time, Federal Fish and Wildlife Officer at Edwin B. Forsythe NWR.

The following methods are used to control and enforce hunting regulations:

- Refuge boundaries are posted to greatest extent possible.
- Maps of hunt areas are provided to the public.
- Information is made available at the refuge Visitor Center, website and social media accounts.
- Edwin B. Forsythe NWR Federal Fish and Wildlife Officer and partners randomly check hunters for compliance with Federal and State Laws, as well as refuge-specific regulations pertinent to hunting.
- Edwin B. Forsythe NWR Federal Fish and Wildlife Officer coordinates with NJDFW and other law enforcement agencies.

Procedures for obtaining law enforcement assistance are based on legal jurisdiction, pending where the incident occurred. The Edwin B. Forsythe NWR Federal Fish and Wildlife Officer meets regularly with local law enforcement agencies in the three counties that contain refuge units to develop good working relationships and coordinate appropriate strategies.

G. Funding and Staffing Requirements

Annual hunt administration costs for Edwin B. Forsythe NWR, including salary, equipment, law enforcement, collection of hunt data and analysis of biological information, maintenance of sites, and communication with the public is approximately \$86,000. Refuge staff are funded from the refuge's operational budget to support the hunt program. Costs associated with updating signage and maintaining access are funded by the annual operating budget as well (visitor services and/or maintenance funds, as appropriate). Funds collected from hunters would be used to support newly established refuge hunting sites and programs for mobility-impaired hunters and provide a

funding source to work with partners on special programs. They would also be used to improve signage and communication with hunters at the most highly visited areas, as needed.

Estimated costs to implement Edwin B. Forsythe NWR hunt program include:

Item	Estimated Cost	Funding Source
Fish and Wildlife Officer (50% of the position's time)	\$34,000	Refuge base budget and hunt permit fees
Wildlife Biologist	\$11,250	Refuge base budget
Maintenance Workers	\$11,400	Refuge base budget
Refuge Managers	\$15,600	Refuge base budget
Visitor Services Manager	\$3,500	Refuge base budget
Materials for blind/stands; programming	\$5,000	Hunt and Wildlife Drive permit fees, refuge base budget
Signs	\$2,500	Hunt and Wildlife Drive permit fees, refuge base budget
Trail/parking lot maintenance	\$2,500	Hunt and Wildlife Drive permit fees, refuge base budget
Total to implement	\$85,750	

VI. Measures Taken to Avoid Conflicts with Other Management Objectives

A. Biological Conflicts

Endangered/Threatened Species

Several species listed as threatened under the Endangered Species Act are found on the refuge. An intra-Service Section 7 review was conducted (Appendix F). The most significant include piping plover (*Charadrius melodus*), swamp pink (*Helonias bullata*), and seabeach amaranth (*Amaranthus pumilus*). No piping plover or seabeach amaranth occur in hunting areas. Swamp pink is found in a few scattered locations in Atlantic white-cedar swamps in the hunting area. Depredation by white-tailed deer is a threat to the plant's survival. Hunting deer and reducing forage by deer would minimize this threat.

State-listed plants of concern occur in a few places on the refuge and potentially within some hunt areas. Most refuge hunting will occur when plants are dormant and is not expected to negatively impact them.

Other Wildlife and Plants

As analyzed in the hunt expansion Environmental Assessment (Appendix C), hunting on the refuge only has minor, short-term negative impacts; therefore, no avoidance measures are necessary. No dogs are permitted for squirrel hunting on the refuge to reduce impacts from that activity.

B. Public Use Conflicts

Minimal public use conflicts are expected to occur on the refuge during the hunting seasons. Nearly all lands open to hunting are closed to all other uses throughout the year. Most non-consumptive visitors are in the vicinity of the Wildlife Drive/Headquarters area and do not traverse hunt areas. The wooded area of the Wildlife Drive is closed during the 5-day shotgun hunt to avoid conflict and improve safety for all users. During that period, the normally one-way Wildlife Drive is changed to two-way traffic and signs are installed to inform users. The station has been successfully managing that hunt for decades. Overall, impacts to visitor services/recreation opportunities are considered short-term, minor and local. Negative interactions among hunters is possible if they compete for hunt areas. As has been the case for decades, hunters are expected to resolve those conflicts amicably and if those issues cannot be resolved safely, the refuge reserves the right to implement new regulations, close areas to hunting, or revoke current and future access to the refuge from hunters.

C. Administrative Conflicts

No administrative conflicts are known to occur with hunting activities. For many years, the refuge has planned and provided for hunting opportunities. Refuge management sets priorities, allowing staff sufficient time to administer the hunting program. The online permitting system should require little administrative time by staff. Currently, the refuge employs a full-time Federal Fish and Wildlife Officer. Additional assistance is sought from other refuges, local special agent, or State game wardens when deemed necessary.

VII. Conduct of the Hunting Program

Listed below are regulations that pertain to the refuge as of the date of this plan. These regulations may be modified as conditions change, or if refuge expansion continues/occurs.

A. Refuge-Specific Hunting Regulations

To ensure compatibility with refuge purposes and the mission of the Refuge System, hunting must be conducted in accordance with State and Federal regulations, as supplemented by refuge-specific regulations (50 CFR §32.49). Refuge-specific stipulations are also detailed in the hunting Compatibility Determination (Appendix A).

Additional information that is provided on refuge hunting information sheets includes:

- Users must obey all signs pertaining to visitation, access, and public use regulation including, not limited to those relating to hunting.
- Youth hunts for migratory birds, deer and turkey and will coincide with those dates selected by the State of New Jersey on an annual basis.
- The refuge maintains blind and stands for youth and/or mobility-impaired hunters. See the refuge staff for more information.
- Guidance on what to do if a hunter wounds a deer.
- Remove all marking tape, reflective pins at the end of each day (50 CFR §27.93).

- Paint is prohibited (50 CFR §27.51).
- Possession or use of alcoholic beverages is prohibited (50 CFR §32.2(j)).
- Searching for or removing objects of antiquity is prohibited (50 CFR § 27.62).
- Refuge hunting hours are concurrent with State legal hunting hours (varies by hunt).
- Access assistance information and parking information is provided.
- Trespass on private property is prohibited (N.J.S.A. 23:7-1).
- Safety Zone information is provided (R.S. 23:4-164).

B. Anticipated Public Reaction to the Hunting Program

Hunting has been permitted on Edwin B. Forsythe NWR for nearly 50 years and the lands comprising the refuge were known hunting grounds historically. While there are members of the public that do not support hunting on national wildlife refuges, we are supported by many people who are eager to engage in this long-standing conservation tradition. We expect extensive support for this plan. Hunting is an important economic and recreational use of New Jersey's natural resources.

C. Hunter Application and Registration Procedures

Information on all hunts is listed below and/or can be downloaded from the Edwin B. Forsythe NWR website: https://www.fws.gov/refuge/edwin_b_forsythe/.

White-tailed Deer

To receive a permit to hunt in DMZs 22, 42, and 51 hunters must access the State's electronic license system (www.NJ.WildlifeLicense.com). They create a customer profile and are issued a Conservation Identification Number (for first-time purchasers). To obtain permits for refuge hunting, hunters use a website administered by a contractor for the refuge. The hunter will receive a one-time identification number and can easily purchase the refuge hunt permit annually. No extra cost will be required for lottery hunts (archery, permit muzzleloader, permit shotgun, State 6-day firearm and the 5-day shotgun hunt near headquarters); however, hunters are required to use the refuge's website to apply for the lottery for each of those seasons. Reduced permit rates would be available for youth, veterans and seniors. Refuge parking permits, maps, and any other important information will be available online for hunters, or they can contact the refuge office for hard copies.

Migratory Birds

A refuge hunting permit is required to hunt migratory birds on the refuge. Hunters can obtain the permit online through the contractor website. The hunter will receive a one-time identification number and can easily acquire the permit.

Wild Turkey

Hunters must enter the State turkey hunt lottery to hunt in the State of New Jersey. A refuge permit is required to hunt turkey on the refuge. Hunters can obtain the permit online through the contractor website. The hunter will receive a one-time identification number and can easily acquire the permit.

Gray Squirrel

A refuge permit is required to hunt squirrels on the refuge. Hunters can obtain the permit online through the contractor website. The hunter will receive a one-time identification number and can easily acquire the permit.

D. Media Selection for Announcing and Publicizing the Hunting Program

The refuge maintains a mailing list for news release purposes of local newspapers, radio and television stations, and websites. Special announcements and articles may be released in conjunction with hunting seasons. In addition, information about the hunt will be available at refuge headquarters and on the refuge website.

E. General Requirements

General information regarding hunting and other public uses can be obtained at Edwin B. Forsythe NWR headquarters at 800 Great Creek Road, P.O. Box 72, Oceanville, NJ, 08231 or by calling 609-652-1665. Dates, forms, hunting unit directions, maps, applications, and permit requirements about the hunt are available on the station website at: https://www.fws.gov/refuge/edwin_b_forsythe/ and at the refuge Visitor Center. The New Jersey Hunting and Trapping Digest and their website contains complete information about hunting in New Jersey: <http://www.state.nj.us/dep/fgw/hunting.htm>.

VIII. Compatibility Determination

Hunting and all associated program activities proposed in this plan are found compatible with purposes of the refuge. See Appendix A.

IX. References

Hodgman, T.P., Elphick, C.S., Olsen, B.J., Shriver, W.G., Correll, M.D., Field, C., Ruskin, K., and Wiest, W.A. 2015. The Conservation of Tidal Marsh Birds: Guiding action at the intersection of our changing land and seascapes. Final Report Submitted to USFWS.

New Jersey Division of Fish and Wildlife [NJDFW]. 2017. <http://www.state.nj.us/dep/fgw/hunting.htm>. Accessed October 2017.

U.S. Fish and Wildlife Service. 2017. Waterfowl: Population Status, 2017. USFWS, Laurel, MD. 74pp.

Wiest, W.A., Correll, M.D., Olsen, B.J., Elphick, C.S., Hodgman, T.P., Curson, D.R., Shriver, W.G., 2016. Population estimates for tidal marsh birds of high conservation concern in the northeastern USA from a design-based survey. *Condor* 118, 274-288.

Appendix A

Compatibility Determination

COMPATIBILITY DETERMINATION

USE: Hunting

REFUGE NAME: Edwin B. Forsythe National Wildlife Refuge

ESTABLISHING AND ACQUISITION AUTHORITIES:

Edwin B. Forsythe National Wildlife Refuge (NWR, refuge) was created on May 22, 1984, by combining the former Brigantine and Barnegat NWRs (98 Stat. 207). Brigantine NWR was established on January 24, 1939, by the Migratory Bird Conservation Commission, under the authority of the Migratory Bird Conservation Act (16 U.S.C. section 715d) to preserve estuarine habitats important to the Atlantic Brant (*Branta bernicla*) and to provide nesting habitats for American black ducks (*Anas rubripes*) and rails. Barnegat NWR was established on June 21, 1967, under the authority of the Migratory Bird Conservation Act (16 U.S.C. section 715d) to preserve estuarine feeding and resting habitat for ducks and brant. The refuge is managed by the U.S. Fish and Wildlife Service (Service).

PURPOSE FOR WHICH ESTABLISHED:

Edwin B. Forsythe NWR was established:

For lands acquired under the Migratory Bird Conservation Act (16 U.S.C. section 715-715r) as amended, "...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds" (16 U.S.C. section 715d).

For lands acquired under the Fish and Wildlife Act of 1956 (16 U.S.C. sections 742(a)-754) as amended, "...for the development, advancement, management, conservation, and protection of fish and wildlife resources..." (16 U.S.C. section 742 (a)(4)) "...for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude..." (16 U.S.C. section 742f(b)(1)).

For lands acquired under the Emergency Wetlands Resources Act of 1986 (16 U.S.C. section 3901(b)) "...the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions..." (16 U.S.C. section 3901(b), 100 Stat. 3583).

For lands designated as parts of the National Wilderness Preservation System under P.L. 93-632, "...to secure for the American people of the present and future generations the benefits of an enduring resource of wilderness" (78 Stat. 890, 16 U.S.C. 1121 (note), 1131-1136).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.—National Wildlife Refuge System Improvement Act of 1997, as amended (Refuge Improvement Act; Public Law 105–57; 111 Stat. 1254)

DESCRIPTION OF USE:

(a) What is the use? Is the use a priority public use?

The use is public hunting of migratory game birds, white-tailed deer, wild turkey, and gray squirrel at Edwin B. Forsythe NWR. Hunting was identified as one of six priority public uses of the National Wildlife Refuge System (Refuge System) by Executive Order 12996 (March 25, 1996) and legislatively mandated by the Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the Refuge Improvement Act of 1997, when found to be compatible.

Refuge lands were opened to deer hunting in the 1980s and migratory bird hunting in the 1960s. This compatibility determination (CD) amends and updates hunting areas, acreages, regulations, and species available for hunting, including the continuation of the migratory bird hunting program; addition of lands to the existing deer hunting program; and the addition of hunting for squirrel and turkey on the refuge.

(b) Where would the use be conducted?

Hunting would occur throughout the refuge on 27,638 acres in designated hunting zones (see maps at the end of this document). Non-hunted areas include the refuge headquarters and visitor information center area, areas adjacent to or near walking trails and boardwalks, and the Nacote Creek and Stoney Hill Road office areas used by partners.

(c) When would the use be conducted?

White-tailed deer, migratory game bird, wild turkey, and gray squirrel hunting would take place within the regulatory framework established by the New Jersey Division of Fish and Wildlife (NJDFW) and Service. Specific regulations for each hunt will be published by the refuge in advance of the hunt seasons.

White-tailed Deer

Deer hunting and scouting would be permitted during the Deer Management Zone (DMZ) 22, 42, and 51 seasons September to February (scouting is permitted 2 full weeks prior to each season opening). About 8,645 acres on the refuge will be open for deer hunting. Typically, archery hunting is open from September to February. The permit shotgun season is typically a

few days in December and then most of January into February. Permit muzzleloader season is typically a few days in late November and mid-December and can go to February. The 6-day firearm hunt is usually in early December. These are general season periods and may change as the State of New Jersey regulations change. All hunting hours will follow State regulations. The refuge will support special hunts (e.g., youth) in conjunction with partners and the NJDFW. Sunday hunting on refuge lands are dictated by New Jersey State law (N.J.S.A. 23:4-24) and Game Code regulation (N.J.A.C. 7:25). As of 2018, Sunday hunting is only permitted for archery deer hunting on private lands and State Wildlife Management Areas in New Jersey.

Migratory Birds

Migratory bird game hunting would continue to occur on the refuge. About 18,993 acres of the refuge would be open to hunting. All hunt dates are set by the State of New Jersey within Federal guidelines. The season is generally throughout December and January each year. The refuge is located entirely within the Coastal Zone and those regulations apply to all hunt areas.

Wild Turkey

Turkey hunting on the refuge would occur during the State's male-only spring turkey season, which is typically open for the month of May. Turkey hunting on the refuge would occur on about 8,187 acres—all lands included in the refuge deer hunt, except the 5-day shotgun hunting area. These are general season periods and may change as the State of New Jersey regulations change. All hunting hours will follow State regulations.

Gray Squirrel

Squirrel hunting in New Jersey generally occurs October through February. The refuge would mirror annual squirrel hunting dates established by the NJDFW. These are general season periods and may change as the State of New Jersey regulations change. All hunting hours will follow State regulations. Squirrel hunting on the refuge would occur on about 8,187 acres—all deer hunting lands, except those in the 5-day shotgun hunt area.

(d) How would the use be conducted?

The refuge coordinates with NJDFW annually to maintain regulations and programs that are consistent with the State's management programs. Hunting restrictions may be imposed if hunting conflicts with other higher priority refuge programs, endangers refuge resources, or public safety.

All hunters will be required to obtain appropriate stamps, licenses and permits from State and Federal entities to hunt on refuge lands. All hunters will be required to purchase a refuge hunting permit each year. A single permit will be valid for every hunt type available within a given year. For example, a hunter may wish to hunt deer and waterfowl. Only one refuge permit is required to engage in both types of hunts. Additional (free) permits will be required for deer

hunts. For all hunts, hunting information sheets and maps are updated annually and made available to hunters on the refuge website. Migratory bird hunting information is also made available at various boat launches adjacent to refuge migratory bird hunting areas.

White-tailed Deer

The refuge will be divided into three zones: North Forsythe, South Forsythe and HQ. Refuge staff will oversee the administration of the hunt via an electronic permit system. The NJDFW deer biologists will determine the number of refuge permits sold in each refuge zone each year to ensure the herd is managed appropriately. Archery-only deer hunting will be available on 1,130 acres of the refuge while 7,057 acres will be open to all deer hunting equipment types during the appropriate seasons. A shotgun hunt will be provided in the southern part of the refuge (HQ-442 acres), as well as a special hunt area (about 15 acres). An annual refuge hunting permit is required and can be obtained via an online website. All deer hunts will be lottery hunts at no extra charge to hunters.

Migratory Birds

All hunt dates are set by the State of New Jersey within Federal guidelines. The refuge is located entirely within the Coastal Zone. State and Federal stamps and licenses and participation in the Harvest Information Program are required. A refuge hunting permit is required and can be obtained via an online website.

Wild Turkey

To engage in the spring male-only turkey lottery, hunters will enter via the NJDFW website for Turkey Hunting Areas 14 and 16, which overlap the refuge. Hunters who receive a turkey permit must then purchase a refuge hunting permit to hunt turkey on refuge lands. Turkey hunting will be permitted on lands open to deer hunting except in the HQ area.

Gray Squirrel

Squirrel hunting will be permitted on all lands open to deer hunting except in the HQ area. The season will mirror the NJDFW squirrel season. A refuge hunting permit must be purchased online for squirrel hunting access.

(e) Why is this use being proposed?

Hunting is one of the priority uses outlined in the Refuge Improvement Act. The Service supports and encourages priority uses when they are appropriate and compatible on national wildlife refuge lands. Hunting is used in some instances to manage wildlife populations. It is also a traditional form of wildlife-oriented recreation that many national wildlife refuges can accommodate.

The hunting program at the refuge has not been evaluated since the completion of the Comprehensive Conservation Plan (CCP) (USFWS 2004). Expansion of hunting opportunities and access to Edwin B. Forsythe NWR addresses interest of the public in engaging in one of the refuge’s priority public uses. It also fulfills intentions of the CCP that were never implemented (e.g., addition of turkey season, addition of small game hunting and expansion of deer hunting areas).

AVAILABILITY OF RESOURCES:

The current hunting program at the refuge requires an estimated \$65,000 to implement. With the addition of squirrel and turkey hunting, which will expand the refuge’s hunting program by about 3 months, we anticipate the cost of the program to rise to an estimated \$86,000. This also accounts for the installation of facilities to establish hunting areas for hunters with mobility concerns (e.g., new blinds and stands, some trail and parking maintenance and construction). The implementation of the refuge hunting permit system could generate about \$5,000; however, the permit is not intended to raise funds but rather is an important tool to be used to better serve the hunting community through communication and to gauge use of the refuge. It is expected that general refuge funds will continue to support the majority of the hunting program.

Estimated costs to implement Edwin B. Forsythe NWR hunt program include:

Item	Estimated Cost
Fish and Wildlife Officer	\$34,000
Wildlife Biologist	\$11,250
Maintenance Workers	\$11,400
Refuge Managers	\$15,600
Visitor Services Manager	\$3,500
Materials for blind/stands*	\$5,000
Signs*	\$2,500
Trail/parking lot maintenance	\$2,500
Total to implement	\$85,740
*Not an annual cost	

ANTICIPATED IMPACTS OF THE USE:

Deer and migratory game bird hunting have occurred on the refuge for decades with no discernible adverse impacts to resources. Hunting provides wildlife-dependent recreational opportunities and can foster a better appreciation and more complete understanding of the wildlife and habitats associated with the southern New Jersey landscape. This can translate into more widespread and stronger support for wildlife conservation, the refuge, the Refuge System, and the Service.

Vegetation

The hunting public is a small fraction (1 percent) of the visitation the refuge receives, as the refuge is mostly visited by non-consumptive users, particularly at the Wildlife Drive area in Galloway Township. Hunters traverse areas that are closed to all other users except hunters; however, the physical effects on vegetation from hunting various game species on the refuge are expected to be minimal. Hunting may result in some trampling of vegetation, but since most of the vegetation will be dormant for a majority of the hunting season, we expect the impact to be minimal. Spring turkey hunters could trample some new growth, but the season is limited by a State-wide lottery hunt; therefore, the number of hunters present on the refuge will be limited. Additionally, hunter use during all seasons will be dispersed throughout the refuge, minimizing the impact to any one area. Off-road vehicles are prohibited on the refuge, including for hunting. The refuge is easily accessible from the public road system.

Positive, indirect effects on the vegetation will result from a reduction in the white-tailed deer population. The impacts of dense deer populations on forest regeneration and the composition and diversity of the herbaceous understory have been well documented (Tierson et al. 1966, Behrend et al. 1970, Tilghman 1989, Cote et al. 2004, White 2012). Deer will forage on swamp pink (*Helonias bullata*), a federally listed (Threatened) plant species located in small pockets in swamps throughout the refuge. Reducing the deer herd and correlated deer browsing levels could cause minor benefits to the swamp pink. In addition, an overabundance of deer can suppress native vegetation, facilitating the success of invasive species in forested habitats (Knight et al. 2009). Lessening the impact of excessive deer herbivory is a key forest management strategy (White 2012, Nuttle et al. 2013) and will likely become even more important as the climate warms (Galatowitsch et al. 2009).

Approximately 119 acres of sea level fens occur in the refuge, 57 of which are in the expanded hunt area. The areas are very difficult to walk through and generally avoided by hunters due to the hydrology. No impacts are expected to these areas of diverse and somewhat rare plants.

Hydrology (Water Resources and Wetlands)

Hundreds of miles of tidal creeks occur in the refuge and the area is comprised of over 33,000 acres of tidal saltmarsh, over 7,000 acres of forested wetlands, 1,700 acres of impoundments, and nearly 600 acres of freshwater herbaceous wetlands. These habitats are located throughout the hunt area and would be traveled by deer and migratory bird hunters, in particular. Migratory bird hunters are permitted to place a temporary blind on the marsh, but permanent blinds are prohibited, which allows the tidal marsh daily recovery time. Some terrestrial wooded wetlands would be traversed to access turkey and squirrel hunting areas as well. Some impacts could occur if hunters use the same paths for access on a regular basis, but impacts are expected to be short-term and minor.

Refuge staff has observed only negligible or minor problems with erosional impacts to date through the current hunt program. Projected participation in these uses is not expected to increase these minor issues. Therefore, no additional hydrologic impacts are anticipated from this use.

Wildlife

Hunting can have direct and indirect impacts on both target and non-target species. These impacts include direct mortality of individuals; changes in wildlife behavior; changes in wildlife population structure, dynamics, and distribution patterns; and disturbance from noise and hunters walking on- and off-trail (Cole and Knight 1990, Cole 1990, Bell and Austin 1985). In many cases, hunting removes a portion of the wildlife population that will otherwise naturally succumb to predation, disease, or competition (Bartmann et al. 1992). Typical changes in deer behavior in response to hunting include avoidance of certain areas, becoming warier, staying closer to cover, and shifting feeding times (e.g., feeding more at night) (King and Workman 1986). For waterfowl species, hunting may also make them more skittish and prone to disturbance, reduce the amount of time they spend foraging and resting, alter their habitat usage patterns, and disrupt their pair and family bonds (Raveling 1979, Owen 1973, White-Robinson 1982, Madsen 1985, Bartelt 1987).

In general, refuge visitors engaged in hunting will be walking off-trail in designated areas open to hunting. General disturbance from recreational activities, including hunting, vary with the wildlife species involved and the activity's type, level, frequency, duration, and the time of year it occurs. The responses of wildlife to human activities, such as hunting, include avoidance or departure from the site (Owen 1973, Burger 1981, Kaiser and Fritzell 1984, Korschen et al. 1985, Kahl 1991, Klein 1993, Whittaker and Knight 1998), the use of suboptimal habitat (Erwin 1980, Williams and Forbes 1980), altered behavior or habituation to human disturbance (Burger 1981, Korschen et al. 1985, Morton et al. 1989, Ward and Stehn 1989, Havera et al. 1992, Klein 1993, Whittaker and Knight 1998), attraction (Whittaker and Knight 1998), and an increase in energy expenditure (Morton et al. 1989, Belanger and Bedard 1990). The amount of disturbance tends to increase with decreased distance between visitors and birds (Burger 1986).

Some bird species flee from human disturbance, which can lower their nesting productivity and cause disease and death (Knight and Cole 1991). Miller et al. (1998) found bird abundance and nesting activities (including nest success) increased as distance from a recreational trail increased in both grassland and forested habitats. Bird communities in this study were apparently affected by the presence of recreational trails, where common species (i.e., American robins) were found near trails and more specialized species (i.e., grasshopper sparrows) were found farther from trails. Nest predation also was found to be greater near trails (Miller et al. 1998). Disturbance may affect the reproductive fitness of males by hampering territory defense, male attraction and other reproductive functions of song (Arcese 1987). Disturbance, which leads to reduced singing

activity, makes males rely more heavily on physical deterrents in defending territories, which are time and energy consuming (Ewald and Carpenter 1978). These disturbances would most be noticed during the refuge spring male-only turkey hunting in May.

While some disturbance to non-target wildlife species is expected, we anticipate that impact to be minimal, because the proposed hunting is regulated by the refuge and most of it occurs outside the breeding season (except for the spring turkey season). While spring turkey season is during the spring migration, we expect only a small percentage of hunters to hunt on the refuge, which would result in only limited disturbance in localized areas. While many hunters hunt migratory birds from boats in surrounding bays off-refuge, some hunters that hunt on refuge marshlands would disturb wintering birds like sparrows and small mammals that inhabit the areas. These impacts would be considered short-term and minor. Hunters engaging in all hunting types could disturb resident wildlife, which includes invertebrates, reptiles, amphibians, and non-hunted mammals, but negative impacts are expected to be limited.

Federally listed species

A Section 7 analysis under the Endangered Species Act (ESA) of 1973, as amended was conducted in cooperation with the Service's New Jersey Field Office. Species known to occur in the area include: Piping plover (*Charadrius melodus*), red knot (*Calidris canutus rufa*), seabeach amaranth (*Amaranthus pumilus*), and Knieskern's beaked-rush (*Rhynchospora knieskernii*) occur on the refuge, but not in hunting areas. The Section 7 evaluation determined that the proposed activities will cause no effects to these species.

Swamp pink (*Helonias bullata*) and Northern long-eared bats (*Myotis septentrionalis*) are likely to occur in the deer hunting areas in sparse numbers. The Section 7 evaluation determined that the proposed activities may affect, but are not likely to adversely affect these species. Because the populations of swamp pink are small and disparate, impact from hunters will be negligible (not reaching the level of 'take' of the species as defined under the ESA). The sites are rather difficult to locate and it is unlikely hunters will come across blooming plants. The expansion of deer hunting on the refuge would potentially improve swamp pink survival through a reduction in browsing, as deer are a major depredator of the plant. Regarding Northern long-eared bats, turkey hunting occurs on the ground and hunters would not be accessing trees; thus, disturbance would be negligible (not reaching the level of 'take' of the species as defined under the ESA).

Other Visitors and Users

The refuge is open to all six of the Refuge System's priority public uses (hunting, fishing, wildlife observation, wildlife photography, environmental education and environmental interpretation). About 250,000 people visit the refuge each year: 21,000 to the Visitor Information Center; 100,000 to the Wildlife Drive; 58,000 on six foot trails; 2,500 hunters; and 27,000 anglers, among other users. All hunting on the refuge occurs in areas normally closed to

all users, except for the shotgun season along the western portion of the Wildlife Drive and the ‘Goose Only’ hunt which occurs throughout the Wildlife Drive area. To minimize user conflicts, the western portion of the Wildlife Drive is closed to all users other than hunters during the shotgun hunt each year. Also, the Wildlife Drive is changed from one-way to two-way traffic on the portions that remain open to the public. Signs to direct the public and to increase safety are erected for the length of the hunt and entrance fees are waived. Regarding the ‘Goose Only’ hunts, none have occurred in over 10 years as they were effective in reducing the flocks that were decimating marsh vegetation and habitat and the hunts have been unnecessary. Only negligible, short-term impacts to user groups have occurred and are anticipated to occur in the future.

The newly opened Cedar Bonnet Island portion of the refuge in Stafford Township provides walking trails with unique overlooks, but are fairly close to existing migratory game bird hunting areas. To reduce negative impacts and increase safety, the areas open to migratory game bird hunting have been re-delineated to provide an over 250-yard buffer between the hunting and hiking areas. We expect this will allow both user groups to enjoy the refuge without conflict.

Economic

The refuge is located approximately 6 miles from Atlantic City, New Jersey, but it is located in Ocean, Burlington, and Atlantic counties (1.3 million residents) (US Places.com 2017). The predominant land uses in the vicinity of the refuge are residential and commercial development. Local Chambers of Commerce consider the refuge one of the area’s main attractions. The refuge averages about 250,000 visitors per year. Tourism and healthcare contribute the greatest amount of funding to the local economy. Other recreational opportunities are provided at State and local forests and parks. The Jersey Shore is an extremely popular summer destination for visitors from New York, Philadelphia, and Quebec. Total expenditures from refuge visitors were \$4.1 million with non-residents accounting for \$2.7 million or 63 percent of total expenditures in 2011. Expenditures on hunting activities accounted for only 1 percent of all expenditures (non-consumptive activities and fishing were 66 and 32 percent, respectively (USFWS 2013). While hunting visitation may increase due to increased opportunities, hunting only accounts for 1 percent of expenditures related to the refuge. Therefore, additional economic impact is expected to be negligible under this action.

Cumulative Impacts

Cumulative impacts on the environment result from incremental impacts of a proposed action when these are added to other past, present, and reasonably foreseeable future actions. While cumulative impacts may result from individually minor actions, they may, viewed as a whole, become substantial over time. The hunt program has been designed to be sustainable through time given relatively stable conditions, particularly because of close coordination with NJDFW.

The cumulative impacts of hunting on deer, turkey, and squirrel populations at the refuge are negligible. The proportion of the refuge’s harvest of these species is negligible when compared to local, regional, and State-wide populations and harvest.

Because of the regulatory process for harvest management in place within the Service, the setting of hunting seasons largely outside of the breeding seasons of resident and migratory wildlife, the ability of individual refuge hunt programs to adapt refuge-specific hunting regulations to changing local conditions, and the wide geographic separation of individual refuges, we anticipate no direct or indirect cumulative impacts on resident wildlife, migratory birds, and non-hunted wildlife of by expansion of hunting on the refuge.

The table below summarizes impacts analyzed in the Environmental Assessment for the use:

Affected Environment	Proposed Action Alternative
Hunted Species	Negligible, short-term adverse impacts (migratory birds, turkey, squirrel); minor, long-term beneficial impacts (deer)
Other Wildlife and Aquatic Species	Minor, short-term adverse impacts (disturbance)
Threatened and Endangered Species	Negligible, long-term beneficial impact (on native plants)
Vegetation	Negligible, short-term impacts (trampling)
Air Quality	Negligible, short-term adverse impacts (emissions)
Water Resources	Minor, short-term adverse impacts (boat emissions)
Wetlands	Negligible, short-term adverse impacts (trampling)
Wilderness	Negligible, short-term adverse impacts (trampling)
Cultural Resources	No adverse impacts
Visitor Use and Experience	Negligible, short-term impacts (temporary inconvenience)
Socioeconomics	Moderate, long-term positive impacts (economic growth)
Refuge Management and Operations	Moderate, long-term positive (providing opportunities) and negative (funding) impacts
Environmental Justice	No impact
Indian Trust Resources	No impact

PUBLIC REVIEW AND COMMENT:

This CD is part of the Edwin B. Forsythe NWR Hunting Plan and the accompanying Environmental Assessment (EA). Public notification and review of this CD occurred March 9 to April 25, 2018. Forty-one comments were received from the public and comments were incorporated into the final plan and decision documents.

DETERMINATION (CHECK ONE):

Use is not compatible.

Use is compatible with the following stipulations.

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

We will manage the hunting program at the refuge in accordance with State and Federal regulations, as well as refuge-specific restrictions and general operations to ensure that wildlife and habitat management goals are achieved, and that the program is providing a safe, high quality hunting experience for participants. We will evaluate this program annually and if monitoring indicates that this use or any of its component are not compatible (materially interferes with or detracts from fulfillment of the Refuge System mission or the purposes of the refuge), we would curtail, modify or eliminate the use or component.

The following stipulations are necessary to ensure compatibility:

- We require hunters to possess a signed refuge hunt permit at all times while scouting and hunting on the refuge. Monitoring this use through permits is necessary to ensure healthy species populations and limit resource impacts on the refuge.
- We prohibit the use of dogs while squirrel hunting to reduce impacts to other wildlife and avoid excessive disturbance to habitat on the refuge.

JUSTIFICATION:

Hunting is a popular form of wildlife recreation in Southern New Jersey as well as a traditional activity on the refuge. Hunting satisfies a recreational need, but hunting on national wildlife refuges is also an important, proactive management action that can prevent overpopulation and the deterioration of habitat. Disturbance to other species will occur, but this disturbance is generally short-term.

Hunting is a wildlife-dependent priority public use with minimal impact on refuge resources. It is consistent with the purposes for which the refuge was established, the Service policy on

hunting, the Refuge Improvement Act, and the broad management objectives of the Refuge System.

We do not expect this use to materially interfere with or detract from the mission of the refuge System nor diminish the purposes for which the refuge was established. The use will not cause an undue administrative burden. We will manage the use in accordance with State and Federal regulations, as well as refuge-specific restrictions and general operations to ensure that wildlife and habitat management goals are achieved, and that the use is providing a safe, high quality experience for participants. Annual adjustments can be made to the use or any of its components to ensure its continued compatibility, and to further the mission of the Refuge System by providing renewable resources, while conserving fish, wildlife, and plant resources for the benefit of present and future generations.

Signature: Refuge Manager

Virginia Petty 1/2019
(Signature and Date)

Concurrence: Regional Chief

Sean B. Kelly 1/2019
(Signature and Date)

Mandatory 15-year re-evaluation date:

1/29/2034
(Date)

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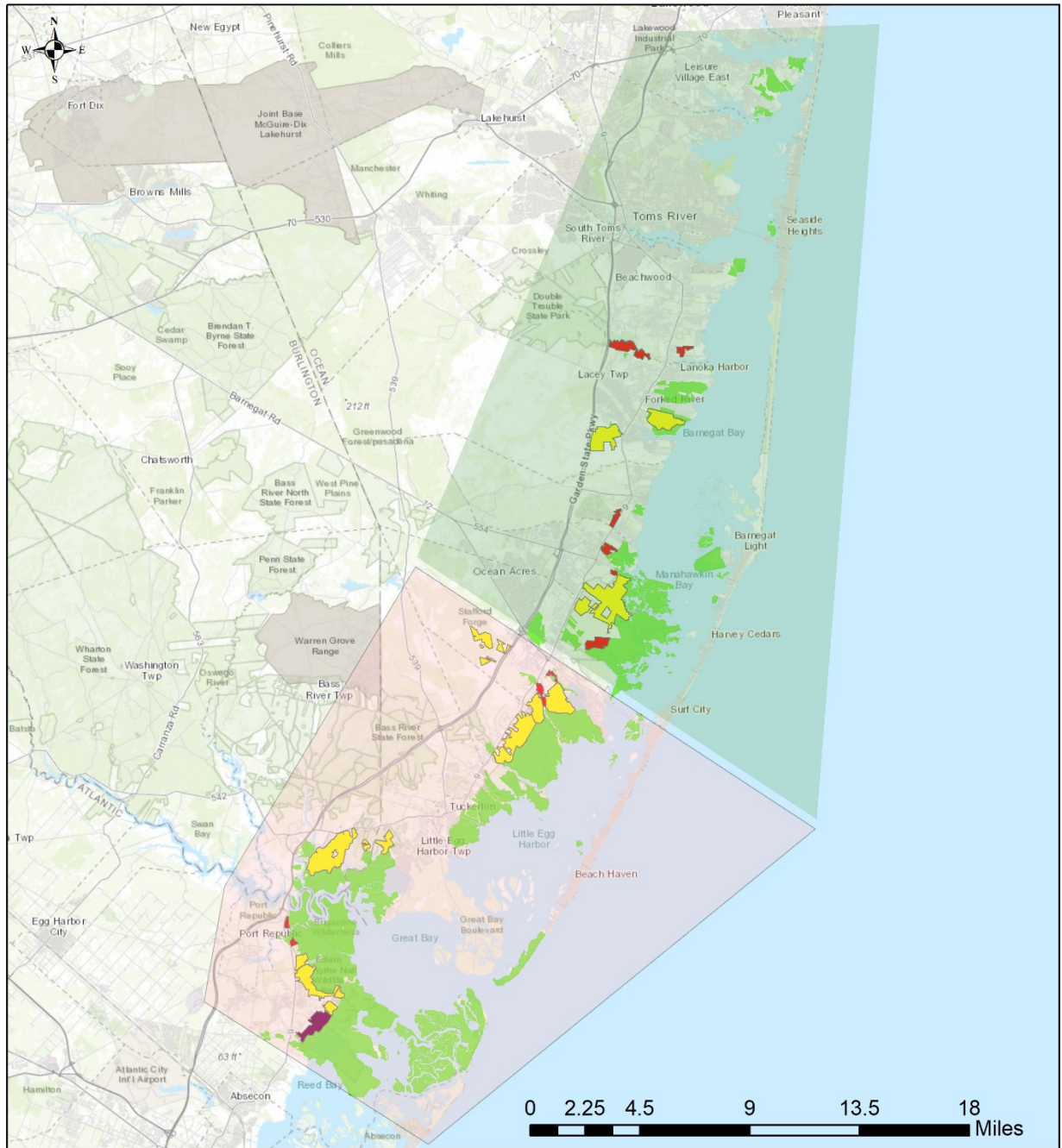
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Appendix B

Hunt Maps

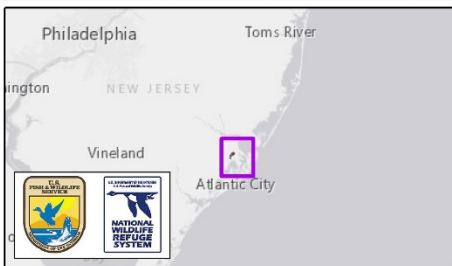
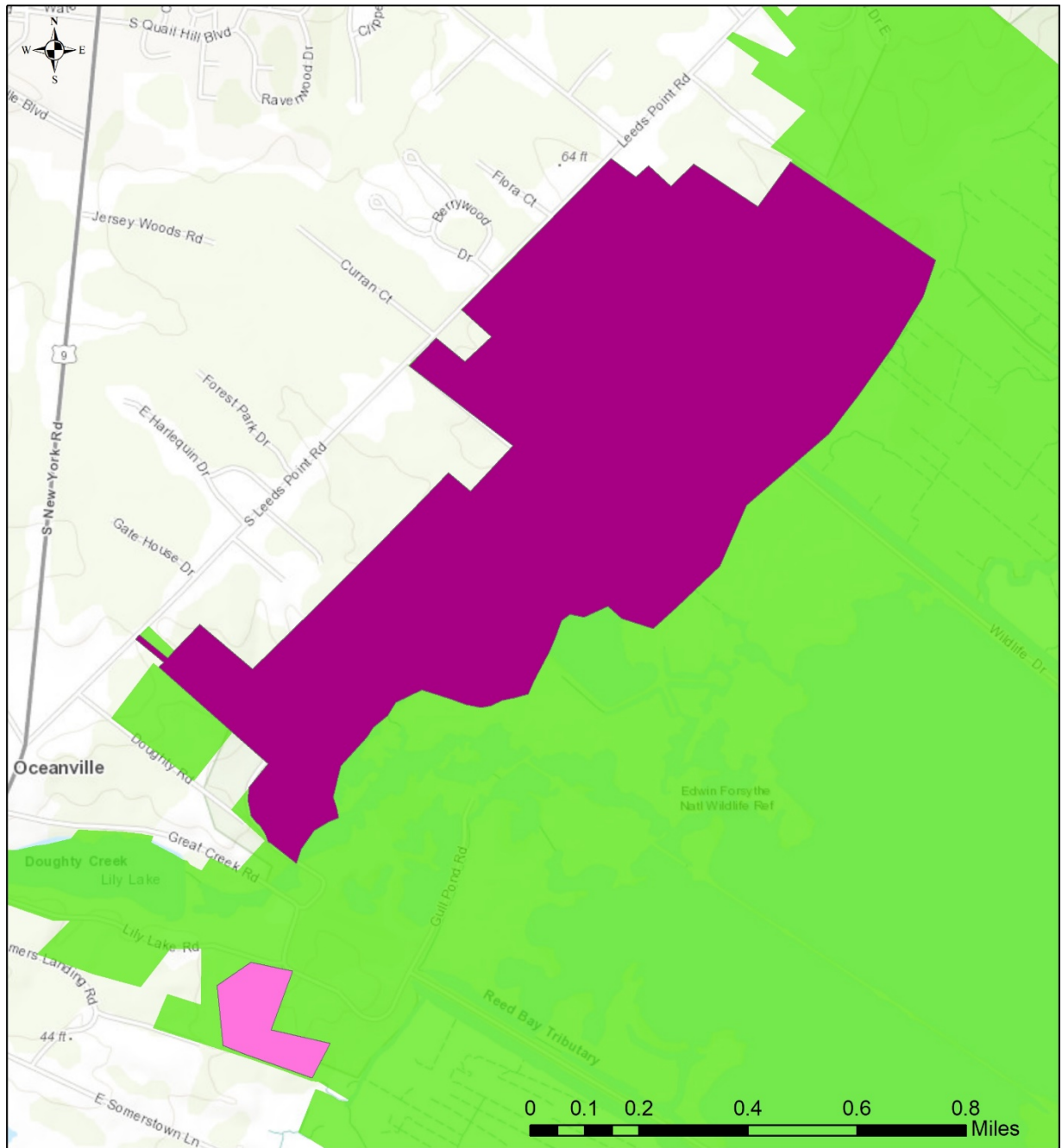


**Edwin B. Forsythe NWR
Deer Hunt Areas**

Legend

 All weapons (7,057 acres)	 N. Forsythe (3,479 acres)
 Archery only (1,130 acres)	 S. Forsythe (5,166 acres)
 HQ (442 acres)	
 Refuge lands not open to deer hunting	

Map Created 08/24/2018

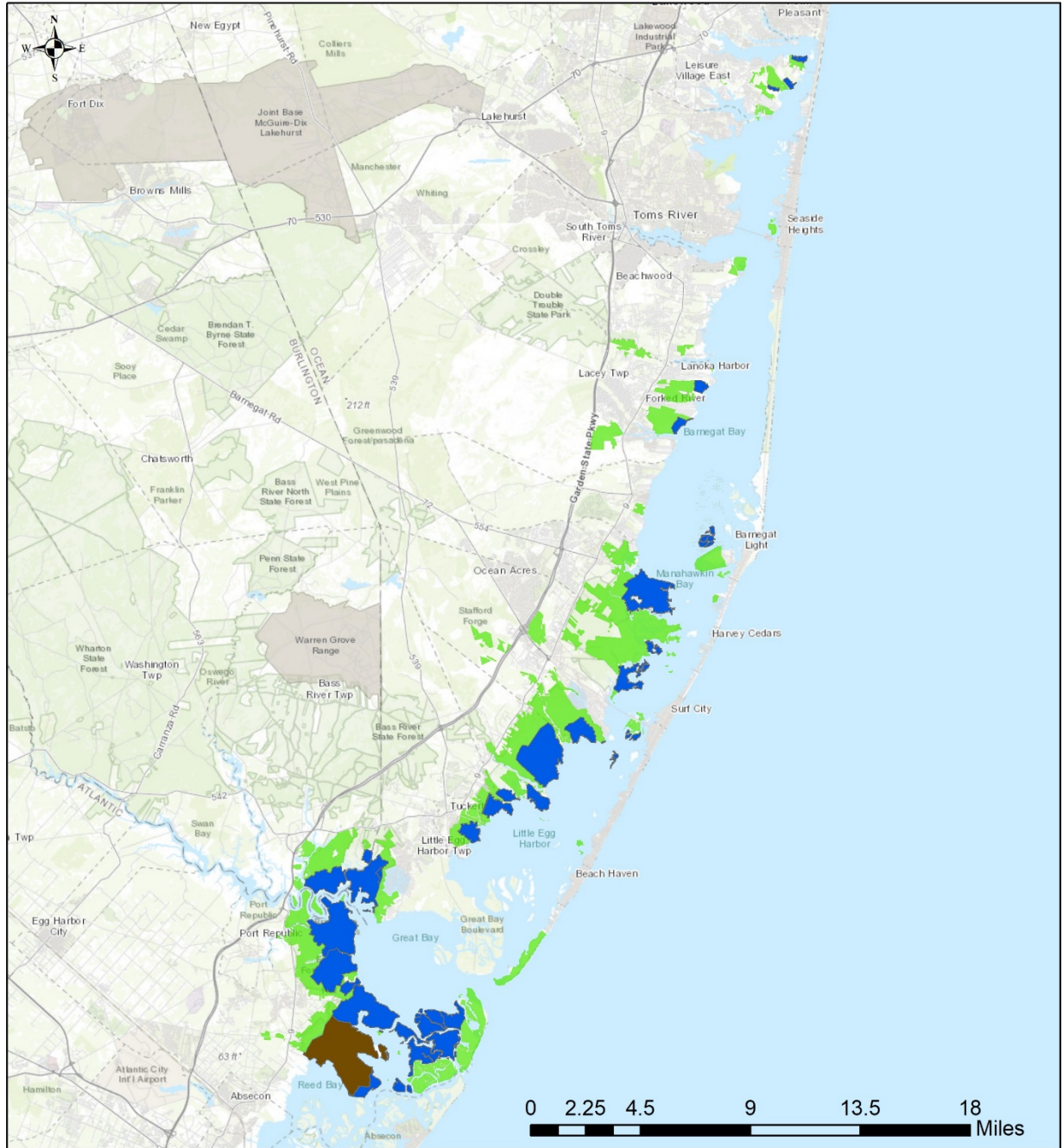


Edwin B. Forsythe NWR HQ and Special Deer Hunt Areas

Legend

- Open for HQ deer hunting (5-day shotgun hunt) (442 acres)
- Open for youth & mobility impaired deer hunting (16 acres)
- Refuge lands not open for 5-day shotgun hunt

Map Created 08/24/2018

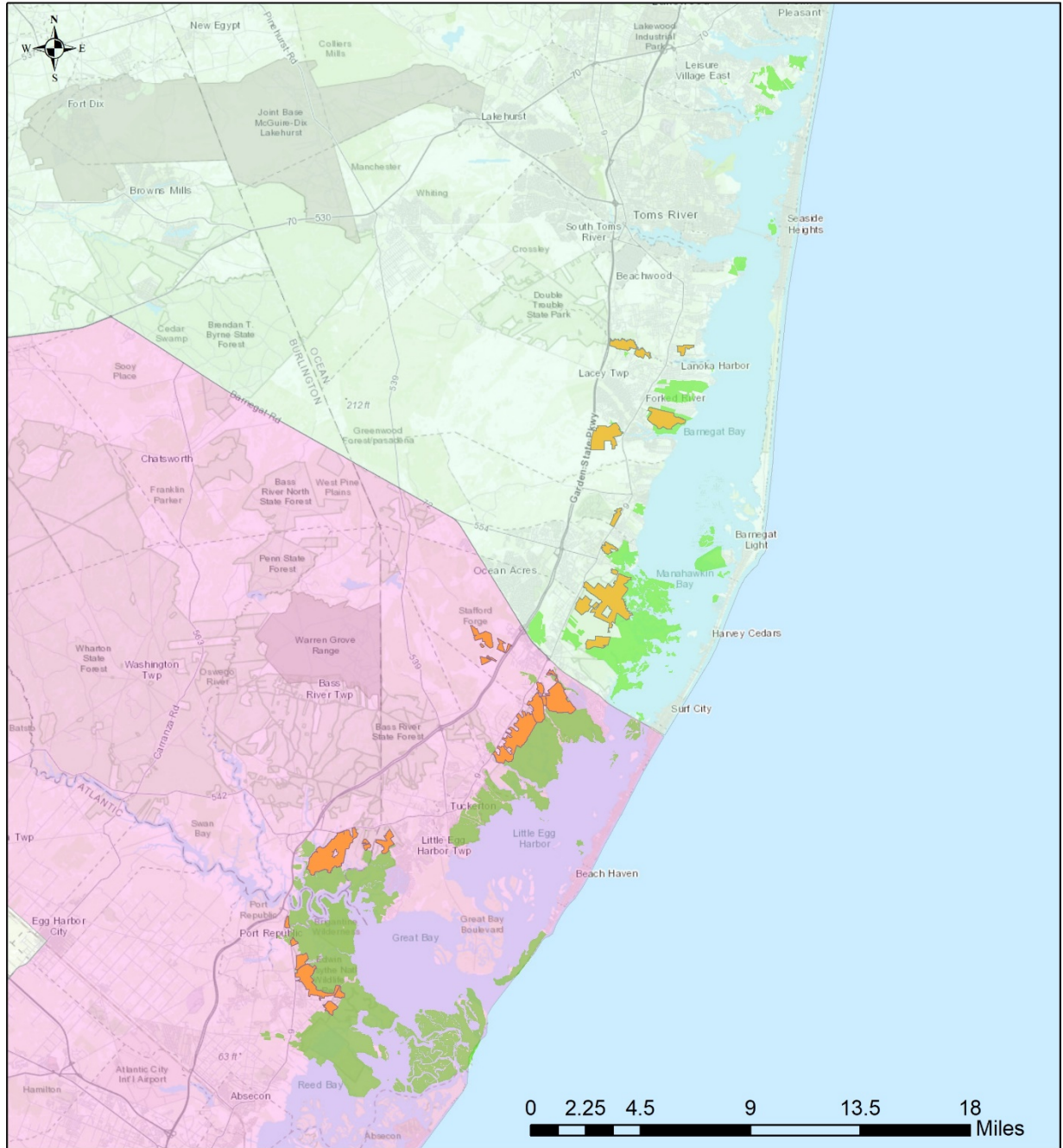


**Edwin B. Forsythe NWR
Migratory Bird Hunting**

Legend

- Open for migratory bird hunting (15,800 acres)
- Open for special goose hunting (3,193 acres)
- Refuge lands not open for migratory bird hunting

Map Created 08/24/2018



**Edwin B. Forsythe NWR
Turkey & Squirrel Hunting**

Legend

- Open for turkey & squirrel hunting (8,187 acres)
- Turkey Hunt Area 14
- Turkey Hunt Area 16
- Refuge lands closed to turkey & squirrel hunting

Map Created 08/24/2018

Appendix C

Environmental Assessment

U.S. Fish and Wildlife Service
DRAFT Environmental Assessment for Hunting Expansion at
Edwin B. Forsythe National Wildlife Refuge

Date: March 6, 2018

This Environmental Assessment (EA) evaluates the impacts associated with this proposed action and complies with the National Environmental Policy Act (NEPA) in accordance with Council on Environmental Quality regulations (40 CFR 1500-1509) and Department of the Interior (516 DM 8) and U.S. Fish and Wildlife Service (Service) (550 FW 3) policies.

Proposed Action:

The Service is proposing to expand hunting opportunities for white-tailed deer, migratory birds, wild turkey, and squirrel on the Edwin B. Forsythe National Wildlife Refuge (NWR, refuge) in accordance with the refuge's Comprehensive Conservation Plan (CCP) (Service 2004). The over 47,000-acre refuge is located in Ocean, Burlington and Atlantic Counties in southern New Jersey. We propose to expand deer hunting, amend migratory bird hunting areas, and add turkey and squirrel hunting for the public. We also propose to update hunting regulations to more closely align with the State of New Jersey regulations, and add a refuge permit requirement for all refuge hunting.

Background:

National wildlife refuges are guided by the mission and goals of the National Wildlife Refuge System (Refuge System), the purposes of an individual refuge, Service policy, and laws and international treaties. Relevant guidance includes the Refuge System Administration Act of 1966, as amended by the Refuge System Improvement Act of 1997, Refuge Recreation Act of 1962, and selected portions of the Code of Federal Regulations (CFR) and Service Manual.

The refuge was established:

- For lands acquired under the Migratory Bird Conservation Act (16 U.S.C. §715-715r), as amended, "...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds...." (16 U.S.C. §715d)
- "...the development, advancement, management, conservation, and protection of fish and wildlife resources...."(16 U.S.C. §742f(a)(4) Fish and Wildlife Act of 1956, as amended)
- "...the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations (regarding migratory birds)..." (16 U.S.C. §3901(b), 100 Stat. 3583 Emergency Wetlands Resources Act of 1986, as amended)
- "...to secure for the American people of present and future generations the benefits of an enduring resource of wilderness." (78 Stat. 890:16 U.S.C. 1121 (note), 1131-1136, Wilderness Act of 1964, as amended)

The mission of the Refuge System, as outlined by the Refuge System Administration Act (Refuge System Administration Act), as amended by the Refuge System Improvement Act (16 U.S.C. 668dd et seq.), is to:

“... to administer a national network of lands and waters for the conservation, management and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”

The Refuge System Administration Act mandates the Secretary of the Interior in administering the System to:

- Provide for the conservation of fish, wildlife, and plants, and their habitats within the Refuge System;
- Ensure that the biological integrity, diversity, and environmental health of the Refuge System are maintained for the benefit of present and future generations of Americans;
- Ensure that the mission of the Refuge System described at 16 U.S.C. 668dd(a)(2) and the purposes of each refuge are carried out;
- Ensure effective coordination, interaction, and cooperation with owners of land adjoining refuges and the fish and wildlife agency of the States in which the units of the Refuge System are located;
- Assist in the maintenance of adequate water quantity and water quality to fulfill the mission of the Refuge System and the purposes of each refuge;
- Recognize compatible wildlife-dependent recreational uses as the priority general public uses of the Refuge System through which the American public can develop an appreciation for fish and wildlife;
- Ensure that opportunities are provided within the Refuge System for compatible wildlife-dependent recreational uses; and
- Monitor the status and trends of fish, wildlife, and plants in each refuge.

Purpose and Need for the Proposed Action:

Hunting is a healthy, traditional recreational use of renewable natural resources deeply rooted in America’s heritage, and it can be an important wildlife management tool. The Refuge System Administration Act of 1966, the Refuge System Improvement Act of 1997, other laws, and the Service’s policies permit hunting on a national wildlife refuge when it is compatible with the purposes for which the refuge was established and acquired.

Edwin B. Forsythe NWR’s CCP (2004) identified the goal to “provide opportunities for high-quality compatible, wildlife-dependent public use” with specific objectives to expand hunting opportunities on the refuge for big game, upland game and migratory game birds. However, the existing refuge hunt program has not been expanded since the CCP was published.

To address the needs stated above, the purpose of the proposed action will bring the refuge into compliance with management objectives detailed in the CCP. Furthermore, Department of the Interior Secretarial Order 3356 directs the Service to enhance and expand public access to lands and waters on national wildlife refuges for hunting, fishing, recreational shooting, and other forms of outdoor recreation. The proposed action will also promote one of the priority public

uses of the Refuge System, and will promote stewardship of our natural resources and increase public appreciation and support for the refuge by providing opportunities for visitors to hunt.

This EA serves as the NEPA document which analyzes the impacts on environmental, cultural, and historical resources of expanding hunting opportunities on the refuge.

Alternatives Considered

The No Action Alternative would continue to provide deer hunting opportunities on 6,869 acres of refuge lands in DMZs 56, 57, 58, and 70 in Atlantic, Burlington, and Ocean Counties. About 16,821 acres of migratory bird habitat would be open for hunting, and no other hunts would be available for the public. Complicated, outdated hunting regulations for all hunting seasons would remain in place and not be updated to on-the-ground realities and change in the State of New Jersey since the most recent plan was implemented in 2004. No permit system would be initiated so communication between hunters and the refuge staff would continue to be minimized and opportunities for better understanding use would be lost.

Refuge staff have worked closely with stakeholders and the New Jersey Division of Fish and Wildlife (NJDFW), a division of the New Jersey Department of Environmental Protection, to develop the current proposed hunt plan. There are no unresolved conflicts about the proposed action with respect to the alternative uses of available resources. Additionally, the proposed action builds on an existing hunt program, and includes the addition of seasons and areas that were developed during the writing of the Refuge’s CCP, which involved a public review process. Therefore, the Service does not need to consider additional alternatives (43 CFR 46.310). Table 1 describes the primary differences between the two evaluated alternatives.

Table 1. Primary differences between refuge hunt alternatives.

	No Action Alternative:	Proposed Action Alternative:
Deer Hunting Area	6,869 acres	11,163 acres
Bow only hunting area	0 acres	1,167 acres
Migratory Game Bird Hunting Area	16,821 acres	16,637 acres
Turkey Hunting Area	0 acres	10,700 acres
Squirrel Hunting Area	0 acres	10,700 acres
Number of Refuge DMZs	4	0
Number of deer hunting days*	76 days	132 days
Number of migratory bird hunting days*	76 days	76 days
Number of turkey hunting days*	0 days	30 days
Number of squirrel hunting days*	0 days	120 days
Refuge permit required for deer hunting?	No	Yes
Refuge permit required for migratory bird hunting?	No	Yes
Refuge permit required for turkey hunting?	No	Yes

Refuge permit required for squirrel hunting?	No	Yes
Cost of program	\$64,780	\$86,000
Estimated funds to be received through Refuge permits	\$0	\$25,000
Regulations	Outdated refuge-specific regulations	Revised to mirror State regulations as much as possible

* subject to change based on annual NJDFW season setting

Proposed Action Alternative – [Expand Hunting Opportunities and Access]:

The Service has prepared a hunt plan, which is presented with this document, and is summarized in this EA as the Proposed Action Alternative.

The updated hunt plan proposes to increase lands for deer hunting by 4,294 acres (total= 11,163 acres); decrease migratory bird hunting lands by 184 acres (total acreage=16,637 acres); add spring male turkey hunting (10,700 acres); and add squirrel hunting (10,700 acres) (Table 1).

White-tailed Deer

Refuge staff works annually with NJDFW deer biologists to review the refuge’s hunt program. We largely view management of white-tailed deer (*Odocoileus virginianus*) on the refuge as meeting State-determined goals and objectives combined with local habitat or population concerns. There are currently four Deer Management Zones specific to the refuge. The DMZ 58 is the northernmost zone and is located in Lacey and Barnegat Townships in Ocean County; DMZ 70 is located in Stafford and Eagleswood Townships in Ocean County, and Bass River Township in Burlington County; DMZ 57 is located entirely in Galloway Township, Atlantic County; and DMZ 56 is a zone that was created for a 5-day shotgun hunt in Galloway Township in the vicinity of the refuge Administration Building and Visitor Center. In total, 6,439 acres of the refuge are currently open to deer hunting.

The refuge’s “special” DMZ’s require administrative resources by the NJDFW to administer on behalf of the refuge. We propose to eliminate refuge DMZs 56, 57, 58, and 70 and absorb them into the adjacent existing DMZs 22, 42, and 51. The refuge deer hunts would be managed administratively by the refuge via an online permitting system. Refuge staff would continue to work closely with NJDFW deer biologists to determine the number of permits to be issued per equipment type each year. All refuge hunting land, other than the area in former DMZ 56, would adhere to State regulations and seasons for deer in those three DMZs, other than those noted in refuge-specific regulations. The area in the former DMZ 56 would only be open for the 5-day shotgun hunt in December.

An evaluation of hunting areas was conducted by refuge staff (Table 2). New areas were added and some deer hunting areas were modified to meet the following criteria:

- Areas less than 100 acres and near significant development are designated archery only unless they have been known all-permit hunting areas with no historical conflicts (e.g., along Route 9 in Port Republic)

- Portions of areas of known long-time conflict and/or safety concerns were eliminated
- Existing hunt areas were enlarged to include lands acquired since the CCP was completed
- A small tract between two well-used roadways was changed from all-permit hunts to archery only (Mayetta Landing Road)
- Portions of zones that overlaid tefuge facilities were eliminated from the hunt zones

Table 2. Changes in deer hunting acreage between the two alternatives.

Deer Hunting Acreage Changes			
Area	No Action	Proposed Action	Change in Acres
5-day shotgun area	430	448	+ 18
Refuge-wide	6,439	10,700	+4,261
Accessible site(s)	-	15	+15
Total acres	6,869	11,163	+4,294

Specific changes to the deer hunting area are described below (north to south):

Description of Change
Addition of 336 acres for archery hunting in Lacey Township along Western Boulevard.
Addition of 104 acres for archery hunting in Berkeley Township along Cedar Creek.
Addition of 316 acres for archery hunting in Lacey Township (Murray Grove).
Addition of 120 acres for archery hunting in Lacey Township (Game Farm Road) and re-delineation of that site.
Addition of 93 acres for all equipment types in Lacey Township at Middle Branch of Forked River.
Addition of 93 acres for archery hunting in Ocean Township along Route 9.
Addition of 102 acres for archery hunting in Barnegat Township along Ridgeway Avenue.
Addition of 29 acres for archery hunting in Barnegat Township along Mills Lane.
Addition of 1,483 acres for all equipment types in Barnegat and Stafford Townships north of Route 72 (**this proposal includes Block 296, Lots 33 and 34 in Stafford Township that are currently under purchase agreement).
Addition of 421 acres for all equipment types in Stafford Township east of the Garden State Parkway.
Addition of 391 acres for all equipment types in Stafford Township west of the Garden State Parkway.
Addition of 525 acres for all equipment types in Stafford and Eagleswood Townships south of Route 72.
Addition of 67 acres of archery hunting in Stafford Township north of Mayetta Landing Road.
Conversion of 36 acres from all equipment types to archery only in Stafford Township north of Mayetta Landing Road.
Addition of 256 acres for all equipment types in Little Egg Harbor and Bass River Townships adjacent to Bass River State Forest.
Addition of 674 acres for all equipment types in Galloway Township and Port Republic

City north of Moss Mill Road.
Elimination of 15 acres from deer hunting area in Galloway Township in vicinity of the Nacote Creek and Stony Hill Road office complexes.
Addition of 93 acres of archery only along Jimmy Leeds Road in Galloway Township.
Addition of 18 acres in 5-day gun hunt near Wildlife Drive.
Addition of 16 acres for archery hunting to facilitate hunters with mobility concerns and youth in south of the refuge Headquarters.

Concurrent with hunting area expansion, the number of hunt permits sold by the refuge would increase (Table 3). Refuge staff will work closely with NJDFW biologists to assess if harvest rates and permit sale numbers are meeting management objectives. The information we receive from permit sales allows us to determine the demand for hunting on the refuge and provides an opportunity for communication with hunters.

Table 3. Planned changes to number of permits issued for refuge hunting areas.

	No Action	Permit Bow	Permit Muzzleloader	Permit Shotgun	Proposed Action	Permit Bow	Permit Muzzleloader	Permit Shotgun
DMZ 56/5-day shotgun area		0	0	25		0	0	25
Rest of Refuge		90	90	115		120	120	140

While the dates of the refuge 5-day shotgun hunt season will be refuge-specific, dates for deer hunting in the rest of the refuge will be aligned with dates set by NJDFW for DMZs 22, 42, and 51.

Edwin B. Forsythe NWR-specific regulations will be published in the Federal Register as part of the 2018-2019 Refuge-Specific Hunting and Sport Fishing Regulations. Proposed refuge-specific regulations include:

- We require hunters to possess a signed refuge hunt permit at all times while scouting and hunting deer on the refuge.
- We require deer stands to be marked with the hunter’s Conservation Identification Number and removed at the end of the last day of the hunting season (no permanent stands).

Migratory Birds

Approximately 40,000 acres of refuge land were acquired with Migratory Bird Conservation Commission (MBCC) funds. By law (16 U.S.C. 668dd(1)(A)), generally no more than 40 percent of the portions of a refuge set apart as an inviolate sanctuary (acquired with approval of the MBCC) should be open to migratory bird hunting. Currently, 16,821 acres of land purchased with MBCC funds are open to migratory bird (waterfowl, moorhen, coot, rails) hunting, which equates to slightly above 40 percent of MBCC-funded property. However, current migratory bird hunting area maps were developed using Geographic Information System (GIS)-based polygons that contained hundreds of acres of open water (e.g., along marsh edges), portions of marsh that are inland from prime waterfowl hunting areas and relatively unused, and some islands that no longer exist. To address these concerns, and to ensure desirable hunting areas were provided to

the public, an evaluation of existing areas was conducted by refuge staff and most migratory bird hunting areas were modified to meet the following criteria:

- New areas known to provide good waterfowl hunting opportunities, particularly along shorelines, were added where appropriate and in keeping with the MBCC rules.
- Portions of areas of known long-time conflict and/or safety concerns were eliminated.
- Portions of areas known to be in future conflict with refuge plans were altered (*e.g.*, Cedar Bonnet Island).
- Some areas far inland from the shoreline were eliminated to provide new opportunities throughout the refuge.
- Some areas were redrawn to include hunting areas on both banks of tidal creeks to reduce conflict with regulations (*e.g.*, when one side of a creek is closed and the other is open).
- Many areas were redrawn to account for shoreline and island erosion changes over time.
- Many areas were redrawn to better align with natural features to assist hunters in the field.

This exercise resulted in a 184-acre decrease in the migratory bird hunting area; however, seven new areas were added, shoreline was added, some un-hunted swaths of marsh were eliminated, and the new acreage contains 585 acres more of land which hunters may access. As it did previously, the new area includes an area in Galloway Township in the vicinity of the Wildlife Drive in which historic over-population of snow geese required a special hunt. That area (about 1,770 acres) remains closed in ‘normal’ years but will be opened if needed in the future to protect habitat (in coordination with State and Federal partners). The changes to hunt areas include (north to south):

Description of Change
Addition of 53 acres in Brick Township along Barnegat Bay and Reedy Creek.
Addition of 40 acres in Lacey Township along Barnegat Bay (Murray Grove).
Re-delineation of area along Forked River at Game Farm from 144 acres to 77 acres, ~ 67-acre <i>change</i> .
Addition of hunting blind(s) (5 acres) to facilitate hunters with mobility concerns and youth on the west side of the Barnegat impoundments.
Re-delineation of area north of Gunning River in Barnegat Township from 2,181 acres to 2,154 acres, ~ 28-acre <i>change</i> .
Re-delineation in Stafford Township of area south of Cedar Bonnet Island from 110 acres to 112 acres, ~ 2-acre <i>change</i> .
Re-delineation of areas in Stafford, Eagleswood, and Little Egg Harbor Townships and Tuckerton Borough south of Route 72 from 3,298 acres to 2,874 acres, ~424-acre <i>change</i> .
Addition of 96 acres in Little Egg Harbor Township W of Mystic Island.
Addition of 137 acres in Galloway Township west of Oyster Creek Road.
Addition of 44 acres in Galloway Township along north-facing marsh edges.
Addition of 192 acres in the Little Beach Island marsh complex.

All State and Federal stamps and licenses will be required to hunt on the refuge. Additionally, a refuge annual migratory bird hunting permit will be required. The information we receive allows us to determine the demand for hunting on the refuge and provides an opportunity for communication with hunters.

Historically, there was very high demand for hunting on the refuge which resulted in hunter conflicts. A series of refuge-specific regulations was instituted to reduce pressure and competition. As demand for migratory bird hunting has declined in New Jersey, the need for restrictions on hunters has diminished. We propose to eliminate many refuge-specific migratory bird hunting regulations to mirror State regulations. These changes include:

- Zone names will be eliminated (refuge land will either be in or out of the migratory bird hunting area).
- Hunt regulations will be the same for all hunt areas.
- The formerly named Barnegat Unit B site numbering system will be eliminated.
- Shotshell limits will be eliminated.
- Decoy minimums will be eliminated.
- Jump shooting will be permitted throughout the refuge.

Edwin B. Forsythe NWR-specific regulations will be published in the Federal Register as part of the 2018-2019 Refuge-Specific Hunting and Sport Fishing Regulations. Proposed refuge-specific regulations include:

- We require hunters to possess a signed refuge hunt permit at all times while scouting and hunting migratory birds on the refuge.

Wild Turkey

The Proposed Action Alternative includes addition of wild turkey (*Meleagris gallopavo*) hunting on the refuge. All deer hunting areas except the 5-day shotgun hunt area would be open for the spring male-only turkey hunt (10,700 acres). Areas open for archery deer would be archery only for turkey, and all equipment types for deer areas would be open for all legal equipment types for turkey.

Edwin B. Forsythe NWR falls within two State Turkey Hunting Areas (THA). The THA 14 encompasses all refuge lands north of Route 72 in Stafford Township, Ocean County and THA 16 overlays refuge lands south of Route 72 in Ocean, Burlington and Atlantic Counties. All State turkey hunting regulations, licenses and permits will apply.

A refuge turkey hunting permit will be required to hunt turkey on the refuge. The information we receive allows us to determine the demand for hunting on the refuge and provides an opportunity for communication with hunters.

Edwin B. Forsythe NWR-specific regulations will be published in the Federal Register as part of the 2018-2019 Refuge-Specific Hunting and Sport Fishing Regulations. Proposed refuge-specific regulations include:

- We require hunters to possess a signed refuge hunt permit at all times while scouting and hunting turkey on the refuge.

Gray Squirrel

The Proposed Action Alternative includes the addition of gray squirrel (*Sciurus carolinensis*) hunting on the refuge. All deer hunting areas except the 5-day shotgun hunt area would be open for squirrel hunting (10,700 acres). All legal equipment types permitted by the State for squirrel hunting will be permitted on refuge lands. All State squirrel hunting regulations, licenses and permits apply.

A refuge squirrel hunting permit will be required to hunt squirrel on the refuge. The information we receive allows us to determine the demand for hunting on the refuge and provides an opportunity for communication with hunters.

Edwin B. Forsythe NWR-specific regulations will be published in the Federal Register as part of the 2018-2019 Refuge-Specific Hunting and Sport Fishing Regulations. Proposed refuge-specific regulations include:

- We require hunters to possess a signed refuge hunt permit at all times while scouting and hunting squirrel on the refuge.
- We prohibit the use of dogs while hunting.

This Proposed Action Alternative offers increased opportunities for public hunting and fulfills the Service's mandate under the Refuge System Improvement Act of 1997. It provides a recreational experience to the general public while maintaining sustainable wildlife populations. The estimated cost to operate this hunt program is estimated to be \$86,000 annually. It is anticipated the refuge would collect approximately \$25,000 in permit costs each year based on the estimate that about 2,500 hunters use the refuge each year. The registration of hunters through the permitting system will, for the first time, allow refuge staff to better report that number and verify accuracy and assumptions. Under this alternative, the refuge Fish and Wildlife Officer and/or NJDFW conservation officers will monitor the hunt, and conduct license, bag limit, and compliance checks. Refuge staff will administer the hunt along with coordination from the NJDFW. The Service has determined that the hunt plan is compatible with the purposes of the Edwin B. Forsythe NWR and the Refuge System, and a Compatibility Determination is found in the Refuge Hunt Plan.

Mitigation Measures and Conditions

White-tailed Deer

- Deer hunting zones were re-drawn in preparation of this alternative to reduce impacts to adjacent home and business owners, particularly in areas of known conflict.
- Small areas or those near significant development will only be hunted with bow to minimize the risk of inadvertent injury to people in surrounding areas.
- The number of refuge permits sold is collaboratively developed and based on previous harvest rates and objectives for herd management. The number of permits can be reduced in any given year to reduce over-harvest of deer.

- Deer hunting areas were only created where there is reasonable parking within a short walking distance to the refuge to reduce conflicts with private parties.
- Maps and hunting information and regular social media posts, along with refuge and State law enforcement checks, will ensure the public is aware of applicable laws and policies.

Migratory Birds

- Migratory bird hunting areas were re-drawn in some places to increase safety and reduce impacts to adjacent home and business owners.
- Regulations set by the State will be enforced by refuge and State law enforcement officers.
- Maps and hunting information and regular social media posts will ensure the public is aware of applicable laws and policies. Information will also be posted at several boat launches known to be used by hunters.

Wild Turkey

- Hunting equipment used for turkey hunting will be dictated by the types of equipment permitted in a given hunting area during deer season to reduce confusion and for safety.
- Turkey harvest regulations are set by the NJDFW and will be followed at the refuge.
- Maps and hunting information and regular social media posts, along with refuge and State law enforcement checks, will ensure the public is aware of applicable laws and policies.

Gray Squirrel

- Squirrel harvest regulations are set by the NJDFW and will be followed at the refuge.
- Maps and hunting information and regular social media posts, along with refuge and State law enforcement checks, will ensure the public is aware of applicable laws and policies.
- No dogs will be permitted to reduce impacts to non-target wildlife and disturbance to other refuge users.

Affected Environment

The refuge consists of approximately 68 square miles in Ocean, Burlington, and Atlantic Counties, New Jersey. It is primarily comprised of saltmarsh habitat, but also contains wetland and upland forest, beach and dune and small acreages of scrub/shrub, freshwater wetland, early successional habitat; along with managed impoundments and ponds. The proposed action would occur throughout the refuge and in many habitat types (Table 4).

Table 4. Primary refuge habitat plant community descriptions found in hunt areas.

Habitat Type	Description
<i>Migratory Birds</i>	
North Atlantic Low Saltmarsh	Monotypic tall grassland dominated by smooth cordgrass (<i>Spartina alterniflora</i>) in regularly flooded intertidal zones with very low species richness.
North Atlantic High Saltmarsh	Patch mosaic generally dominated by saltmeadow cordgrass (<i>Spartina patens</i>), saltgrass (<i>Distichlis spicata</i>), or saltmeadow rush (<i>Juncus gerardii</i>).
<i>Deer, Turkey, Squirrel</i>	
Lowland Pitch Pine Forest	Mixed deciduous-evergreen to deciduous canopy of pitch pine (<i>Pinus rigida</i>), red maple (<i>Acer rubrum</i>), blackgum (<i>Nyssa sylvatica</i>), and sweetgum (<i>Liquidambar styraciflua</i>) and a subcanopy of sweetbay (<i>Magnolia virginiana</i>) and American holly (<i>Ilex opaca</i>) with a shrub layer of sweet pepperbush (<i>Clethra alnifolia</i>), swamp doghobble (<i>Eubotrys racemosa</i>), huckleberry (<i>Gaylussacia</i> spp.), and blueberry (<i>Vaccinium</i> spp.), and herbaceous layer of cinnamon fern (<i>Osmunda cinnamomea</i>), eastern teaberry (<i>Gaultheria procumbens</i>) and various sedges.
Red Maple-Sweet Gum Swamp and Southern Red Maple-Blackgum Swamp	Seasonally flooded open to closed forest with canopy of red maple, blackgum, green ash (<i>Fraxinus pennsylvannica</i>), and sweetgum with an occasional American holly, sassafrass (<i>Sassafrass albidum</i>), sweetbay, tuliptree (<i>Liriodendron tulipifera</i>), and willow oak (<i>Quercus phellos</i>) with a variable shrub layer including highbush blueberry (<i>Vaccinium corymbosum</i>), sweet pepperbush, huckleberry, swamp azalea (<i>Rhododendron viscosum</i>), swamp doghobble and common winterberry (<i>Ilex verticillata</i>), and a sparse herbaceous layer.
Mixed Oak Pine/Holly Forest	Mixed deciduous-evergreen to deciduous canopy of pitch pine and various oak species with a subcanopy of American holly, sassafrass, mountain laurel (<i>Kalmia latifolia</i>), or dogwood (<i>Cornus</i> spp.), a shrub layer of huckleberry, blueberry, common serviceberry (<i>Amelanchier arborea</i>), or American hazelnut (<i>Corylus americana</i>), and a sparse to variable herbaceous layer.

For more information regarding the affected environment, please see chapter 3 of the refuge's CCP or the Refuge Habitat Management Plan (Service 2013b), which can be found here: https://www.fws.gov/refuge/Edwin_B_Forsythe/what_we_do/conservation.html

Environmental Impacts of the Action

This section analyzes the environmental consequences of the action on each affected resource, including direct and indirect impacts. This EA only includes the written analyses of the environmental consequences on a resource when the impacts on that resource could be more than negligible and therefore considered an “affected resource”. Any resources that will not be more than negligibly impacted by the action have been dismissed from further analyses.

Impact Types

Direct impacts are those which are caused by the action and occur at the same time and place.

Indirect impacts are those which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Impacts includes ecological (such as the impacts on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Impacts may also include those resulting from actions which may have both beneficial and detrimental impacts, even if on balance the agency believes that the impacts will be beneficial.

Beneficial impacts are those resulting from management actions that maintain or enhance the quality and/or quantity of identified refuge resources or recreational opportunities.

Adverse impacts are those resulting from management actions that degrade the quality and/or quantity of identified refuge resources or recreational opportunities.

Duration of Impacts

Short-term impacts affect identified refuge resources or recreational opportunities; they occur during implementation of the management action but last no longer.

Medium-term impacts affect identified refuge resources or recreational opportunities that occur during implementation of the management action; they are expected to persist for some time into the future though not throughout the life of the CCP.

Long-term impacts affect identified refuge resources or recreation opportunities; they occur during implementation of the management action and are expected to persist throughout the life of the Plan and possibly longer.

Intensity of Impact

Negligible impacts result from management actions that cannot be reasonably expected to affect identified refuge resources or recreational opportunities at the identified scale.

Minor impacts result from a specified management action that can be reasonably expected to have detectable though limited impact on identified refuge resources or recreation opportunities at the identified scale.

Moderate impacts result from a specified management action that can be reasonably expected to have apparent and detectable impacts on identified refuge resources or recreation opportunities at the identified scale.

Major impacts result from a specified management action that can be reasonably expected to have readily apparent and substantial impacts on identified refuge resources and recreation opportunities at the identified scale.

Table 5. Description of the affected resources and impacts of the two alternatives.

NATURAL RESOURCES		
AFFECTED ENVIRONMENT	ANTICIPATED DIRECT AND INDIRECT IMPACTS	
<p>White-tailed Deer The white-tailed deer population at the refuge has generally remained steady. We work with the NJDFW to determine the number of permitted hunters each year as the refuge herd is managed as part of the State’s herd.</p>	<p>No Action: Currently, about 60 deer per year are harvested by hunters on 6,869 acres of refuge land. Continuation of the current hunting plan would not be expected to impact the deer population negatively.</p> <p>Current or lower levels of deer harvest would be expected under this action as no new opportunities would be provided and, likely, no new interest in hunting deer would occur. Sales of New Jersey Resident Hunter licenses have decreased from 171,959 in 1970 to 32,512 in 2016 (NJDFW 2017) and those numbers are likely to continue to decline without increased hunting opportunities and access based on current trends.</p> <p>Proposed Action: Additional land and increased numbers of permits will be incorporated into this action. Refuge biologists estimate that up to 20 percent more deer could be harvested, which could decrease the number of car collisions observed in areas near the refuge. The reduction of deer and correlated reduction of browsing on vegetation could have minor positive impacts to the federally listed (threatened) swamp pink, which occurs on the refuge and is negatively impacted by browsing deer.</p> <p>It is unlikely hunter numbers will increase considerably, though some increase is expected with increased opportunities for archery-only hunting areas. Increasing the hunted area and the number of days of hunting on the refuge, should result in a small influx of new users to the refuge. Partnerships and assisted hunting opportunities planned by the refuge could also assist in increasing hunter numbers in the future.</p>	
<p>Migratory Birds Waterfowl, coot, moorhen and rail harvest is regulated cooperatively among an international consortium (Atlantic Flyway Council) of</p>	<p>No Action: Current or lower levels of migratory bird harvest would be expected under this action. Sale of New Jersey Resident waterfowl permits has declined from 22,071 the first year they were offered in 1988 to 10,523 in 2016 (NJDFW 2017). Maintaining current hunt areas would not encourage new users to the site.</p>	

<p>wildlife managers and are based on surveys, harvest and habitat data. Refuge populations of these species have remained relatively stable.</p>	<p>Proposed Action: Several new hunting areas are proposed, improving opportunities for hunters in the northern portion of the refuge. This could result in increased hunter numbers and harvest, which could have minor negative impacts to migratory bird populations locally. Those changes would be incorporated into future Flyway population assessments and influence hunting regulations accordingly. It is not anticipated that the proposed action at the refuge would impact populations at the Flyway or Continental level.</p> <p>Partnerships and assisted hunting opportunities planned by the refuge could assist in increasing hunter numbers in the future.</p>
<p>Wild Turkey Turkeys occur in pockets of suitable habitat throughout the refuge. The State population is estimated at approximately 23,000 birds (NJDFW 2017). We work with the NJDFW to determine the number of permitted hunters each year as the refuge’s birds are managed as part of the State’s population.</p>	<p>No Action: No turkey hunting would be permitted on the refuge; therefore, no impacts to turkeys or by turkey hunting would occur.</p> <p>Proposed Action: Opening refuge lands to turkey hunting will moderately negatively impact the local turkey population. The State’s turkey populations is at an all-time high of over 20,000 birds with about 3,000 harvested State-wide annually (NJDFW 2017). The State does not intend to change the number of permits issued for turkey hunting under this alternative (NJDFW pers. comm.), so there would be no increased potential for more birds to be harvested State-wide. Therefore, harvest on the refuge would have a negligible impact on the overall population. Disturbance to turkeys in an area will occur during the hunting season (generally, the month of May), but the disturbance is considered negligible as flocks are prone to move regularly over large areas.</p> <p>Partnerships and assisted hunting opportunities planned by the refuge could assist in increasing hunter numbers in the future.</p>
<p>Gray Squirrel Squirrels are found throughout the State of New Jersey, especially in developed areas. They are a highly reproductive species, nesting twice each year and producing three to five young per litter (Burt 1976).</p>	<p>No Action: No squirrel hunting would be permitted in the refuge; therefore, no impacts to squirrels or by squirrel hunting would occur.</p> <p>Proposed Action: Squirrel hunting would overlap refuge deer hunting areas. The squirrel season is a few weeks longer than proposed deer seasons on the refuge in this action. While a large number of acres will be open for squirrel hunting, high quality squirrel habitat is limited on the refuge, and impacts on squirrels and by hunting activities will be limited.</p> <p>While harvest reached nearly 300,000 squirrels in the early</p>

	<p>1980's in the State, recent annual harvest is estimated at about 60,000 animals (NJDFW 2017). Squirrels are abundant throughout the State and have a high reproductive rate, which limits the impact of hunting.</p>
<p>Other Wildlife and Aquatic Species The refuge supports a diversity of wildlife species of southern New Jersey including game and nongame species, reptiles, amphibians, and invertebrates, which are important contributors to the overall biodiversity on the refuge. Songbirds, raptors, and waterbirds breed on the refuge, whereas shorebirds and waterfowl primarily utilize the refuge as wintering and migratory habitat. Wintering waterfowl concentrations are highest from mid-October through February. The refuge maintains a 1,200-acre impoundment system (Wildlife Drive) that is closed to hunting (unless open for special goose hunts). This area provides sanctuary and roosting areas for migratory birds without hunting disturbances.</p>	<p>No Action: This alternative currently results in some short-term, but negligible, negative impacts to small mammals, birds, and other wildlife due to disturbance in areas where human access for hunting activities occurs.</p> <p>Proposed Action: While resident and non-game wildlife in areas newly opened to hunters and hunting may be negatively impacted by disturbance, that impact is expected to be negligible. Lands proposed for hunting are closed to the public throughout the rest of the year, but refuge staff has observed trespass and other types of disturbances in these areas, including off-road vehicle riding, dumping, camping, and illegal fires. The degree of the impact by the Proposed Action is not expected to be different than what may already occur (including temporary displacement of songbirds, raptors, and resident wildlife from foot traffic moving through the area).</p> <p>Generally, deer and waterfowl hunting areas are in separate locations, primarily due to suitable habitat of the target species, which would result in no negative impacts between hunting types. Turkey hunting occurs in May, which could result in an increase of disturbance to nesting and migratory birds. However, turkey hunting is largely a motion-limited activity and impacts are expected to be negligible. No dogs will be permitted while squirrel hunting to reduce impacts to wildlife and habitat, and to reduce conflict with deer hunters. The taking of non-target hunt species will not be permitted during any hunting seasons.</p> <p>Non-toxic shot is required for all migratory bird hunting, which reduces negatives impacts to wildlife using waterways and marshes. The refuge is not requiring the use of non-toxic shot for deer, turkey, or squirrel hunting, but encourages hunters to utilize it to reduce unintended negative impacts to wildlife. Some scavenging of game shot on the ground or in carcasses left behind by hunters could occur, but the likelihood of poisoning of wildlife is low.</p>
<p>Threatened and Endangered Species and Other Special Status Species</p>	<p>No Action: Swamp pink and northern long-eared bats currently occur in some areas in the current hunting areas. There is a low risk of swamp pink being trampled by hunters in areas where they occur. The risk to plant damage is low, as the plants are</p>

<p>A Section 7 Endangered Species Act review was conducted in coordination with the Service’s New Jersey Field Office for federally listed species. Piping plover (<i>Charadrius melodus</i>), red knot (<i>Calidris canutus rufa</i>), seabeach amaranth (<i>Amaranthus pumilus</i>), and Knieskern’s beaked-rush (<i>Rhynchospora knieskernii</i>) occur on the refuge, but not in hunting areas. Swamp pink (<i>Helonias bullata</i>) and Northern long-eared bats (<i>Myotis septentrionalis</i>) are likely to occur in the deer hunting areas in sparse numbers.</p>	<p>dormant during hunting season (October to January). Northern long-eared bats may be disturbed if hunters use their roost trees for stand placement, but bats are inactive during hunting seasons. We have observed no adverse impacts to these species.</p> <p>Proposed Action: Under this alternative, swamp pink would be blooming or nearly past blooming during turkey season in May. As indicated in the Section 7, plants could be trampled. Because the populations of swamp pink are small and disparate, we do not expect much impact from hunters. The sites are rather difficult to locate and it is unlikely hunters will come across blooming plants. The expansion of deer hunting on the refuge would potentially improve swamp pink survival as deer are a major predator of the plant.</p> <p>Regarding Northern long-eared bats, turkey hunting occurs on the ground and hunters would not be accessing trees so disturbance would be limited. No additional impacts are expected from the addition of squirrel hunting or the expansion of deer hunting areas.</p>
<p>Vegetation (including vegetation of special management concern) Vegetation varies throughout the refuge, but hunt areas are generally either forested wetlands and uplands or tidal saltmarsh. Hunting habitat descriptions are provided in Table 4. Approximately 119 acres of sea level fens occur in the refuge. These areas contain diverse plant communities that somewhat rare. Deer are known to browse native vegetation, which can reduce habitat quality. This is not widespread on the refuge, but is most noticeable in the vicinity of the Headquarters.</p>	<p>No Action: Negligible negative impacts currently occur to vegetation as a result of hunting. About 52 acres of sea level fens are contained within this alternative. The areas are very difficult to walk through and generally avoided. Some vegetation throughout the refuge can be trampled, but there are generally no long-term impacts. Cutting vegetation is prohibited on the refuge. Some illegal vegetation clearing has occurred in the past (<i>e.g.</i>, for shooting lanes), but that is the exception rather than the rule. Deer hunters are not permitted to permanently affix stands to refuge trees or built steps that would involve nails, screw, etc. No off-road vehicles are permitted on the refuge.</p> <p>Minor positive impacts occur by reducing the deer population which results in reduction in deer browse of native vegetation, especially swamp pink.</p> <p>Proposed Action: The addition of new lands to the hunting program is not expected to adversely impact vegetation on the refuge and could provide minor positive impacts due to deer herd reduction and correlated browsing reduction on native vegetation, including swamp pink. About 15 acres of sea level fens would be added to the hunt areas in this alternative (67 acres total). Vegetation trampling or other impacts are not</p>

	<p>currently observed to be a concern in areas that are open to hunting.</p>
<p>Air Quality Edwin B. Forsythe NWR is a designated Class I air quality area and the 6,600 acre Brigantine National Wilderness Area is afforded special protection by the Clean Air Act. The State of New Jersey and the Service work together to monitor air quality. Due to industrial facilities to the west, the area never reaches attainment for ozone (Service 2017c)</p>	<p>No Action: Negligible, short-term adverse impacts occur on the refuge related to the current hunting program due to the use of fossil fuels by hunters traveling to the refuge.</p> <p>Proposed Action: A continued negligible, short-term adverse impact could be associated with increased emissions from vehicles if hunting participation increases; however, it is anticipated that if those new hunters were not traveling to the refuge, they would likely be traveling to other hunt locations or engaging in other activities that would have comparable emission releases.</p>
<p>Water Resources Hundreds of miles of tidal creeks occur in the refuge. Lily Lake is the only freshwater lake on site.</p>	<p>No Action: Impacts to water resources are generally by motorized boats used by migratory bird hunters that may inadvertently leak polluting substances. These impacts would be considered minor and short-term.</p> <p>Proposed Action: New, local areas open to migratory bird hunting could see an impact from increased activities and boats. The impact is expected to be minor and short-term.</p>
<p>Wetlands The refuge is comprised of over 33,000 acres of tidal saltmarsh, over 7,000 acres of forested wetlands, 1,700 acres of impoundments, and nearly 600 acres of freshwater herbaceous wetlands. They are found throughout the hunt area.</p>	<p>No Action: Hunters are permitted to walk on lands throughout designated hunting areas without restriction. Migratory bird hunters are permitted to place blinds on refuge marshes, but must remove them daily. This minimizes impacts to vegetation. As bird hunting occurs in winter, impacts to vegetation are negligible and short-term. No impacts to any wetlands habitats have been observed by refuge staff.</p> <p>Proposed Action: While an increased acreage of land will be open to foot traffic, impacts to wetlands are expected to be negligible and short-term from expansion of hunting on the refuge.</p>
<p>Wilderness The approximately 6,600-acre Brigantine National Wilderness Area occurs in</p>	<p>No Action: Only negligible impacts occur from hunters that walk on the marsh and/or place a temporary blind on the marsh surface.</p>

<p>the refuge. The area is comprised of Holgate (southern end of Long Beach Island: not open for hunting); Little Beach Island (south of Little Egg Inlet: 2,226 acres of marsh open for migratory bird hunting); and the Mullica-Motts area (south of the Mullica River: 1,780 acres of marsh open for migratory bird hunting). Fishing occurs in adjacent streams in Little Beach and the Mullica-Motts areas.</p>	<p>Proposed Action: No new wilderness areas are being opened as a part of this proposal; therefore, no adverse impacts would occur to wilderness from expansion of hunting on the refuge.</p>
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<p style="text-align: center;">VISITOR USE AND EXPERIENCE</p>	
<p style="text-align: center;">AFFECTED ENVIRONMENT</p>	<p style="text-align: center;">ANTICIPATED DIRECT AND INDIRECT IMPACTS</p>
<p>The refuge is open to all six of the System’s priority public uses (hunting, fishing, wildlife observation, wildlife photography, environmental education and environmental interpretation). About 250,000 people visit the Refuge each year: 21,000 to the Visitor Information Center; 100,000 to the Wildlife Drive; 58,000 on six foot trails; 2,500 hunters; and 27,000 anglers, among other users.</p>	<p>No Action: All hunting occurs in areas normally closed to all users, except for the 5-day shotgun season along the western portion of the Wildlife Drive and the Goose Only hunt which occurs throughout the Wildlife Drive area. To minimize user conflicts, the western portion of the Wildlife Drive is closed to all users other than hunters during the 5-day shotgun hunt each year. Also, the Wildlife Drive is changed from one-way to two-way traffic on the portions that remain open to the public. Signs to direct the public and to increase safety are erected for the length of the hunt and entrance fees are waived. Regarding the Goose Only hunts, none have occurred in over 10 years as they were effective in reducing the flocks that were decimating marsh vegetation and habitat and have been unnecessary. Negligible, short-term impacts to user groups have occurred as a result of the No Action Alternative.</p> <p>Proposed Action: The current proposal provides hunting in areas of the refuge that are closed for all other uses, except as described in the No Action Alternative for the 5-day shotgun and Goose Only hunts in the vicinity of the Wildlife Drive.</p>

	<p>We are currently working with partners to develop the Cedar Bonnet Island portion of the refuge in Stafford Township. New walking trails will provide unique overlooks, but are fairly close to existing migratory bird hunting areas. To reduce negative impacts and increase safety, the areas open to migratory bird hunting have been re-delineated there to provide an over 250-yard buffer between the hunting and hiking areas. The area available to hunters was decreased from 70 to 67 acres.</p> <p>These mitigation efforts will ensure the proposed action will not have significant impacts on other wildlife-dependent recreation on the refuge.</p>
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CULTURAL RESOURCES	
AFFECTED ENVIRONMENT	ANTICIPATED DIRECT AND INDIRECT IMPACTS
<p>Some refuge lands were formerly occupied by the Delaware Tribe of Indians and the Delaware Tribe of Oklahoma. Some artifacts have been found when conducting Section 106 investigations ahead of construction work in various refuge locations, but primarily in the vicinity of the refuge Headquarters in Galloway, Township. These artifacts were largely remnants of pre-Industrial homesteads and were catalogued and stored. No sites eligible for listing on the National Register of Historic Places are found on the refuge.</p>	<p>No Action: No adverse impacts would occur under this alternative.</p> <p>Proposed Action: Section 106 compliance was conducted on October 16, 2017. No soil will be disturbed as a part of this alternative; therefore, no adverse impacts to resources will occur.</p>

REFUGE MANAGEMENT AND OPERATIONS	
AFFECTED ENVIRONMENT	ANTICIPATED DIRECT AND INDIRECT IMPACTS
<p>Land Use Infrastructure in hunt areas associated with refuge management includes roads, which are used as walking trails by hunters and are rarely used by refuge staff for access. While participating in the DMZ 56 hunt, permittees may use the Visitor Information Center to gather information or use the restrooms. The refuge is crisscrossed with well-traveled roads owned by local municipalities and counties. Hunters using upland areas of the refuge park along public road shoulders to access hunt sites.</p>	<p>No Action: Current levels of use of refuge infrastructure are short-term and have negligible impact.</p> <p>Proposed Action: While new areas of the refuge would be open to hunting, use of existing infrastructure would be limited. While there may be increased hunters throughout the refuge, impacts to local public roads are expected to be negligible.</p>
<p>Administration There are currently 10 full-time employee positions at the refuge. One biologist position is currently vacant. In addition, we have a visitor services specialist and a maintenance/trails support position (contracted). Hunt-related activities are performed by the fish and wildlife officer (law enforcement and community coordination);</p>	<p>No Action: Approximately \$64,780 of the refuge’s budget is currently spent on the hunt program. Refuge Managers coordinate the budget each year to ensure funds are available. Occasional assistance from State Conservation Officers and local police departments occurs. The refuge has one Federal fish and wildlife officer. No permits are sold and no funds are collected from the public to hunt on the refuge.</p> <p>Proposed Action: Estimated costs to implement this alternative are an additional \$20,960. This is largely due to the increased time to manage the expansion into squirrel and turkey hunting. It will require approximately 50 percent of the refuge Federal fish and wildlife officer’s time to enforce hunting and fishing, as well as 15 percent of the refuge biologist’s time for coordination of the hunt program and assessment of the impact of hunting and</p>

<p>a biologist (permits and provides hunters information); visitor services manager (online public communication and website updates); refuge and deputy refuge managers (assuring administrative record is updated, coordinate with permit system contractor, ensure hunt-related tasks are accomplished); and two maintenance staff (maintaining signs, trail maintenance, removing trash, parking lot maintenance). The refuge has an annual budget of about \$1.4 million.</p>	<p>fishing on Refuge wildlife and habitat. Refuge Managers will spend 5 to 10 percent of their time overseeing and implementing the program. This would impact the administration of the refuge, and there is a need for an additional refuge Federal fish and wildlife officer. The impact would be moderately adverse because we would still implement other priority actions and obligations in meeting the purpose of the refuge and the mission of the Refuge System, such as habitat restoration and management, environmental education programs, etc. The budget would be managed to support the program.</p> <p>This proposal includes a first-time refuge hunting permit that hunters will be required to purchase. Hunters that purchase State permits for DMZ 22, 42, or 51 will be required to buy one refuge permit annually regardless of the number of zones they hunt. Turkey hunters drawn for any of the State-run lotteries will be required to purchase a refuge turkey hunt permit each year. Migratory bird hunters and squirrel hunters would purchase a refuge migratory bird or squirrel hunt permit each year, respectively. It is estimated that approximately \$25,000 per year would be collected by the refuge from the new permitting system. The permits will only be available online and the processing will largely be managed by a contractor, requiring minimal refuge staff time.</p>
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SOCIOECONOMICS	
AFFECTED ENVIRONMENT	ANTICIPATED DIRECT AND INDIRECT IMPACTS
<p>Local and regional economies The refuge is located approximately 6 miles from Atlantic City, New Jersey, but it is located in Ocean, Burlington and Atlantic counties (1.3 million residents) (US Places.com 2017). The predominant land uses in the vicinity of the refuge are residential and commercial development. Local Chambers of Commerce consider the Refuge one of the area’s main attractions. The Refuge averages about 250,000 visitors per year. Tourism and healthcare contribute the greatest amount of funding to the local economy. Other recreational opportunities are provided at state and local forests and parks. The Jersey Shore is an extremely popular summer destination for visitors from New York, Philadelphia and Quebec. Total expenditures from Refuge visitors were \$4.1 million with non-residents accounting for \$2.7 million or 63 percent of total expenditures in 2011.</p>	<p>No Action: The current program has a minor, long-term beneficial impact to the local economy.</p> <p>Proposed Action: While hunting visitation may increase due to increased opportunities, hunting only accounts for 1 percent of expenditures related to the refuge. Therefore, additional economic impact is expected to be negligible under this action.</p>

<p>Expenditures on hunting activities accounted for only 1 percent of all expenditures (non-consumptive activities and fishing were 66 and 32 percent, respectively (Service 2013a).</p>	
<p>ENVIRONMENTAL JUSTICE</p>	
<p>Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires all Federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high or adverse human health or environmental impacts of their programs and policies on minorities and low-income populations and communities.</p>	<p>The Service has not identified any potential high and adverse environmental or human health impacts from this proposed action or any of the alternatives. The Service has identified no minority or low income communities within the impact area. Minority or low income communities will not be disproportionately affected by any impacts from this proposed action or any of the alternatives.</p>
<p>INDIAN TRUST RESOURCES</p>	
<p>Some refuge lands were formerly occupied by the Delaware Tribe of Indians and the Delaware Tribe of Oklahoma.</p>	<p>There are no Indian Trust Resources on the refuge and this action will not impact any Indian Trust Resources.</p>

Cumulative Impact Analysis:

Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions”.

For more information on the national cumulative impacts of the Service’s hunting and fishing program on the Refuge System, see [Title of Cumulative Impacts Report] (Appendix _) *Will be inserted when completed this year.*

Past, Present, and Reasonably Foreseeable Activity in Area of Analysis	Descriptions of Anticipated Cumulative Impacts
<p>Hunting Hunting occurs on public lands that are found adjacent to several locations of the refuge. These areas include: Ocean County Natural Lands Trust, Manahawkin Wildlife Management Area (WMA), Stafford Forge WMA, Great Bay Boulevard WMA, and Bass River State Forest.</p>	<p>Resident Wildlife (Deer, Turkey and Squirrel): We conduct the refuge hunting program within the framework of State and Federal regulations. Population estimates of hunted species are developed at a regional and State scale. Hunting frameworks and take limits are set based upon these estimates. The proposed hunting program rules will be the same as, or more restrictive than, hunting regulations throughout the State of New Jersey. By maintaining hunting regulations that are the same as or more restrictive than the State, we can ensure that we are maintaining seasons that are supportive of management on a more regional basis. Such an approach also provides consistency with large-scale population status and objectives. The refuge regularly coordinates with the State about the hunting program.</p> <p>About 60 deer per year are harvested on the refuge. During the 2016-17 hunt season, 821 deer were harvested in the DMZs the refuge is adjacent to in Ocean, Burlington, and Atlantic counties. In 2016, the turkey harvest in TGAs 14 and 16 (the areas the refuge would be included in under the proposed action alternative) was 337 birds. Statewide, over 63,000 squirrels were harvested in 2015-2016. The addition of refuge lands and seasons will only negligibly impact these species populations.</p> <p>Under the proposed action alternative, the refuge would allow the harvest of three games species. Nearby public properties in the local area offer similar opportunities and other species such as rabbit, other game birds, and the take of non-target wildlife. Even at the local level, the refuge only adds slightly to cumulative impacts on resident wildlife, and a negligible amount to regional and statewide populations. Wildlife management of populations is important to ensure the health of the ecosystem, and the refuge’s hunt program provides minor, additional beneficial impacts to the cumulative impacts of wildlife management in the State.</p> <p>Migratory Birds: Migratory bird populations throughout the</p>

United States are managed through an administrative process known as flyways. The refuge is located in the Atlantic Flyway. In North America, the process for establishing hunting regulations is conducted annually. In the United States, the process involves a number of scheduled meetings (Flyway Study Committees, Flyway Councils, Service Regulations Committee, etc.) in which information regarding the status of migratory bird populations and their habitats is presented to individuals within the agencies responsible for setting hunting regulations. In addition, public hearings are held and the proposed regulations are published in the Federal Register to allow public comment.

Annual waterfowl assessments are based upon the distribution, abundance, and flight corridors of migratory birds. An Annual Waterfowl Population Status Report is produced each year and includes the most current breeding population and production information available for waterfowl in North America (Service 2017b). The Report is a cooperative effort by the Service, the Canadian Wildlife Service, various state and provincial conservation agencies, and private conservation organizations. An Annual Adaptive Harvest Management Report (AHM) provides the most current data, analyses, and decision making protocols (Service 2017a). These reports are intended to aid the development of waterfowl harvest regulations in the United States for each hunting season. Coot, moorhen and rail species are also counted and analyzed.

We generally follow State dates. The refuge can be more restrictive, but cannot be more liberal than the AHM allows.

The Service believes that hunting on the refuge will not add significantly to the cumulative impacts of migratory bird management on local, regional, or Atlantic Flyway populations because the percentage likely to be taken on the refuge, though possibly additive to existing hunting takes, would be a tiny fraction of the estimated populations. In addition, overall populations will continue to be monitored and future harvests will be adjusted as needed under the existing flyway and State regulatory processes. Several points support this conclusion: (1) the proportion of the national waterfowl harvest that occurs on national wildlife refuges is only 6 percent (Service 2013c); (2) there are no populations that exist wholly and exclusively on national wildlife refuges; (3) annual hunting regulations within the United States are

	<p>established at levels consistent with the current population status; (4) refuges cannot permit more liberal seasons than provided for in Federal frameworks; and (5) refuges purchased with funds derived from the Federal Duck Stamp must limit hunting to 40 percent of the available area. As a result, changes or additions to hunting on the refuge will have minor impacts on wildlife species in New Jersey. Although the Proposed Action Alternative will increase hunting opportunities slightly compared to the No Action Alternative, the slight increase in hunter activity will not rise to a significant cumulative impact locally, regionally, or nationally.</p>
<p>Development and Population Increase The New Jersey population has been increasing, though only slightly, for decades. Since Hurricane Sandy in 2012, some municipalities near the refuge have experienced population reductions (<i>e.g.</i>, Beach Haven: - 40 percent; Lavallette: - 23 percent, Brigantine: - 26 percent) (NJ.com). Developmental pressure, however, continues, especially in high elevations relative to areas that were traditionally constructed in tidal saltmarshes (<i>pers. obs.</i>). Development and population growth are events which are most likely to reduce wildlife and available habitat.</p>	<p>Because the refuge uses an adaptive management approach for its hunt program, reviewing the hunt program annually and revising annually (if necessary), the Service’s hunt program can be adjusted to ensure that it does not contribute further to the cumulative impacts of population growth and development on resident wildlife and migratory birds.</p>
<p>Use of lead ammunition Lead ammunition is permitted in New Jersey and on the refuge for all hunts, except migratory birds.</p>	<p>The refuge receives approximately 2,500 hunting visits each year for all seasons. Use of the refuge could increase about 10 percent, which would increase the addition of lead shot to the local landscape due to deer, squirrel and turkey hunting. This could result in localized accumulations of lead in some portions of the refuge, including small wooded wetlands. This accumulation of lead could incur negative impacts if it is consumed by wildlife, but the likelihood of that resulting in poisoning is low.</p>
<p>Climate Change</p>	<p>Under this alternative, the refuge would use an adaptive</p>

<p>Ecological stressors are expected to affect a variety of natural processes and associated resources into the future. The most substantial concern at the refuge is sea level rise and the impact on marsh elevation. This is already causing marsh migration, marsh inundation, and increased mortality in forests adjacent to saltmarshes. These habitat changes may dramatically reduce the amount and quality of both forest for resident wildlife and saltmarsh for migratory birds that are hunted. As a result, wildlife would be forced into reduced amounts of available habitat. Concentrating birds into smaller areas also has the potential to more readily allow disease to spread within overwintering waterfowl populations resulting in increased bird mortality.</p>	<p>management approach for its hunt program, reviewing the hunt program annually and revising annually (if necessary), the Service’s hunt program can be adjusted to ensure that it does not contribute further to the cumulative impacts of climate change on resident wildlife and migratory birds.</p>
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Summary of Findings and Conclusions:

The purpose of this EA is to briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a Finding of No Significant Impact (FONSI). The term “significantly” as used in NEPA requires consideration of both the context of the action and the intensity of impacts. This section summarizes the findings and conclusions of the analyses above so that we may determine the significance of the impacts.

Affected Environment	No Action Alternative:	Proposed Action Alternative:
Hunted Species	Negligible, short-term adverse impacts (migratory birds); minor, long-term beneficial impacts (deer); no impacts (turkey, squirrel).	Negligible, short-term adverse impacts (migratory birds, turkey, squirrel); minor, long-term beneficial impacts (deer).
Other Wildlife and Aquatic Species	Negligible, short-term adverse impacts (disturbance).	Minor, short-term adverse impacts (disturbance).

Threatened and Endangered Species	Minor, long-term positive impact (deer reduction for swamp pink).	Minor, long-term positive impact (deer reduction for swamp pink).
Vegetation	Negligible, short-term impacts (trampling).	Negligible, short-term impacts (trampling).
Air Quality	Negligible, short-term adverse impacts (emissions).	Negligible, short-term adverse impacts (emissions).
Water Resources	Minor, short-term adverse impacts (boat emissions).	Minor, short-term adverse impacts (boat emissions).
Wetlands	Negligible, short-term adverse impacts (trampling).	Negligible, short-term adverse impacts (trampling).
Wilderness	Negligible, short-term adverse impacts (trampling).	Negligible, short-term adverse impacts (trampling).
Cultural Resources	No adverse impacts.	No adverse impacts.
Visitor Use and Experience	Negligible, short-term impacts (temporary inconvenience).	Negligible, short-term impacts (temporary inconvenience).
Socioeconomics	Moderate, long-term positive impacts (economic growth).	Moderate, long-term positive impacts (economic growth).
Refuge Management and Operations	Moderate, long-term positive (providing opportunities) and negative (funding) impacts.	Moderate, long-term positive (providing opportunities) and negative (funding) impacts.
Environmental Justice	No impact.	No impact.
Indian Trust Resources	No impact.	No impact.

No Action Alternative. There would be no additional costs to the refuge under this alternative. There would be no change to current public use and wildlife management programs on the refuge under this alternative. Habitat conditions could continue to be negatively impacted by the white-tailed deer population. The refuge would not increase its impact on the economy and would not provide new hunting and access opportunities. This alternative has the least direct impacts of physical and biological resources; however, long-term impacts on habitat quality would be moderately adverse. In addition, it would minimize our mandates under the Refuge System Administration Act and Secretarial Order 3356.

Proposed Action Alternative. This alternative is the Service’s proposed action because it offers the best opportunity for public hunting that would result in a minimal impact on physical and biological resources, while meeting the Service’s mandates under the Refuge System Administration Act and Secretarial Order 3356.

The Service believes that hunting on the refuge will not have a significant impact on local, regional, or Atlantic Flyway migratory bird populations because the percentage likely to be taken on the refuge, though possibly additive to existing hunting takes, would be a tiny fraction of the

estimated populations. In addition, overall populations will continue to be monitored and future harvests will be adjusted as needed under the existing flyway and state regulatory processes. Additional hunting would not add more than slightly to the cumulative impacts to waterfowl stemming from hunting at the local, regional, or flyway levels, and would only result in minor, negative impacts to migratory waterfowl populations.

The addition of turkey and squirrel hunting and the expansion of deer hunting will not have significant impact on local and regional wildlife populations because the percentage likely to be taken on the refuge, though possibly additive to existing hunting takes, would be a tiny fraction of the estimated populations. In addition, overall populations will continue to be monitored in collaboration with NJDFW biologists to determine if harvest levels should be adjusted. Additional hunting would not add more than slightly to the cumulative impacts to resident wildlife stemming from hunting at the local or regional, and would only result in minor, negative impacts to their populations.

Conclusion. The Service proposes to increase hunting and access opportunities on Edwin B. Forsythe NWR as analyzed above under the Proposed Action Alternative, which will not have any significant impacts on the human environment.

List of Sources, Agencies and Persons Consulted:

To prepare the current plan and alternatives, refuge staff met with the NJDFW and stakeholders from the Atlantic, Burlington and Ocean County Sportsmen Federations, New Jersey Waterfowlers Association, and the New Jersey Chapter of the National Wild Turkey Federation.

- New Jersey Division of Fish and Wildlife – Larry Herrighty, Dave Golden, Carol Stanko, Ted Nichols, Joe Leskie, and Tony McBride.
- Atlantic County Sportsmen Federation –Eric Gaupp.
- Burlington County Sportsmen Federation – Tom Walsh.
- Ocean County Sportsmen Federation – Larry Cella, Tom Glowacka, Charles Hendrickson.
- New Jersey Waterfowlers Association – Bob Greenlan, Mike Kantor.
- National Wild Turkey Federation – Lou Gambale.

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U.S. Fish and Wildlife Service (Service). 2013b. Draft Habitat Management Plan, Edwin B. Forsythe National Wildlife Refuge, December June 2013. USFWS, Division of Natural Resources, Hadley, MA. 137pp.

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U.S. Fish and Wildlife Service (Service). 2017b. Waterfowl: Population Status, 2017. USFWS, Division of Migratory Birds and Management, Laurel, MD. 74pp.

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US Places.com. 2017. <http://www.us-places.com/New-Jersey/population-by-County.htm>. Accessed October 22, 2017.

List of Preparers:

Virginia Rettig – Refuge Manager
Rich Albers – Deputy Refuge Manager
Paul Castelli – Wildlife Biologist (retired)
Viny Turner – Wildlife Biologist
Amy Drohan – Biologist
Chris Pancila – Fish and Wildlife Officer
Keena Graham – Visitor Services Manager

State Coordination:

Refuge staff met with NJDFW representatives on July 26, 2017, to discuss the current hunting program and to discuss recommendations for the future. After that meeting, several further conversations were held and emails exchanged to gather more information and recommendations. The NJDFW reviewed and provided initial comments on this EA and the associated draft hunt plan.

Public Outreach:

Initial scoping targeted representatives from the three local county sportsmen federations and other organizations (New Jersey Waterfowlers and New Jersey Wild Turkey Federation). They were informed that all members and the general public would have the opportunity to provide comments later in the process. The EA and hunt plan will be advertised to the public for comment via the refuge's website, social media accounts, and press releases. At least one public meeting will be held.

Determination:

This section will be filled out upon completion of any public comment period and at the time of finalization of the Environmental Assessment.

- The Service's action will not result in a significant impact on the quality of the human environment. See the attached "**Finding of No Significant Impact**".
- The Service's action on this permit application **may significantly affect** the quality of the human environment and the Service will prepare an Environmental Impact Statement.

Preparer Signature: Virginia Rettig Date: 1/29/19

Name/Title/Organization: VIRGINIA RETTIG, REFUGE MANAGER
EDWIN B. FORSYTHE NWR

Certifying Officer Signature: Scott Kahan Date: 1/29/19

Name/Title: SCOTT KAHAN, CHIEF, NWRS, NORTHEAST REGION

OTHER APPLICABLE STATUTES, EXECUTIVE ORDERS & REGULATIONS

STATUTES, EXECUTIVE ORDERS, AND REGULATIONS
<p>Cultural Resources</p> <p>American Indian Religious Freedom Act, as amended, 42 U.S.C. 1996-1996a; 43 CFR Part 7.</p> <p>Antiquities Act of 1906, 16 U.S.C. 431-433; 43 CFR Part 3.</p> <p>Archaeological Resources Protection Act of 1979, 16 U.S.C. 470aa-470mm; 18 CFR Part 1312; 32 CFR Part 229; 36 CFR Part 296; 43 CFR Part 7.</p>

National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470-470x-6; 36 CFR Parts 60, 63, 78, 79, 800, 801, and 810.

Paleontological Resources Protection Act, 16 U.S.C. 470aaa-470aaa-11.

Native American Graves Protection and Repatriation Act, 25 U.S.C. 3001-3013; 43 CFR Part 10.

Executive Order 11593 - Protection and Enhancement of the Cultural Environment, 36 Fed. Reg. 8921 (1971).

Executive Order 13007 - Indian Sacred Sites, 61 Fed. Reg. 26771 (1996).

Fish and Wildlife

Bald and Golden Eagle Protection Act, as amended, 16 U.S.C. 668-668c, 50 CFR 22.

Endangered Species Act of 1973, as amended, 16 U.S.C. 1531-1544; 36 CFR Part 13; 50 CFR Parts 10, 17, 23, 81, 217, 222, 225, 402, and 450.

Fish and Wildlife Act of 1956, 16 U.S.C. 742 a-m.

Lacey Act, as amended, 16 U.S.C. 3371 et seq.; 15 CFR Parts 10, 11, 12, 14, 300, and 904.

Migratory Bird Treaty Act, as amended, 16 U.S.C. 703-712; 50 CFR Parts 10, 12, 20, and 21.

Executive Order 13186 - Responsibilities of Federal Agencies to Protect Migratory Birds,
66 Fed. Reg. 3853 (2001).

Natural Resources

Clean Air Act, as amended, 42 U.S.C. 7401-7671q; 40 CFR Parts 23, 50, 51, 52, 58, 60, 61, 82, and 93; 48 CFR Part 23.

Wilderness Act, 16 U.S.C. 1131 et seq.

Wild and Scenic Rivers Act, 16 U.S.C. 1271 et seq.

Executive Order 13112 - Invasive Species, 64 Fed. Reg. 6183 (1999).

Water Resources

Coastal Zone Management Act of 1972, 16 U.S.C. 1451 et seq.; 15 CFR Parts 923, 930, 933.

Federal Water Pollution Control Act of 1972 (commonly referred to as Clean Water Act), 33 U.S.C. 1251 et seq.; 33 CFR Parts 320-330; 40 CFR Parts 110, 112, 116, 117, 230-232, 323,

and 328.

Rivers and Harbors Act of 1899, as amended, 33 U.S.C. 401 et seq.; 33 CFR Parts 114, 115, 116, 321, 322, and 333.

Safe Drinking Water Act of 1974, 42 U.S.C. 300f et seq.; 40 CFR Parts 141-148.

Executive Order 11988 - Floodplain Management, 42 Fed. Reg. 26951 (1977).

Executive Order 11990 - Protection of Wetlands, 42 Fed. Reg. 26961 (1977).

Appendix D

Summary of Public Comments and Service Responses

APPENDIX D

Summary of Public Comments and Service Responses on the Edwin B. Forsythe National Wildlife Refuge Hunt Plan and Environmental Assessment

Introduction

In March 2018, the U.S. Fish and Wildlife Service (Service, we, our) published the draft Hunt Plan and Environmental Assessment (EA) for Edwin B. Forsythe National Wildlife Refuge (NWR, the refuge). The draft Hunt Plan and EA proposed opening new areas for hunting and adding squirrel and turkey seasons.

On March 12, 2018, we distributed a press release to news organizations, and alerted visitors through a posting on doors to the refuge visitor information center, to the availability of the hunt plan. In the subsequent days, the hunt plan was uploaded onto the refuge website, and a press release was shared on Facebook with a link to the plan. Two public meetings were scheduled for March 20 and 21, but inclement weather required the meeting held in Lacey, NJ to be rescheduled to April 4. Upon request, the public comment period was extended from April 11 until April 25, 2018. A total of 38 individuals or entities shared comments during the public meetings, and through email correspondence. This document summarizes the substantive comments and provides our responses to them.

Summary of Comments Received

After the comment period ended on April 25, 2018, we compiled all of the comments we received, including all letters, emails, and comments recorded at public meetings. We received 41 correspondences from 38 unique submitters (Table 1).

We received a variety of comments from local and State entities, including the following:

- New Jersey Division of Fish and Wildlife (NJDFW)
- Barnegat Bay Salt Hay LLC/Barnegat Pinelands LLC
- Save Barnegat Bay (SBB)
- NJ Conservation Foundation (NJ Conservation)
- Atlantic County Federation of Sportsmen's Club
- Barnegat Bay Chapter of Delta Waterfowl
- Linden Sportsmen's Rod and Gun Club
- NJ Waterfowl Association

Service’s Response to Comments by Subject

We grouped similar comments together and organized them by subject in the discussion below:

- General Comments on Hunt Plan
 - ❖ General Support
 - ❖ General Opposition
- Presentation of Hunt Plan
 - ❖ Public Meetings and Comment Period
 - ❖ Maps
 - ❖ Scientific Information
- Hunter Conflicts
- Hunt Administration
 - ❖ Permits and Fees
 - ❖ Parking/Access
 - ❖ Hunt Areas/Zones
 - ❖ Jump Shooting
- Safety
- Enforcement
- Laws, Policies, and Mandates
- Consultation and Coordination

Directly beneath each subject heading, you will also see a list of unique correspondence numbers that correspond to the submitter name listed in Table 1.

We address and respond to substantive comments, which are those that suggest our analysis is flawed in a specific way (e.g., challenge the accuracy of information presented; challenge the adequacy, methodology, or assumptions of the environmental or social analysis and supporting rationale; present new information relevant to the analysis; present reasonable alternatives, including mitigation, other than those presented in the document).

Our discussion does not include responses to any comments we determined to be non-substantive, such as comments that support or object to our statements without providing reasoning that meet the criteria for a substantive comment; comments that do not pertain to the project area or proposal; or typographical corrections. A summary of changes to the draft Hunt Plan and draft Compatibility Determination (CD) can be found at the end of this appendix.

The full versions of the Hunt Plan, CD, and draft EA are available online at:
https://www.fws.gov/refuge/edwin_b_forsythe/

For additional information, please contact:

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General Comments on Hunt Plan

General Support

Comment: Many commenters were supportive of the plan. Several hunters and NJ Division of Fish and Wildlife (NJDFW) supported the expansion of the hunting program (lands and species) and the simplification of refuge regulations and Deer Management Zones (DMZs). *ID #1, 2, 3, 8, 13, 19, 29, 39, 40)*

Response: We appreciate the support, and remain interested in providing a variety of hunting opportunities for the public, which is supported by the National Wildlife Refuge System’s priority public uses policy. Sections 5(c) and (d) of the National Wildlife Refuge System Improvement Act (Improvement Act) states “compatible wildlife-dependent recreational uses are the priority general public uses of the NWRS and shall receive priority consideration in planning and management; and when the Secretary [of the Interior] determines that a proposed wildlife-dependent recreational use is a compatible use within a refuge, that activity should be facilitated, subject to such restrictions or regulations as may be necessary, reasonable, and appropriate.” Hunting is one tool used to manage and maintain wildlife populations at a level compatible with the environment while providing wildlife-dependent recreational opportunities and permitting the use of a valuable renewable resource. The refuge works closely with NJDFW to manage the deer herd based on data they collect throughout the year, and we defer to them on deer hunting regulations. Secretarial Order 3356 also directs “greater collaboration with state, tribes, and territorial partners” which encourages better alignment of refuge-specific regulations with State regulations.

General Opposition

Comment: Several commenters expressed concerns with the expansion of hunting areas close to their private properties and residences, and did not see the need to increase hunting areas on the refuge. *(ID #6, 21, 23, 25, 26)*

Response: The Service believes the vast majorities of hunters are law-abiding citizens and will respect neighboring landowner’s property rights. Although the refuge provides hunting maps and refuge-specific regulations, it is ultimately the responsibility of the hunter to know and obey them. Unfortunately, not all do. The Service will ensure that refuge boundaries are, and continue to be, properly posted to notify both refuge visitors and private landowners to the best of our ability. Private landowners will be encouraged to contact either refuge and/or State/local law enforcement officers if trespassing incidents occur and every effort will be made to respond in an efficient and timely manner. The Service also encourages private landowners to post their own property, although we have designed hunting zones to be administered in a safe manner, and have buffers around communities and roads. Coordination with NJDFW advises that there are already sufficient laws and regulations in place to discourage boundary shooting.

Comment: Some commenters expressed their thoughts that the refuge should be closed to hunting, or no additional hunting should occur on the refuge. *(ID #7, 16, 23)*

Response: Closing the refuge to hunting would conflict with the Improvement Act, which lists hunting as an appropriate and priority use of the Refuge System; directs that hunting shall receive priority consideration in refuge planning and management; mandates that hunting opportunities should be facilitated when feasible; and directs the Service to administer the Refuge System so as to “provide increased opportunities for families to experience compatible wildlife-dependent recreation, particularly opportunities for parents

and their children to safely engage in traditional outdoor activities, such as fishing and hunting.”

Presentation of Hunt Plan

Public Meetings and Comment Period

Comment: One commenter requested the public presentations and public comment period be extended considering the inclement weather. (ID #5)

Response: Two public meetings were scheduled for March 20 and 21, but inclement weather required the meeting held in Lacey, NJ to be rescheduled to April 4. Upon request, the public comment period was extended from April 11 until April 25, 2018.

Comment: A final PowerPoint presentation of key points and detailed maps should be orchestrated to deliver a consistent message. (ID #8)

Response: Once the plan is finalized, refuge staff will invite the public to meetings where information will be provided. Information will also be provided on the refuge’s website and Facebook page.

Comment: Several comments expressed displeasure in the length of the public comment period, and local residents had not received notification of this hunt plan’s release. (ID #5, 6, 16, 20, 23, 25)

Response: The usual comment period for a hunt plan and EA is approximately 30 days; however, with our extended period, we offered the public over 6 weeks for review and comment. We notified the public of the plan’s availability through a variety of outreach tools, including distribution of a press release to news organizations, and we alerted visitors through a posting on doors to the refuge visitor information center. We also uploaded the plan onto the refuge website, and a press release was shared on Facebook with a link to the plan.

Comment: One individual requested a written response to their letter, and an in-person meeting with refuge staff to discuss the hunt plan. (ID #6)

Response: A meeting with the commenter was held in August 2018.

Maps

Comment: The maps included in the Hunt plan should be updated with more fine-scale, clearer maps in order to delineate the new hunt areas. (ID #6, 8, 9, 19)

Response: We intend to provide downloadable, geo-referenced maps on our website prior to implementation of the new plan that allow users to zoom in on their location. These maps can be read with mapping apps so they can be accessed in the field. Additionally, the public will be able to access and zoom in on maps on their computers.

Scientific Information

Comment: The deer population surrounding the refuge is not significantly impacting the landscape, and the roadway speeds around residential areas are not of great concern for car/deer collisions. (ID #6, 9, 10, 25)

Response: Generally, deer populations throughout the refuge area do not have a negative impact to the landscape. However, there are a few locations where herds too large for the available habitat are present, and negative interactions have been reported periodically.

Comment: “Any surveys or studies should be conducted during non-hunting months - not the second week of November.” (ID #28)

Response: The refuge works closely with the NJDFW to manage the herd based on data they collect throughout the year, and NJDFW determines when surveys occur.

Comment: One commenter requested mammal studies and surveys to be done to analyze the decline of several species. (ID #25)

Response: Comment noted.

Hunter Conflicts

Comment: Some commenters cite the expansion of huntable species could cause hunter conflicts, particularly “allowing squirrel hunting to overlap the refuge deer hunting areas.” Hunters in close contact could cause altercations that could become dangerous. (ID #11, 12, 28)

Response: The Service provides hunting of multiple species simultaneously at refuges throughout the United States with limited conflict. Hunting in all public land areas require hunters to work together to respectfully resolve conflicts in the field.

Comment: Hunt permits should be specific to several zones to limit unnecessary contact with other hunters. (ID #12)

Response: Two refuge deer hunt areas were included in the proposed plan. Based on comments we have received, the final plan contains three zones: North Forsythe, South Forsythe and the HQ Area (5-day shotgun hunt).

Hunt Administration

Comment: “The special goose area, which includes the wildlife drive and adjacent marshes, should include provisions for taking overabundant resident Canada geese in both early and late seasons.” (ID #19)

Response: We agree and have incorporated overabundant resident Canada Goose provisions into the final hunting plan.

Comment: SBB encourages deer hunting with bows only with an emphasis in taking females. Turkey hunting also could be permitted by bow only in selected areas as it conflicts with other uses and provides no habitat management need. Also, squirrel hunting is unnecessary and risks the addition of lead into land and water resources. (ID #22)

Response: NJDFW manages the deer herd across the State of New Jersey and we defer to them on harvest regulations regarding age/sex. About 1,130 acres of bow-only area will be available to hunters. Squirrel hunting provides a wildlife-dependent opportunity for the public. Based on our experience and the expected participation of this season, we anticipate a minimal impact to the environment from lead shot associated with squirrel hunting. We also will be encouraging firearm hunters to voluntarily use non-toxic (i.e, non-lead) shot while gun hunting for species other than migratory birds where it is already required.

Comment: “I like the opening of areas to not include dedicated pins post.” (ID #35)

Response: Comment noted.

Comment: The plan is not clear on whether the no limit on shot shells is the carry shells allowed or the box limit allowed. (ID #22)

Response: There are no longer any shot shell limits on the refuge to hunt migratory birds.

Comment: No limit on shot shells and decoy minimums is a bad idea; it promotes sky busting and disturbs holding areas of the marsh. (ID #18, 20, 37)

Response: In our experience, shot shell limits were needed in the past due to the pressure on the resource and competition for hunting locations, and much of that pressure has been reduced over the years. The shot shell maximum was eliminated.

Comment: One commenter supported the ability to jump shoot (correspondence #35) while multiple commenters stated jump shooting is dangerous for hunters, and should not be allowed on the refuge because it leads to injured birds. Jump shooting also runs waterfowl off the marsh, causing them to lose a sanctuary area. (ID #14, 15, 18, 20, 32, 37)

Response: Based on input from commenters, jump shooting will no longer be permitted on refuge lands. The 6-decoy minimum was retained to discourage jump shooting.

Comment: SBB suggests adding that the plan should specifically state no planks will be allowed, and prohibit wood walk planks or paths and pit blinds. (ID #22)

Response: Laying planks on the refuge marsh, making paths, and pit blinds continue to be prohibited on the refuge.

Comment: Several commenters pointed out baiting and deer driving wasn't explicitly mentioned in the draft plan, concerned that both would cause safety and enforcement issues. (ID #11, 14, 27)

Response: No baiting is permitted on any national wildlife refuge. Deer driving is not prohibited.

Comment: The refuge should “revisit the proposed opening of new refuge hunting areas on the marsh (not opened for waterfowl currently or proposed) for the hunting of deer, squirrel, and turkey.” (ID #11)

Response: The comment is noted. The maps were revised and no migratory bird hunting areas overlap deer, squirrel or turkey areas.

Comment: Bag limit on does is too high. One buck and one doe would be more realistic. Also the three-point rule should be in effect to give them a chance to mature. (ID #27)

Response: NJDFW manages the deer herd across the State of New Jersey and we defer to them on those regulations.

Comment: NJ Conservation supports deer hunting via bow and arrow with emphasis on harvesting females, as necessary to protect plants and habitat structure. “We do not support a deer hunting program

that is equally distributed between males and female deer or biased towards harvest of antlered deer for recreation.” Use of firearms for female deer, or other over-abundant species like snow geese or Canada geese, hunting might be supported. NJ Conservation does not support hunting for primarily recreational purposes on Forsythe NWR, it should be managed as a refuge for wildlife. There is already an abundance of public hunting lands in NJ. (ID #24)

Response: We are interested in providing a variety of hunting opportunities for the public, which is supported by the National Wildlife Refuge System’s priority public uses policy. NJDFW manages the deer herd across the State of New Jersey and we defer to them on those regulations.

Permits and Fees

Comment: Several hunters expressed opposition to the plan’s proposal to require an additional fee or permit for waterfowl hunters to hunt on Forsythe NWR. They cited that they already purchase annual State and Federal duck stamps, and to require another permit and fee would be unfair and unnecessary, when enforcement is nonexistent. (ID #2, 3, 4, 14, 18, 19, 20, 35, 41)

Response: Funds collected from Federal duck stamps are solely used to acquire lands for national wildlife refuges. Funds from State stamps and licenses are retained by the State of New Jersey, and excise taxes, such as the Pittman-Robertson Act funds, are collected by the Service and distributed to the States. The refuge has determined that a permit fee is required to offset the cost of expanding the seasons and species for hunting for the public.

Comment: Include the permit in the license system as a question when duck stamp (NJ) license is obtained as a means to properly communicate requirements for permit or communicate with interested hunters via social media. To get an accurate head count for interested hunters, an approach similar to the NJ saltwater registry can be adopted. (ID #18, 20)

Response: The State of New Jersey and Federal computer systems cannot be combined to gather needed data.

Comment: Delta Waterfowl pointed out inconsistencies of requirements on migratory bird hunting permits depending on the mode used (hunting on land vs. boat). (ID #20)

Response: The refuge does not manage the waters of the State of New Jersey; therefore, we may not sell a permit for use of tidal water.

Comment: Hire a local New Jersey area company to run the permit program. (ID #35)

Response: We will review all available sources capable of managing the permit program and determine who best meets the needs of the refuge and the hunters.

Comment: NJDFW suggests excluding migratory bird hunters from hunting permit requirements because they already pay a \$25 federal duck stamp. (ID #13)

Response: Funds raised by the sale of the federal Migratory Bird Stamp go specifically to buy lands for national wildlife refuges. None of those funds assist in the operation of refuges or refuge hunting programs.

Comment: Some commenters expressed support for requiring non-waterfowl hunters to pay a refuge permit to hunt on the refuge (ID #2, 3, 4)

Response: The comments are noted.

Comment: One commenter suggested adding a comparison of hunting related and non-hunting related fees. (ID #8)

Response: This information has been added to the hunting plan.

Comment: The specific permit fee wasn't addressed in the plan and wasn't transparent. A fee can potentially create a barrier to hunter participation. (ID #13, 19)

Response: Permit fees were added to the final hunt plan. The annual refuge hunt permit is \$20 plus a \$5 administrative fee for website maintenance.

Comment: "What happens if a hunter doesn't have a permit when checked by officers?" (ID #34)

Response: Hunting on the refuge without a permit will be a violation of Federal regulations. As with any significant change, the officers have some discretion in handling any contact. We intend to make it as easy as possible for hunters to purchase permits, such as using a smartphone.

Comment: Members of the Linden Sportsmen's Rod and Gun Club encourage limiting the number of access permits to the refuge, to mitigate dumping, theft, trespassing and drug activity caused by increased visitation. (ID #33)

Response: The number of deer and turkey hunting permits will be limited each year.

Comment: Would clients of waterfowl outfitters be covered 'permit-wise' if the outfitter has a special use permit? (ID #31)

Response: No. All hunters will require a permit to hunt on the refuge.

Comment: One commenter suggests changing the language surrounding Migratory Bird Permits from 'will be required' to 'must be required.' (ID #22)

Response: Language in the hunt plan states the migratory bird permit is required.

Parking/Access

Comment: Several commenters were concerned about the proposed hunt areas and access to these new parcels, given the proximity to their private residences or properties and the lack of available parking areas. (ID #6, 9, 10, 14, 16, 25, 26)

Response: All areas of concern were re-evaluated. Several were eliminated from the final plan, while others were changed to bow-only hunting. Meetings with several adjacent landowners occurred. Regarding access, the refuge will work with partners and adjacent landowners to more clearly identify suggested access areas that minimize conflict with neighbors.

Hunt Areas/Zones

Comment: Several commenters requested that the refuge expand hunting areas further. The areas mentioned include Little Beach Island, Zone 56 for bow hunting, and more areas for bow and archery

hunts in general. Zone 26 should incorporate the reeds and incorporate the refuge and all rules and possession limits. (ID #1, 12, 28, 29, 38)

Response: Several changes were made to the hunt areas based on public input. Please refer to updated maps.

Comment: Significant additional acreage may be available to open for migratory bird hunting. The plan should identify this discrepancy and NJDFW is open to work with refuge staff to identify additional hunting areas. (ID #13, 19)

Response: Additional information and explanation is provided in the final hunting plan regarding how migratory bird hunting area was determined to improve clarity on this matter. The final migratory bird hunt area was increased to 18,993 acres.

Comment: Several commenters requested certain areas be kept closed to hunting, including areas within Galloway, and Shad Island. (ID #21, 29, 30)

Response: Several changes were made to the hunt areas based on public input. Please refer to updated maps. Shad Island will only be open as part of the special goose hunts.

Comment: Off route 72 on the south side could be suitable for access to a handicap duck blind. (ID #14)

Response: We appreciate the comment and will explore this option.

Comment: “Keep Barnegat zones or put a 500 yard limit. First come, first serve.” (ID #36)

Response: The comment was considered but numbered hunting spots in Barnegat were eliminated. All areas of the refuge are first come, first served.

Comment: 28-acre change in area north of Gunning River is not clear in the plan. (ID #22)

Response: Additional information and explanation is provided in the final hunting maps. Information regarding how migratory bird hunting area was determined was included in the final plan.

Comment: Save Barnegat Bay is opposed to commercial use of hunting blinds on the west side of Barnegat impoundments. (ID #22)

Response: No commercial activity related to hunting is currently permitted on the refuge.

Safety

Comment: Several commenters worried about safety, particularly in reference to adequate safety zones, barriers, and signage to private residential areas. (ID #6, 10, 11, 16, 41)

Response: Hunting has been permitted on Forsythe Refuge for many years. Safety issues related to adjacent private residences have been limited. We encourage all residents to contact the Refuge Manager or the local police if trespassing or other concerns arise.

Comment: Opening areas that are close to a condominium complex, and the Southern Regional High School, can cause an increase in calls to DFW and local law enforcement and potentially cause additional issues with gunfire close to school grounds. (ID #6, 20)

Response: Based on comments, we have eliminated the area near Southern Regional High School from the hunting area.

Comment: Some commenters opposed allowing any firearm hunting for any game in the new proposed area between Lanoka Harbor and Forked River. They recommended eliminating that area from the plan due to proximity to private homes. (ID #9, 10)

Response: No firearm hunting was proposed at this site, but based on comments regarding access limitations, we have eliminated the area between Lanoka Harbor and Forked River known as Murray Grove from the deer hunting area.

Comment: The increased human presence could cause wildfires, and there are no wildland fire fighting resources in the area. (ID #25, 26)

Response: The refuge acknowledges that wildfires do occur on refuge lands. These are usually caused by people illegally starting campfires on closed areas of the refuge. None of those fires have been started by hunters in the past. We have an excellent relationship with the NJ Forest Fire Service, who are very responsive to address wildland fires on the refuge.

Enforcement

Comment: Several commenters expressed concern with law enforcement capability of the new hunt programs, citing there is only one Law Enforcement Officer responsible for enforcing refuge regulations. The lack of available refuge or local police support causes worry with local landowners who already deal with hunters leaving garbage, trespassing, and not respecting property boundaries. (ID #6, 9, 10, 11, 14, 16, 21, 25, 26, 33)

Response: We encourage all residents to contact the Refuge Manager or the local police if trespassing or other concerns arise.

Comment: The refuge should put up signs next to private lands to prevent further trespassing. (ID #14, 25)

Response: The refuge does its best to post our lands. We encourage private land owners to post their property to help educate hunters about refuge/private boundaries.

Comment: “We would also very much appreciate if you would ask your hunters who are permitted for this area to begin to show some basic respect for the homeowners and the nature in this area.” (ID #21)

Response: We continue to encourage respect of private property and the refuge alike. This is an important part of hunter ethics and highly encouraged.

Comment: Delta Waterfowl suggests having a volunteer staff the gates to ensure the access fee is paid by all visitors of the refuge. (ID #20)

Response: Refuge law enforcement periodically checks visitors to ensure compliance.

Laws, Policies, and Mandates

Comment: The Refuge System’s efforts to align refuge hunting regulations with the State hunting regulations should be included in the hunt plan. The proposed fee is also not congruent with State regulations - there is no additional fee to hunt on state Wildlife Management Areas. (ID #13, 19)

Response: The refuge has determined that a permit fee is necessary to offset costs and support the expansion of seasons and species for hunting. While we strive to have congruent regulations with the State (including fees) as much as possible, hunting on national wildlife refuges is a unique experience and one that refuge hunters cherish. At times, the special regulations are foundational to that experience. While the State does not charge access fees to wildlife management areas, they generate revenue through hunting licenses and permits to support operation of those lands.

Consultation and Coordination

Comment: Several commenters suggested that the refuge communicate and reach out to the hunting community for assistance with the hunt programs. (ID #8, 19)

Response: We appreciate the comment and will conduct outreach in the future.

Comment: One commenter asked if the Lacey Police Department had commented on the plan. (ID #9)

Response: No comments from the Lacey PD were received.

Comment: SBB requested to be considered a permanent stakeholder on all issues regarding refuge management going forward. (ID #22)

Response: SBB is a valued partner of the refuge.

Comment: SBB requests that the refuge consult with the New Jersey Division of Natural Resources, Natural Lands Management team, and NJ Department of Environmental Protection - specifically Mr. Bob Cartica and Mr. Ray Bukowski respectively, to eliminate areas of mapped threatened and endangered plant communities from the plan. (ID #22)

Response: The refuge has determined that no threatened or endangered plant communities will be negatively impacted from implementation of this plan.

Comment: Section 7 consultation mentioned that hunting could occur daily by hundreds of hunters in the area. SBB is concerned the additional human pressure combined with increased hunting will negate the value of the refuge. (ID #22)

Response: The final hunt plan takes into account the number of anticipated hunters, available habitat, hunter demand and wildlife management principles. Undue pressure is not anticipated as a result of the updated hunting plan.

Table 1. Correspondences sent in for the Draft Hunt Plan/EA for Edwin B. Forsythe NWR

Correspondence ID	Submitter Name	Affiliation
1	Unknown	
2	Wayne Hummel	
3	Robert Bishop	
4	Haines Henry	
5	Karen Argenti	Save Barnegat Bay
6	Walter L. Johnson III and Susan C. Johnson	
7	Donna Doan	
8	Eric Gaupp	Atlantic County Federation of Sportmen's Clubs
9	Scott Swain	
10	Douglas Blood	
11	Donald Chasmar	Barnegat Bay Salt Hay LLC/Barnegat Pinelands LLC
12	Herb Ryno	
13	David M. Golden	New Jersey Department of Fish and Wildlife
14	Michael King	
15	Joe Rizzo	
16	Tommy Hartman	
17,18	Brian LaFay	
19	Paul Castelli	
20	Michael T. Braden	Barnegat Bay Chapter of Delta Waterfowl
21	Jennifer Rowles	
22	Britta Wenzel	Save Barnegat Bay
23	Mary Lenahan	
24	Emile DeVito	New Jersey Conservation Foundation
25	Sharon Ragonese	
26	John Cowie	
27,28	Brian Leeds	
29	Ben Brosh	
30	Phil Andersen	
31	Jay Andrews	
32	Frank Wagenhoffer	
33	Joseph Chrobak	Linden Sportmen's Rod and Gun Club
34	John Cooney	New Jersey Waterfowl Association
35	John Kirk	
36, 37	Mason Bell	
38	Will Schmidt	
39	Louis Gambale	New Jersey Chapter, National Wild Turkey Federation
40	Robert E. Eriksen	
41	Gary Bell	New Jersey Waterfowl Association

Summary of Changes from the Draft Hunt Plan and Draft Compatibility Determination
Hunt Area Changes

- We continue to plan to eliminate DMZ 56, 57, 58 and 70. We will follow State seasons and dates for 22, 42, and 51, as proposed.
- We will have three refuge zones for deer hunting (North Forsythe, South Forsythe, and the HQ Area) to better manage permit levels and deer herd sizes. We previously proposed one large zone.
- The deer hunt area was reduced from 11,163 acres to 8,645 acres. Based on public comments,
 - the following areas were eliminated:
 - 316 acres in Lacey Township (Murray Grove);
 - 144 acres along the Forked River that overlapped the migratory bird hunt area;
 - 94 acres adjacent to the Humus tract that will be inaccessible until that purchase is complete (see below);
 - 636 acres in Stafford Township due to proximity to the high school; and
 - 606 acres in Galloway Township that overlapped the migratory bird hunt area.
 - the following areas were changed to bow only:
 - 226 acres in Stafford Township north of Route 72; and
 - 36 acres in Stafford south of Route 72.
- Additionally, 620 acres of land currently owned by the NJDEP was eliminated from the current plan as purchase of the property by the service is delayed (“Humus”).
- About 43 acres in Stafford Township were added to the deer area based on access opportunities.
- Subsequently, the turkey and squirrel hunting area was reduced to 8,187 acres (was 10,700).
- The migratory bird hunting area was expanded to 40 percent of the current acquisition acreage: 18,993 acres. The total prior to updating the plan was 16,821 acres.

Summary	Current	Proposed	Final
Deer acreage	6,238	11,163	8,645
Deer all weapon	6,238	9,996	7,057
Deer bow only	0	1,167	1,130
Migratory Bird acreage	16,821	16,637	18,993 (3,193 of this is special goose area, as it was previously)
Turkey/Squirrel acreage	0	10,700	8,187

Permit Fee Changes

- A permit for each hunting season each year was proposed. No specific cost was stated.
- There was mixed support for the permits, with many migratory bird hunters objecting. However, we are opening 4,579 additional acres for hunting, and adding two seasons (squirrel and turkey). The refuge has been hunted for over 50 years at no cost to the public. We estimate the refuge would collect about \$5,000 in permit fees (as opposed to \$30,000/year for the Wildlife Drive) and those fees are important to support the programs.
- We intend to sell one annual refuge hunting permit at \$25 (\$5 goes to the vendor for administration). The permit would be valid for those hunting seasons allowed on the refuge.
- Hunters would enter a lottery for all deer seasons at no extra charge. We will not use first-come, first-served, as proposed.

Local Regulations

- Hunters overwhelmingly supported keeping the more conservative regulations we have had in place regarding migratory bird hunting. However, we only kept the 6-decoy minimum.
- We had different regulations for the previous Barnegat/Brigantine portions of the refuge. Regarding Federal regulations, they will be the same throughout the refuge. The only differences

between areas would be in State regulations, if there are any. (For example, between DMZ 22 and 51).

- Hunters were overwhelmingly against allowing jump shooting on the refuge; therefore, we eliminated it throughout, whereas previously it was allowed in some areas and not others.
- We eliminated the shot shell maximum requirements of 25 and 50 (depending upon location on the refuge) for migratory bird hunting on the refuge.

Appendix E

Finding of No Significant Impact

**FINDING OF NO SIGNIFICANT IMPACT
FOR HUNTING EXPANSION
ENVIRONMENTAL ASSESSMENT
AT EDWIN B. FORSYTHE NATIONAL WILDLIFE REFUGE
OCEANVILLE, NJ**

The U.S. Fish and Wildlife Service (Service) assessed hunting opportunities and access on Edwin B. Forsythe National Wildlife Refuge (NWR, refuge). An Environmental Assessment (EA) was prepared in compliance with the National Environmental Policy Act (NEPA) to provide decision-making framework that (1) explores a reasonable range of alternatives to meet project objectives, (2) evaluate potential issues and impacts to the refuge, resources and values, and (3) identifies mitigation measures to lessen the degree or extent of these impacts. The EA evaluated the anticipated effects associated with two alternatives (No Action and hunting program expansion).

Selected Action

Proposed Action Alternative:

The refuge proposes to expand hunting opportunities and access throughout the refuge. About 2,407 acres will be added to the deer hunting area (8,645-acre total). About 1,130 acres will be for archery-only hunting. The migratory bird area would be increased by 2,172 acres (18,993-acre total). Wild turkey and gray squirrel hunting were added and will occur on 8,187 acres of deer hunting areas. Deer hunting will occur in forested habitat and a few marsh islands September to February; migratory bird hunting will occur in salt marshes November to January; turkey will be for males only and occur in May; and squirrel will mostly occur in forested areas September to February. The total number of hunter-use days across all species types is about 358 days. Increased access will occur via the area expansion. Areas that were difficult to get to in the past would be easier to access because adjacent lands will be opened to hunting.

The intention of the proposed alternative is to reduce some refuge-specific regulations, and to mirror the State of New Jersey hunting regulations as much as possible while assuring the refuge hunting experience is not diminished. Some migratory bird refuge regulations remain in place and a refuge hunting permit program for all hunts will be implemented for the first time to allow improved communication, reporting and tracking of use on the refuge, and to offset costs of expanding the program. Hunters will have to comply with refuge-specific regulations, including but not limited to those contained in the Code of Federal Regulations (50 CFR §32.49), which are revised or updated annually as needed.

In addition to increased hunting and access, refuge staff will determine easy-access locations to facilitate migratory bird and deer hunting and open those lands. They will work with partners to ensure the sites provide a positive experience and are maintained over time.

The proposal was selected over other alternatives because:

- It adds hunting opportunities for deer on the refuge.
- It adds hunting for two new species on the refuge (squirrel and turkey).
- It adds migratory bird hunting area on the refuge.
- It provides improved communication and tracking of hunt activity via an easy-to-use online permitting system.
- It provides new opportunities for youth hunters and hunters with mobility limitations.

Other Alternatives Considered and Analyzed

No Action Alternative:

The No Action Alternative would continue to provide deer hunting opportunities on 6,238 acres of refuge lands in DMZs 56, 57, 58, and 70 in Atlantic, Burlington, and Ocean Counties. About 16,821 acres of migratory bird habitat would be open for hunting, and no other hunts would be available for the public. Complicated, outdated hunting regulations for all hunting seasons would remain in place and not be updated to on-the-ground realities and change in the State of New Jersey since the most recent plan was implemented in 2004. No permit system would be initiated so communication between hunters and the refuge staff would continue to be minimized and opportunities for better understanding use would be lost. This alternative would not support Secretarial Order 3356, and would not show a good faith effort to expand manageable hunting opportunities on National Wildlife Refuge System lands.

Summary of Effects of Selected Action

Implementation of the agency's decision would be expected to result in the following environmental, social, and economic effects:

- Negligible, short-term and local impacts to hunted species.
- Minor, short-term adverse impacts to vegetation or other wildlife while hunting is being conducted.
- Minor, long-term positive impacts to native plants like swamp pink from deer herd reduction that are a large threat to the plant.
- Moderate, long-term positive impacts on economic growth.
- Moderate, long-term positive impacts for providing opportunities to the public at the refuge with only negligible, short-term impacts due to temporary inconveniences to non-hunting visitors.

Measures to mitigate and/or minimize adverse effects have been incorporated into the proposal. These measures include:

- Deer hunting areas were re-drawn in preparation of this alternative to reduce impacts to adjacent home and business owners, particularly in areas of known conflict.
- Small areas or those near significant development will only be hunted with bow for deer and turkey to minimize the risk of inadvertent injury to people in surrounding areas.
- Deer hunting areas were only created where there is reasonable parking within a short walking distance to the refuge to reduce conflicts with private parties.
- Refuge turkey and squirrel hunting areas will mirror the deer hunting area to reduce confusion to hunters.
- No dogs will be permitted to reduce impacts to non-target wildlife and disturbance to other refuge users.

While refuges, by their nature, are nationally important areas protected for conservation of fish, wildlife and habitat, the proposed action will not have a significant impact on refuge resources and uses for several reasons:

- In the context of State-wide hunting programs, the proposed action will only result in a minimum of additional animals harvested. The Service works closely with the State to ensure that additional species harvested on the refuge are within the limits set by the State to ensure healthy populations of the species for present and future generations of Americans.
- The action will result in beneficial impacts to the human environment, including the biodiversity and ecological integrity of the refuge, as well as the wildlife-dependent recreational opportunities

and socioeconomics of the local economy, with only negligible adverse impacts to the human environment as discussed above.

- The adverse direct and indirect effects of the proposed action on air, water, soil, habitat, wildlife, aesthetic/visual resources, and wilderness values are expected to be minor and short-term. The benefits to long-term ecosystem health that these efforts will accomplish far outweigh any of the short-term adverse impacts discussed in this document.
- The Refuge System uses an adaptive management approach to all wildlife management on refuges, monitoring and re-evaluating the hunting opportunities on the refuge on an annual basis to ensure that the hunting and fishing programs continue to contribute to the biodiversity and ecosystem health of the refuge and these opportunities do not contribute to any cumulative impacts to habitat or wildlife from climate change, population growth and development, or local, State, or regional wildlife management.
- The action, along with proposed mitigation measures, will ensure that there is low danger to the health and safety of refuge staff, visitors, and the hunters themselves.
- The action is not in ecologically sensitive areas.
- The action will not impact any threatened or endangered species; or any federally designated critical habitat.
- The action will not impact any cultural or historical resources.
- The action will not impact any wilderness areas.
- There is no scientific controversy over the impacts of this action and the impacts of the proposed action are relatively certain.
- The proposal is not expected to have any significant adverse effects on wetlands and floodplains, pursuant to Executive Orders 11990 and 11988 because no physical changes will be made to the environment by this action.

The proposal is compatible with the purposed of the refuge and the mission of the Refuge System. See Compatibility Determination in Appendix A of the Hunt Plan.

The action is consistent with applicable laws and policies regarding the establishment of hunting on national wildlife refuges. Refuge-specific regulations promulgated in conjunction with this action can be found in 50 CFR §32.49, and announced through the Federal Register process.

Public Review

The proposal has been thoroughly coordinated with all interested and/or affected parties. Parties contacted include:

- NJ Division of Fish and Wildlife (part of the NJ Department of Environmental Protection)
- NJ Waterfowlers Association
- Atlantic County Sportsmen Federation
- Burlington County Sportsmen Federation
- Ocean County Sportsmen Federation
- NJ Chapter of the National Wild Turkey Federation
- Barnegat Bay Partnership

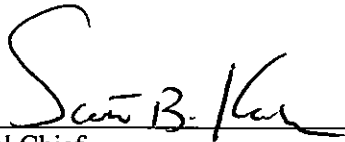
On March 12, 2018, the draft multi-species Hunt Plan, EA and Compatibility Determination were released for public review and comment. Upon request, the public comment period was extended from April 11 until April 25, 2018. A total of 38 individuals or entities shared comments during two public meetings and through email correspondence. Appendix D provides a full summarization of comments

received by the public and our responses, as well as a summary of any changes and clarifications made between draft and final versions of the documents.

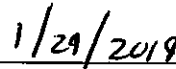
On May 29, 2018, the Service published the 2018-2019 Refuge-Specific Hunting and Sport Fishing Regulations in the Federal Register (83 FR 24598). The Service did not receive additional public comments on this action at Edwin B. Forsythe NWR.

Determination

Based upon a review and evaluation of the information contained in the EA as well as other documents and actions of record affiliated with this proposal, the Service has determined that the proposal to implement expanded hunting opportunities and access on the Edwin B. Forsythe NWR does not constitute a major Federal action significantly affecting the quality of the human environment under the meaning of section 102 (2)(c) of NEPA. As such, an environmental impact statement is not required. An environmental assessment has been prepared in support of this finding, and is available upon request to the refuge.



Regional Chief
National Wildlife Refuge System



Date

INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM

Project Name:	Expanding hunting on EB Forsythe NWR	Originating Person:	Virginia Rettig
Townships:	Galloway	Telephone Number:	609-652-1665
County:	Atlantic, Burlington & Ocean	Email Address:	Virginia_rettig@fws.gov
Date:	10/19/17		

Distance to nearest town: Adjacent to Galloway Township

- I. Region:** 5
II. Service Activity (Program): NWRS, Edwin B. Forsythe NWR
III. Pertinent Species and Habitat:

A. Listed species and/or their critical habitat within the action area:

Birds

Piping plover (*Charadrius melodus*)
 Red knot (*Calidris canutus rufa*)

Flowering Plants

American chaffseed (*Schwalbea americana*)
 Knieskern's beaked-rush (*Rhynchospora knieskernii*)
 Seabeach amaranth (*Amaranthus pumilus*)
 Sensitive Joint-vetch (*Aeschynomene virginica*)
 Swamp Pink (*Helonias bullata*)

Mammals

Northern Long-eared Bat (*Myotis septentrionalis*)

B. Proposed species and/or proposed critical habitat within the action area:

None

C. Candidate species within the action area:

None

D. Include species/habitat occurrences on a map.

An Information for Planning and Conservation (IPaC) trust resources list is attached that covers the deer, squirrel and turkey area and the migratory bird hunting area. Maps are included. All activities will take place on Edwin B. Forsythe NWR (Refuge).

IV. Description of proposed action (attach additional pages as needed):

We propose to expand our existing hunting program. We are adding 3,804 acres of primarily forested habitat for approximately 26,880 acres of hunting area. The following times of year will encompass each season:

INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM

- Deer: October-January; primarily in forested refuge areas
- Migratory Birds: November-January; primarily in saltmarsh
- Turkey: May; same areas as deer
- Squirrel: September-February; same areas as deer

Single individuals or hunters in small groups will traverse areas open to hunting, generally to walk to a hunting spot in which they remain for a part or whole day. This activity could occur daily by hundreds of hunters throughout the hunt area during the times mentioned above. No dogs will be permitted for squirrel hunting.

Non-toxic shot is required for waterfowl hunting; but not for other Refuge hunts.

New hunting regulations would go into effect for the 2018/2019 season.

V. Determination of effects:

A. Explanation of effects of the action on species and critical habitats in items III. A, B, and C (attach additional pages as needed):

Piping plovers breed on Holgate and Little Beach Island in beach/dune habitat. Migrants occur as early as March and as late as September. No hunting will occur in the area used by this species.

Red knots migrate through Refuge coastal wetlands and are observed in small numbers in spring, fall and winter. No hunting will occur in the areas they use at Holgate and Little Beach. Birds using marsh may be flushed occasionally by hunters.

Two extant occurrences of American chaffseed are located in Burlington County, NJ, and many additional historic occurrences are distributed across south Jersey, mainly in the Pinelands. No extant or historic occurrences are located on the Refuge.

Occurring only in southern New Jersey, Knieskern's beaked-rush is an obligate wetland species found in early successional habitats. One extant occurrence is located on Refuge property in Stafford Township, Ocean County. It is not within the hunting area. Another occurrence in Lacey Township is immediately adjacent to the refuge in a right-of-way.

Seabeach amaranth only occurs on Holgate and Little Beach Island, which will not be open to hunting so no effect is expected from hunting on this species.

Sensitive joint-vetch occurs in the intertidal zone of fresh to slightly brackish tidal river segments. No extant or historic occurrences are located on the Refuge.

INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM

Swamp pink and swamp pink habitat occur in the hunted area in a few scattered locations on the refuge. Hunters could potentially trample plants.

The hunted area contains habitat that could be used by the northern long-eared bat. Deer hunters could erect a stand against a tree that is used as a roost site. Hunters are permitted to leave their stands up through the hunting season. This activity, however, would occur during the bat inactive season (October 1 - March 31). Turkey hunting would occur in bat habitat in May each year. Most turkey hunting is conducted from the ground and is not expected to impact bats.

B. Explanation of actions to be implemented to reduce adverse effects:

Piping plovers do not occur where hunting will be conducted so no actions would be implemented to reduce adverse effects.

Red knots may occur but no actions will be taken to reduce effects because they occur in such small numbers and unpredictable locations on the marsh that the impact from hunting would be negligible.

American chaffseed and sensitive joint-vetch do not occur on the Refuge.

Knieskern's beaked-rush is not within the hunting area so hunting will have no effect on this species.

Swamp pink may be affected by hunters if accidentally trampled. No action will be taken to reduce effects because this species is dormant during hunting season so impacts should be negligible.

Northern long-eared bats may occur but no actions will be taken to reduce effects because no habitat or bats will be disturbed during the bats' active season.

VI. Effect determination and response requested: [* = optional]

A. Listed species/designated critical habitat:

Determination

Response requested

no effect/no adverse modification

(species: piping plover, red knot, seabeach amaranth, American chaffseed,

Knieskern's beaked-rush, sensitive joint-vetch)

X Concurrence

INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM

may affect, but is not likely to adversely affect species/adversely modify critical habitat (species: northern long-eared bat, swamp pink)

X *Concurrence

may affect, and is likely to adversely affect species/adversely modify critical habitat (species: _____)

____ Formal Consultation

B. Proposed species/proposed critical habitat:

Determination

Response requested

no effect on proposed species/no adverse modification of proposed critical habitat (species: _____)

____ *Concurrence

is likely to jeopardize proposed species/adversely modify proposed critical habitat (species: _____)

____ Conference

C. Candidate species:

Determination

Response requested

no effect (species: _____)

____ *Concurrence

is likely to jeopardize candidate species (species: _____)

____ Conference

Virginia Kelly
Project Biologist/Supervisor (Requestor)

11-2-17
Date

VII. Reviewing ESFO Evaluation:

A. Concurrence _____ Nonconcurrency _____

B. Formal consultation required _____

INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM

E. Remarks (attach additional pages as needed):

Wendy Walsh
Endangered Species Biologist (Reviewer),
New Jersey Field Office

11/2/17
Date

[Signature]
Assistant Supervisor, New Jersey Field Office

6 NOV 17
Date

VIII. Map

See attached IPaC printout for an additional map.