Rachel Carson National Wildlife Refuge and Great Thicket National Wildlife Refuge

Berwick-York Focus Area

Hunting Plan

September 2022

NATIONAL WILDLIFE REFUGE SYSTEM

Appendix A - Rachel Carson NWR Compatibility Determination
Appendix B - Great Thicket NWR Compatibility Determination
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Rachel Carson National Wildlife Refuge
and
Great Thicket National Wildlife Refuge Berwick-York Focus Area
Hunting Plan

September 2022

U.S. Fish and Wildlife Service

Rachel Carson National Wildlife Refuge
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Wells, Maine, 04090

Submitted By:
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Rachel Carson National Wildlife Refuge
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Great Thicket National Wildlife Refuge Berwick-York Focus Area
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I. Introduction

National wildlife refuges are guided by the mission and goals of the National Wildlife Refuge System (Refuge System), the purposes of an individual refuge, U.S. Fish and Wildlife Service (Service) policy, and laws and international treaties. Relevant guidance includes the National Wildlife Refuge System Administration Act (NWRSAA) of 1966, as amended by the Refuge System Improvement Act of 1997, Refuge Recreation Act of 1962, Endangered Species Act of 1973 (16 U.S.C. 1534) as amended, Fish and Wildlife Act of 1956 (16 U.S.C. 742a-742j) as amended, and selected portions of the Code of Federal Regulations and Fish and Wildlife Service Manual.

On December 16, 1966, Congress established the Coastal Maine National Wildlife Refuge under the authority of the Migratory Bird Conservation Act for *"*use as an inviolate sanctuary, or for any other management purpose, for migratory birds" (16 U.S.C. 715d, Migratory Bird Conservation Act). In a formal dedication ceremony on June 27, 1970, the refuge was renamed in honor of scientist and author Rachel Carson, who spent much of her life along the Maine Coast.

Rachel Carson National Wildlife Refuge (NWR, refuge) was established to preserve migratory bird habitat and waterfowl migration routes associated with southern Maine's coastal estuaries. In the mid-1800s, the estuarine habitats teemed with wildlife. The fishing industry supported many people, and commercial hunters made their living from the wildlife that frequented the marshes. Spurred by the arrival of the railroad in 1842, recreational use of the Maine coast increased in the 19th and 20th centuries. Thousands of visitors came by train, trolley, and later automobile. Seasonal and vacation homes built on the edge of the salt marsh quickly followed. By the 1950s and early 1960s, land was at a premium for prospective landowners, as well as by individuals and groups interested in protecting natural resources.

Great Thicket NWR was established in 2016 to help stem the decline of shrubland-dependent wildlife species. The establishing authorities for Great Thicket NWR include the Endangered Species Act of 1973 (16 U.S.C. 1534), as amended and Fish and Wildlife Act of 1956 (16 U.S.C. 742a-742j), as amended. The primary purpose of Great Thicket NWR, located in York County, Maine, is to strategically acquire and improve habitat to help achieve overlapping habitat and population goals for declining shrubland wildlife species. The Service hopes to conserve 15,000 acres in 10 focus areas across 6 states through sales and donations of land from willing sellers or donors. There are 2 refuge acquisition focus areas in Maine, the Berwick-York focus area and the Cape Elizabeth-Scarborough focus area.

The mission of the Refuge System, as outlined by the NWRSAA, 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 NWRSAA mandates the Secretary of the Interior in administering the Refuge System to (16 U.S.C. 668dd(a)(4):

- '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.

Therefore, it is a priority of the Service to provide for wildlife-dependent recreation opportunities, including hunting and fishing, when those opportunities are compatible with the purposes for which the refuge was established and the mission of the Refuge System.

Rachel Carson NWR consists of 11 refuge divisions protecting approximately 5,690 acres of coastal wetlands and upland habitat. All divisions lie along 50 miles of the southern Maine coastline, encompassing the coastal communities of Kittery, York, Ogunquit, Wells, Kennebunk, Kennebunkport, Biddeford, Saco, Old Orchard Beach, Scarborough, and Cape Elizabeth, within York and Cumberland Counties.

The refuge has been open to big game, migratory bird, and upland game bird hunting since 1980. The most recent hunt plan was completed in 2012. We propose the following changes as part of an update to the existing hunting plan:

- Open a mentored spring turkey hunt on Rachel Carson NWR and Great Thicket NWR Berwick-York focus area.

- Open recently acquired parcels of Great Thicket NWR Berwick-York focus area to big game, migratory bird, and upland game bird hunting.

- Close bobwhite quail, snipe, and pheasant hunting on Rachel Carson NWR. These species do not occur on the refuge and are not likely to occur on the refuge in the future.

II. Statement of Objectives

The objectives for the hunting program at Rachel Carson NWR and Great Thicket NWR Berwick-York Focus Area are to provide the public with high quality wildlife-dependent recreational opportunities that align with refuge purposes and management objectives. The Service has long recognized that hunting is an integral part of a comprehensive wildlife management program and that positive benefits can be attributed to a well-managed hunt. As such, hunting is considered one of the six priority public uses of the refuge system. Hunting is recognized as an acceptable, traditional form of wildlife-dependent recreation that can be and is sometimes used as a tool to manage wildlife populations.

The objectives of the hunting program on Rachel Carson NWR and Great Thicket NWR Berwick-York Focus Area are to:

1. Provide the public with a quality recreational experience on refuge lands and waters and increase opportunities and access for consumptive and non-consumptive users of the refuge. The Refuge System Improvement Act of 1997 identified hunting, where compatible, as one of the six priority public uses on refuges;

2. Design a hunting program that is administratively efficient and manageable with existing staffing levels and in alignment with Maine Department of Inland Fisheries and Wildlife (MDIFW) regulations when possible;

3. Implement a hunting program that is safe for all refuge users; and

4. Design a hunting program that aligns with refuge habitat management objectives.

Hunting is consistent with the refuges' 2007 Comprehensive Conservation Plan's (CCP) larger goal to "increase appreciation and stewardship of coastal Maine wildlife and their habitats by providing positive wildlife-dependent experiences for refuge visitors." This goal includes a specific objective (Goal 5, Objective 5.3) to "provide high quality hunting opportunities that minimize conflicts with neighbors and refuge programs and ensure that at least 90 percent of hunters have a positive experience."

III. Description of Hunting Program

A. Areas to be Opened to Hunting

Big Game Hunting
Big game hunting for white-tailed deer, turkey, fox, and coyote will be available in designated areas totaling 4,089 acres of the following 9 divisions: Brave Boat Harbor, York River, Lower Wells, Upper Wells, Mousam River, Goose Rocks, Little River, Goosefare Brook, Spurwink River. Big game hunting will also be open on Great Thicket NWR's Berwick-York totaling 47.95 acres with a target of 2,000 acres.

Migratory Bird
Migratory game bird hunting for duck, sea duck, dark geese, light geese, woodcock, and coot will be available on the following seven divisions: Brave Boat Harbor, York River, Lower Wells, Upper Wells, Mousam River, Goose Rocks, and Spurwink River. Migratory bird hunting will also be open on Great Thicket NWR's Berwick-York Focus Area.

Upland Game Bird
Upland game bird hunting for grouse will be available in designated areas totaling 4,089 acres of the following 8 divisions: Brave Boat Harbor, York River, Lower Wells, Upper Wells, Mousam River, Goose Rocks, Goosefare Brook, and Spurwink River. Upland game hunting for grouse will also be open on Great Thicket NWR's Berwick-York Focus Area. Refer to Section VII – Maps to view the hunting areas.

B. Species to be Taken, Hunting Periods, Hunting Access

Big Game
White-tailed deer and turkey hunting will be open on designated units of Rachel Carson and Great Thicket NWR Berwick-York Focus Area in accordance with State seasons and bag limits. Fox and coyote will be open concurrently with deer only and would be hunted incidentally while deer hunting. Spring turkey hunting will only be allowed as an organized mentored hunt. Legal shooting hours will be in accordance with State regulations for each species, except coyote. We do not allow night hunting of coyote. Spring turkey hunting opportunities on Rachel Carson NWR and Great Thicket NWR Berwick-York focus area will include a mentored quota hunt co-managed with a third party to facilitate "recruitment, retention, and reactivation" (R3) hunting opportunities. We anticipate that this opportunity will be allowed for 10 to 20 participants.

Migratory Game Birds
Migratory game bird species, including duck, sea duck, dark geese, light geese, coot, and woodcock will open for hunting on designated sections of Rachel Carson and Great Thicket NWR Berwick-York Focus Area in accordance with State seasons. Hunting waterfowl will conform to refuge-specific regulations, which include restrictions on hours of the day and days of the week. Sea ducks may only be hunted within the refuge when their open season coincides with the regular waterfowl season. Hunting hours will be in accordance with State regulations for all species.

Upland Game Bird

Upland game bird hunting for grouse will be open for hunting on designated units of Rachel Carson and Great Thicket NWR Berwick-York Focus Area. Season dates and shooting hours will be in accordance with State regulations.

Access to the refuge will be permitted from 1 hour before legal hunting hours through 1 hour after legal hunting hours. Hunters may access the divisions from public pull-offs and roads across the refuge.

C. Hunter Permit Requirements (if applicable)

Hunters will be required to follow all State and Federal regulations for licenses and permits, including obtaining a refuge-specific permit and a Federal Duck Stamp if hunting migratory birds. See "Hunter Permit Application and/or Registration Procedures" below.

Hunters will be required to carry a State permit, refuge-specific permit for each species, and a Federal Duck Stamp if hunting migratory birds. Hunt packets are available on the refuges' website and https://www.recaccess.com/. Permits can be purchased online through RecAccess at the cost of $10.00 for big game, $10.00 for migratory bird, $5.00 for upland game bird, and $5.00 for falconry. Permits for youth and seniors are available at a discount. Great Thicket Berwick-York Focus Area hunters are required to possess a State permit, a signed information sheet, and a Federal Duck Stamp if hunting migratory birds. A separate permit is not required for the Focus Area.

D. Consultation and Coordination with the State

The refuges reviewed the operations and regulations for neighboring State wildlife management areas and refuges to find consistency where possible. The refuge first reached out to the State in August 2021 to discuss this Hunting Plan. Refuge staff worked with the local State biologist and conservation officers early in the development of the plan and asked for review by the State Regional Office to help adjust the plan to align where possible with State management goals. The refuge has continued to consult and coordinate on specific aspects of the Hunting Plan, and MDIFW is in agreement with the refuges' Hunting Plan, as it will help meet State objectives.

Rachel Carson NWR and MDIFW will continue to work together to ensure safe and enjoyable recreational hunting opportunities. Hunter participation and harvest data are collected by the State, and refuge law enforcement officers and MDIFW work together to patrol.

E. Law Enforcement

Enforcement of refuge violations normally associated with management of a NWR is the responsibility of commissioned Federal Wildlife Officers. Other officers, Special Agents, State game wardens, and the local Sheriff's Department may assist Rachel Carson NWR and

the Great Thicket NWR Berwick-York Focus Area. The following methods will be used to control and enforce hunting regulations:

- The refuge will provide a packet including a map that delineates hunt areas on the refuge and hunters are required to carry a State permit, refuge-specific permit, and a Federal Duck Stamp if hunting migratory birds. Great Thicket Berwick-York Focus Area hunters are required to possess a State permit, a signed refuge hunt information sheet, and a Federal Duck Stamp if hunting migratory birds.

- Refuge law enforcement officers will randomly check hunters and anglers for compliance with Federal and State Laws, as well as refuge-specific regulations pertinent to hunting

- Information will be made available at the Rachel Carson NWR visitor center and website.

F. Funding and Staffing Requirements

Annual hunt administration costs for Rachel Carson NWR total approximately $10,000. Refuge funds are used to conduct hunts for big game, upland game bird, and migratory bird seasons. This includes staff time for planning and annual program preparation, outreach and public relations, permit administration, enforcement, posting, roads, and parking lot maintenance. Other operating costs include signs, leaflets, equipment, and vehicle fuel and maintenance. Funding for the hunt programs is not specifically allocated but will be taken from station base funds on an annual basis. It is anticipated that funding would continue to be sufficient to continue the hunting program at Rachel Carson NWR and the Great Thicket NWR Berwick-York Focus Area in the future.

Table 1. Estimated Costs for Hunting at Rachel Carson NWR and Great Thicket NWR Berwick-York Focus Area

Identifier	Costs
Staff (Maintenance Workers, Biologist, and Refuge Manager)	$7,000
Hunt management, monitoring resource impacts	$1,500
Parking area maintenance, signs, posts	$1,500
Total Annual Cost	**$10,000**

IV. Conduct of the Hunting Program

A. Hunter Permit Application, Selection, and/or Registration Procedures (if applicable)

Big Game, Migratory Bird, Upland Game Bird
All persons hunting big game, migratory bird, and upland game birds on Rachel Carson

NWR refuge must hold a valid State hunting license and a refuge hunting permit for each species they are hunting. All persons hunting migratory birds on the refuge must also hold a valid Federal Migratory Bird Conservation Stamp. Hunters participating in the use of falconry for hunting waterfowl and grouse must follow additional State regulations and requirements.

Great Thicket Berwick-York Focus Area hunters are required to possess a State permit, a signed refuge hunt information sheet, and a Federal Duck Stamp if hunting migratory birds.

Mentored Spring Turkey Hunt
In partnership with a third-party organization, a mentored spring turkey hunt for 10 to 20 participants will occur within the State's spring season to assist the State with hunter recruitment and retention efforts (commonly referred to as R3). The mentored hunt locations will occur within select units opened to hunting at Rachel Carson NWR and the Berwick-York Focus Area of Great Thicket NWR but may vary from year to year to accommodate fluctuations in the population.

B. Refuge-Specific Hunting Regulations

To ensure compatibility with refuge purposes and the mission of the Refuge System, hunting on Rachel Carson NWR and Great Thicket NWR Berwick-York Focus Area must be conducted in accordance with State and Federal regulations as supplemented by refuge-specific regulations (50 CFR 32.38) and information sheets/packets. Stipulations are detailed in the Compatibility Determinations (CD) (Appendix A, Appendix B). In summary, the following hunting procedures apply at Rachel Carson NWR and Great Thicket NWR Berwick-York Focus Area:

- We allow the use of dogs for hunting consistent with State regulations except for dog training.
- We only allow temporary blinds and stands, which you must remove at the end of each day's hunt. This will ensure equitable opportunities for all hunters due to the limited size of the refuge.
- We allow take of migratory birds and grouse by falconry on the refuge during State seasons.
- We allow hunting with shotgun and archery only. We prohibit rifles and muzzleloader firearms for hunting.
- During the State firearm deer season, we only allow hunting of fox and coyote with archery or shotgun as incidental take with a refuge big game permit.
- We allow access for hunting from 1 hour before legal hunting hours until 1 hour after legal hunting hours.

- To protect waterfowl and other migratory birds from potential lead poisoning, non-lead ammunition is required for firearms hunting of all species except deer and turkey. The refuge strongly encourages big game hunters to use non-lead ammunition while hunting on the refuge. The refuge proposes to phase in a non-lead ammunition requirement for all species over the next 4 years and will become mandatory for use at the end of the 4-year period in 2026.

- The hunter must retrieve all species harvested on the refuge.

The following hunt procedures apply specifically to Rachel Carson NWR only:

- Prior to entering designated refuge hunting areas, you must obtain a refuge permit (and sign and always carry the permit).

- We open designated youth hunting areas to hunters of age 15 and younger who possess and carry a refuge hunting permit. Youth hunters must be accompanied by an adult age 18 or older. The accompanying adult must possess and carry a refuge hunting permit and may also hunt.

- We allow only archery on those areas of the Little River division open to hunting.

The following hunt procedures apply specifically to Great Thicket NWR:

- Prior to entering designated refuge hunting areas, you must obtain a refuge hunt information sheet (and sign and always carry the information sheet).

- We will open designated youth hunting areas to hunters of age 15 and younger who possess and carry a signed refuge hunt information sheet. Youth hunters must be accompanied by an adult age 18 or older. The accompanying adult must possess and carry a signed refuge hunt information sheet and may also hunt.

C. Relevant State Regulations

The refuge conducts its hunting program within the framework of State and Federal regulations. Hunting regulations at the refuge are at least as restrictive as the State of Maine and, in some cases, more restrictive. Additionally, the refuge coordinates with the State as needed to maintain regulations and programs that are consistent with the State's management programs. Relevant refuge-specific regulations are annually listed in 50 CFR 32.38 and summarized above in Section IV, subsection B.

D. Other Refuge Rules and Regulations for Hunting

The refuge maintains other refuge-specific procedures for hunting which are discussed in the hunt packet/information sheet. Hunters obtain, read, and sign these packets prior to hunting at the refuge. Additional procedures or regulations pertaining to hunting on the refuge include:

- Only portable blinds are permitted. Blinds, boats, and decoys must be removed at the end of each day's hunt.

- Sea ducks may only be hunted within the refuge when their open season coincides with the regular waterfowl season.

- The refuge will be open on the special 1-day youth season as designated by the State to youths with valid refuge permits.

- The use of nails, wire, screws, or bolts to attach a stand to a tree or hunting from a tree into which a metal object has been driven to support a hunter is prohibited.

- Vegetation disturbance (including tree limbs) must be minimal.

V. Public Engagement

A. Outreach for Announcing and Publicizing the Hunting Program

The refuges maintain a mailing list for news release purposes, which includes local newspapers, radio, and websites. Special announcements and articles may be released in conjunction with hunting seasons. In addition, information about the hunt will be available at Rachel Carson NWR's visitor center and the refuge's website. The refuge will also address public comments received during a 60-day comment period and consider them for incorporation into the final Hunting Plan and Compatibility Determinations.

B. Anticipated Public Reaction to the Hunting Program

Based on the comments received during development of the 2007 CCP, and since hunting has already been occurring on Rachel Carson NWR for more than 40 years, little negative public reaction is expected. Over the years, the refuge has received comments and requests from adjacent landowners and members of the public to eliminate hunting. Hunting is an important economic and recreational use of Maine's natural resources.

The refuge anticipates some public concern about obtaining non-lead ammunition given the phasing out of lead use on the refuge. It is for this reason that the proposed requirement to use non-lead ammunition will not be put into place until fall 2026, providing hunters time to transition their supplies. A total of nine comment letters were submitted that offered input to the refuge. Any comments and our responses can be found in the Finding of No Significant Impact (Appendix E).

C. How Hunters Will Be Informed of Relevant Rules and Regulations

General hunting information, fact sheets, maps, application forms, and other information regarding hunting and other wildlife-dependent public uses can be obtained in person or by mail at the Rachel Carson NWR headquarters at 321 Port Road, Wells, Maine 04090 or by

calling (207) 646-9226. Dates, forms, hunting unit directions, maps, applications, and permit requirements about the hunt will be available on the station website at: https://www.fws.gov/refuge/rachel_carson/ and at the refuge Visitor Center. Permits can be purchased online at: https://www.recaccess.com/.

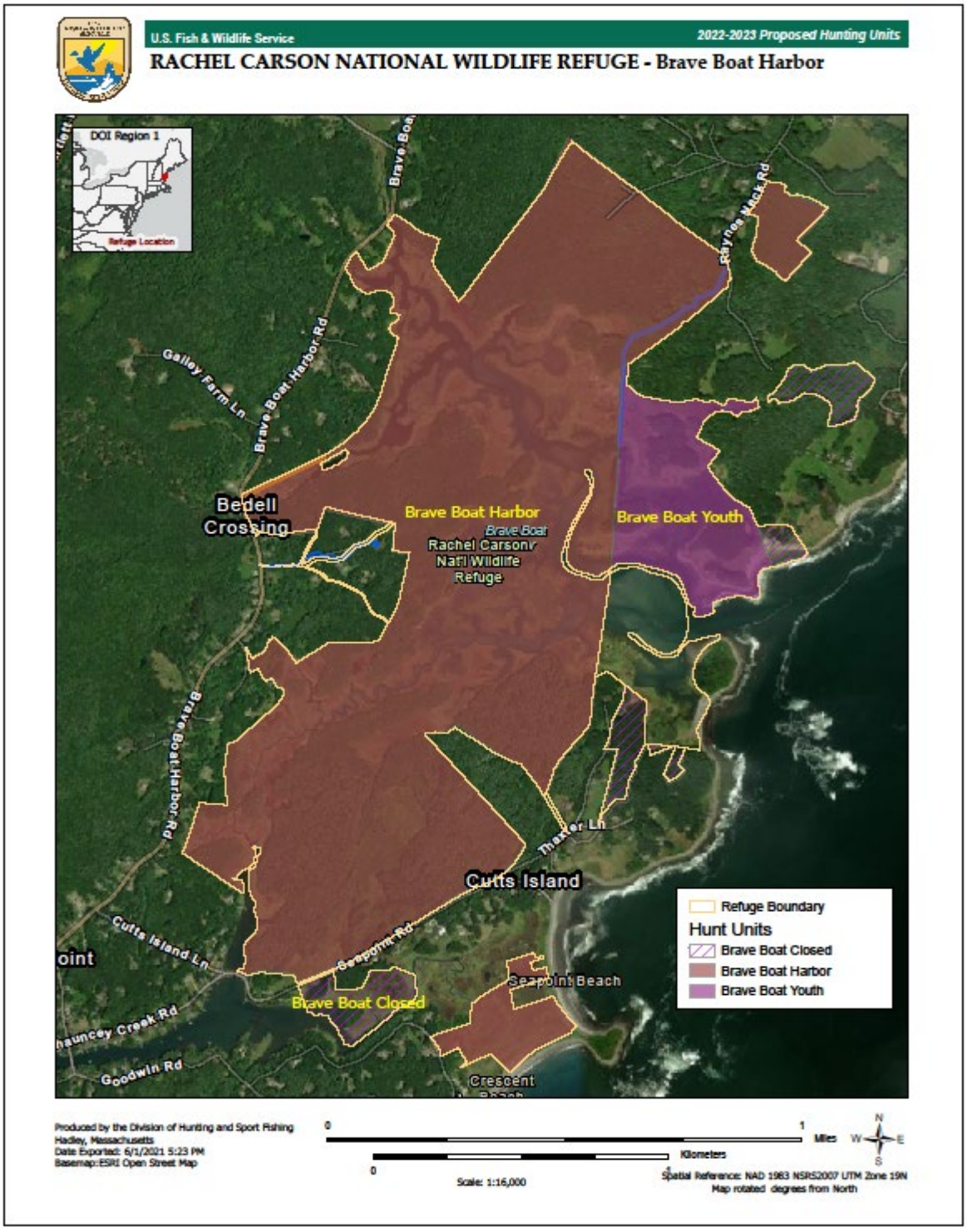
VI. Compatibility Determination

Hunting and all associated program activities proposed in this plan are compatible with the purposes of the refuge. See attached CDs.

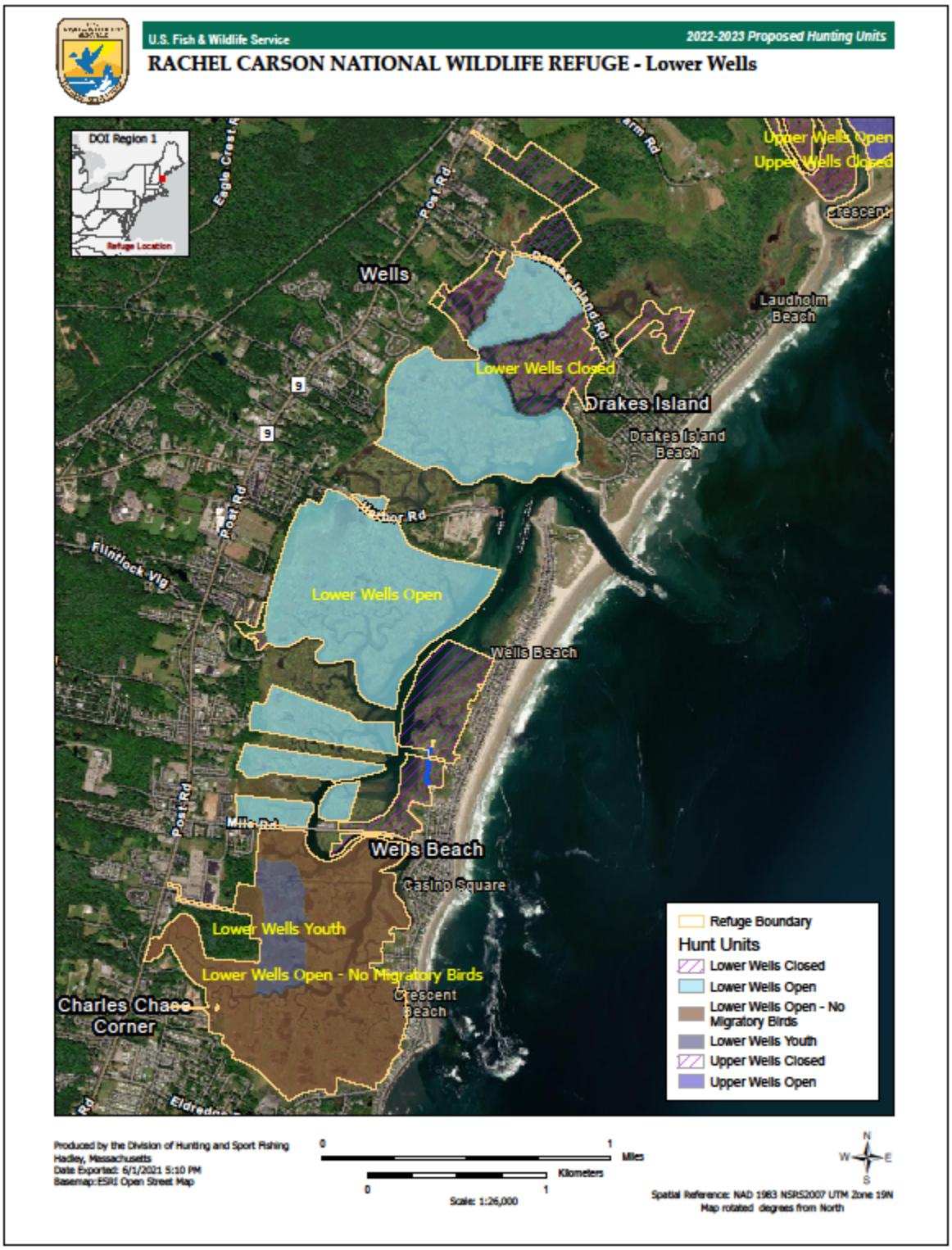
VII. Maps

Map A – York River Division

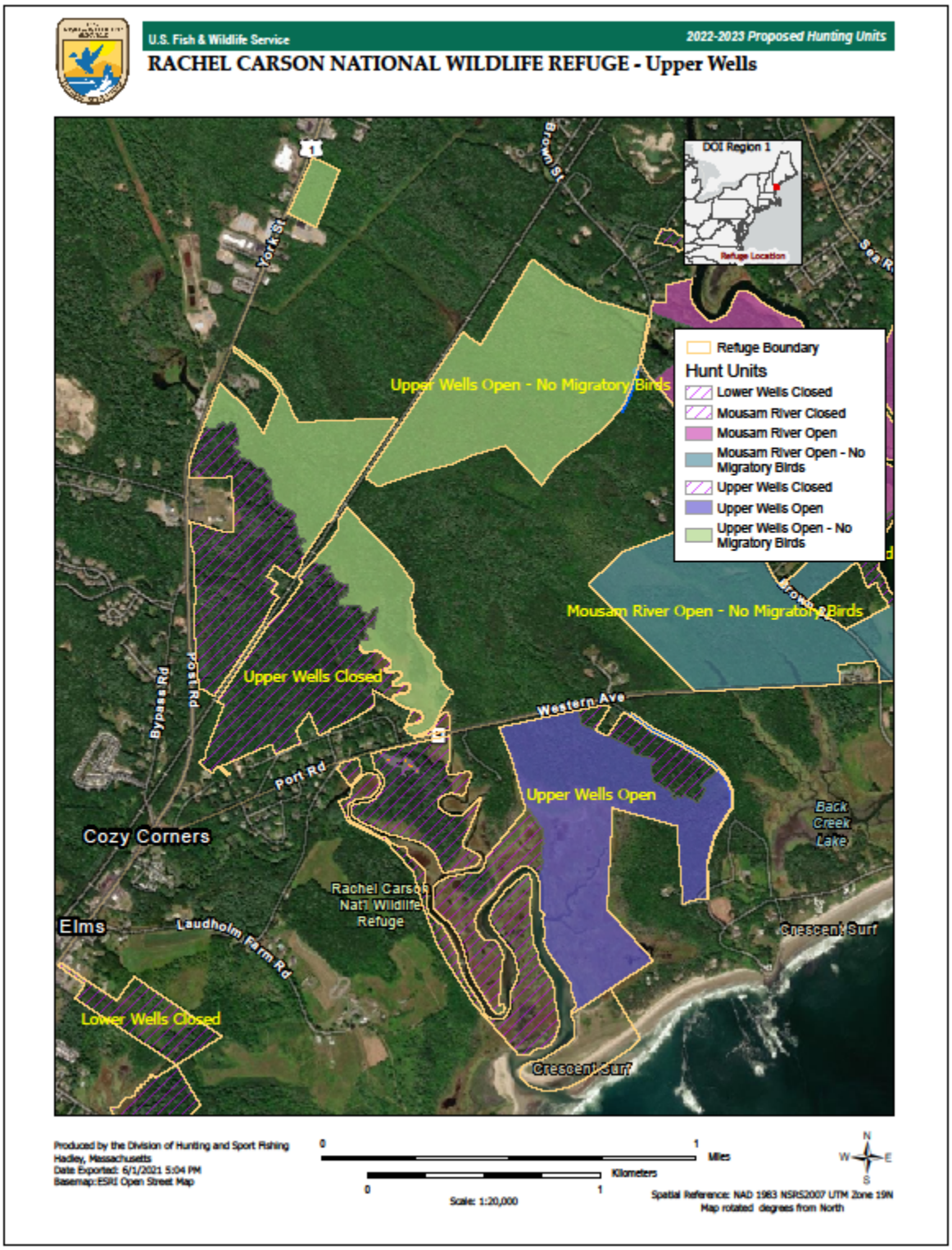
MAP B – Brave Boat Harbor Division



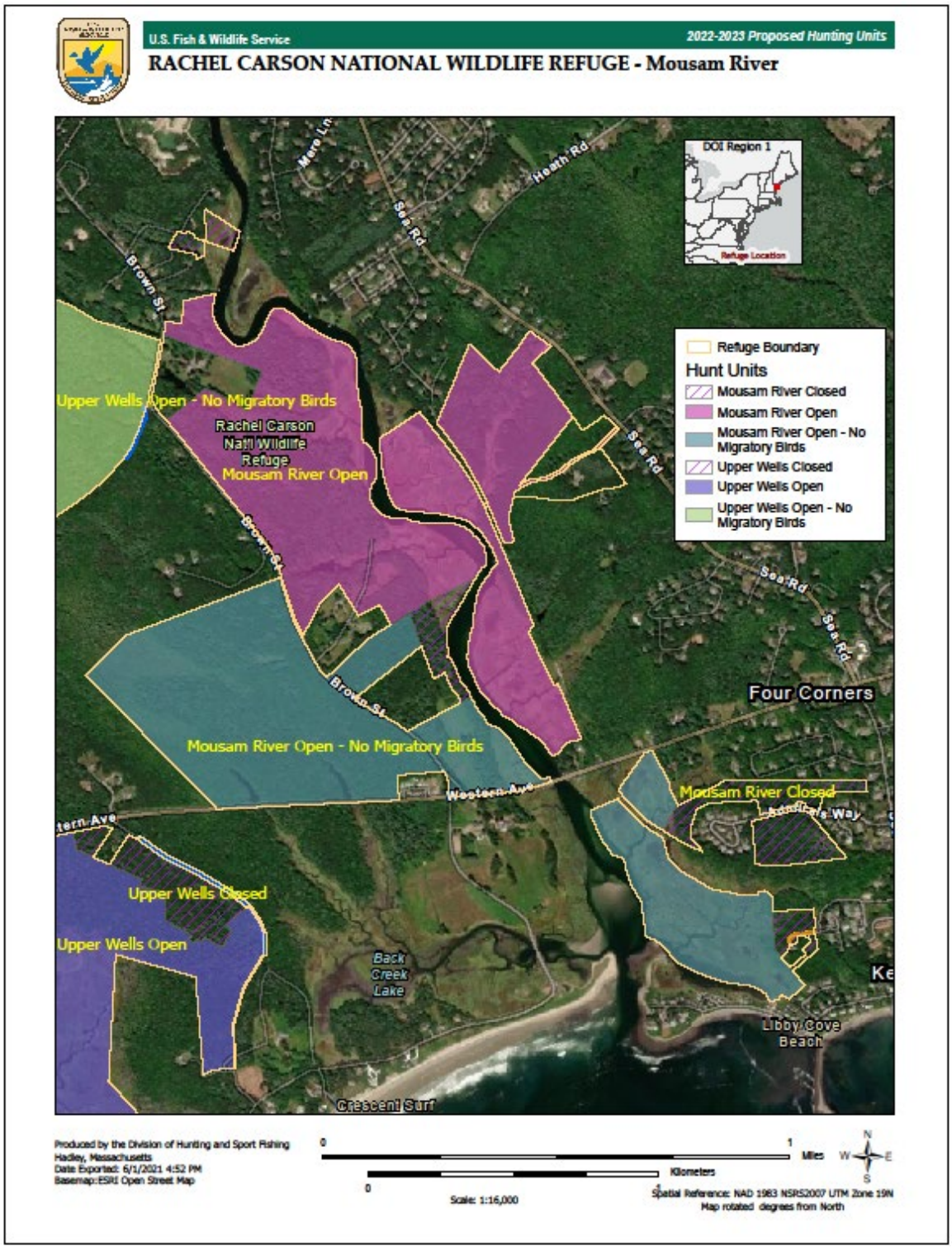
Map C – Lower Wells Division



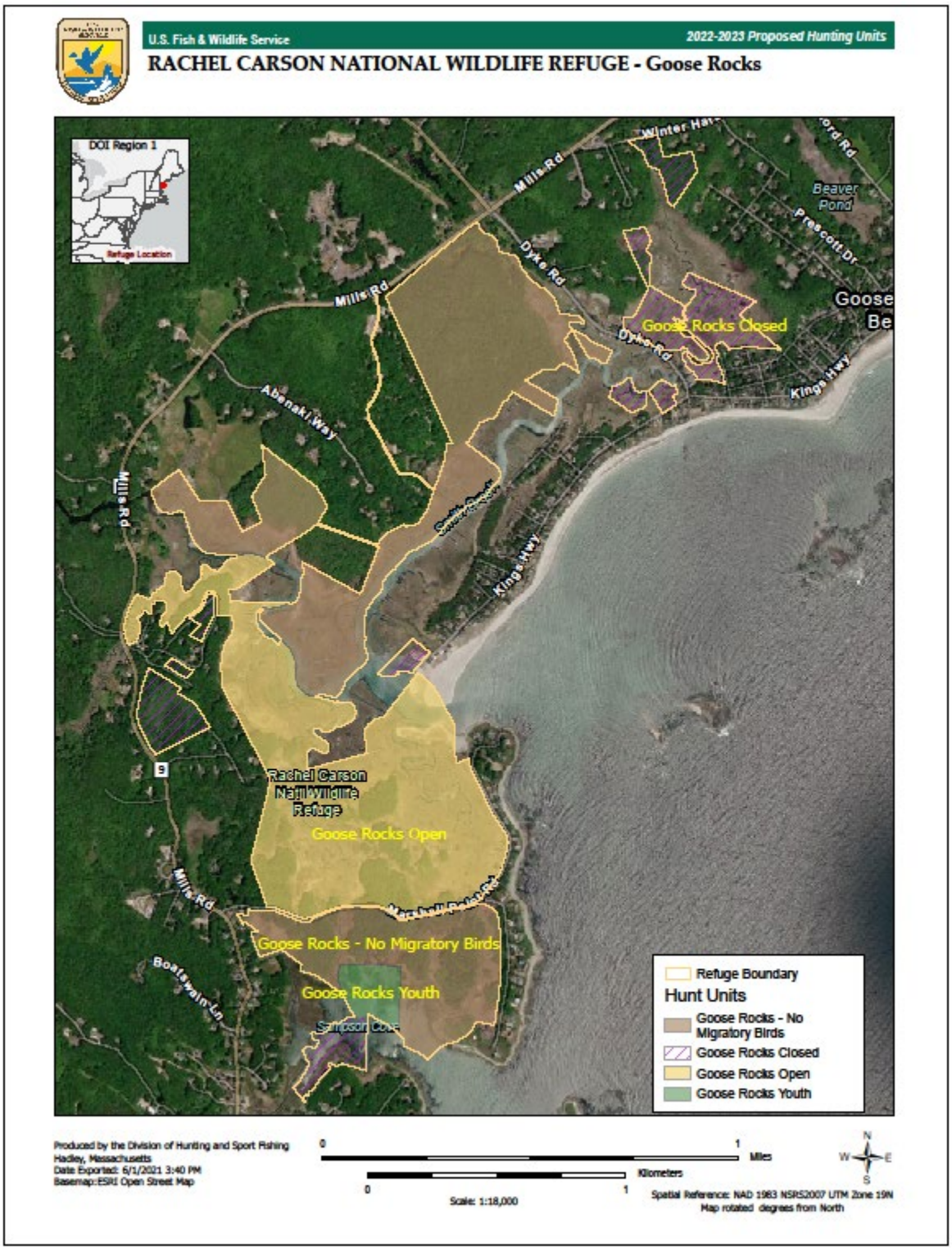
Map D – Upper Wells Division



Map E – Mousam River Division

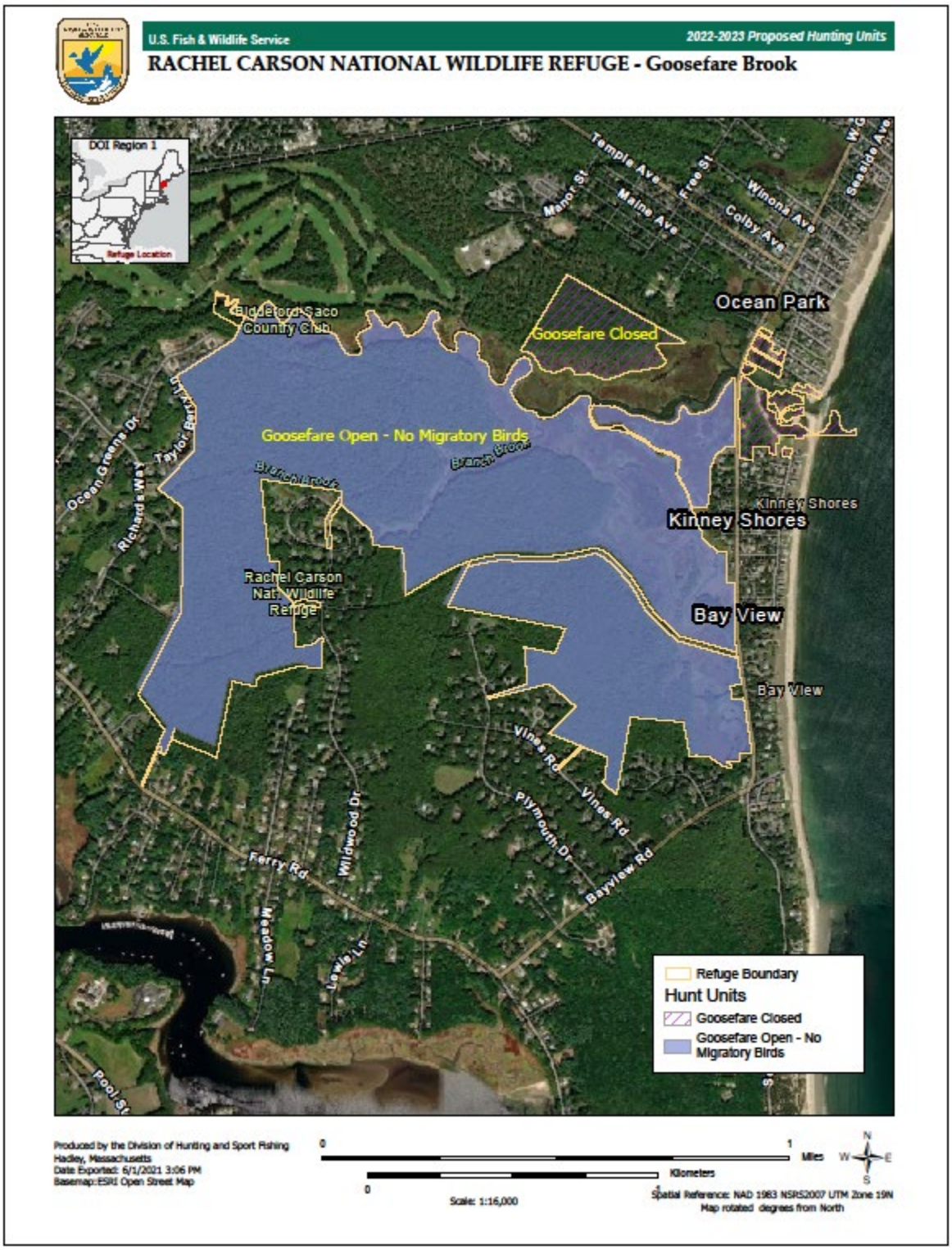


Map F – Goose Rocks Division

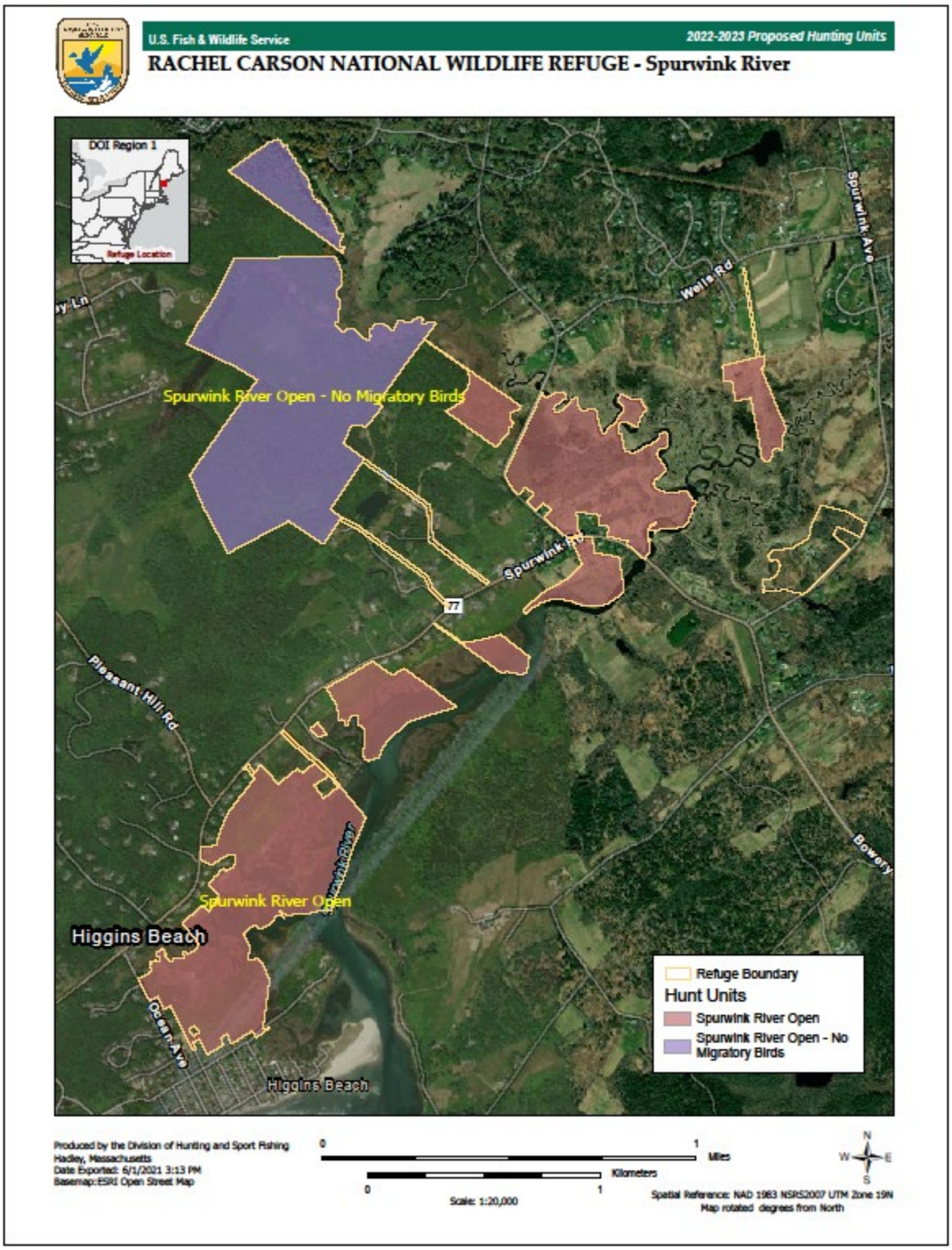


Map G – Little River Division

Map H – Goosefare Brook Division



Map I – Spurwink River Division



Map J – Stone Lane Division

COMPATIBILITY DETERMINATION

USE: Hunting

REFUGE NAME: Rachel Carson National Wildlife Refuge

DATE ESTABLISHED: December 16, 1966

ESTABLISHING and ACQUISITION AUTHORITY:

- Migratory Bird Conservation Act, as amended (16 U.S.C 715-715r)
- Refuge Recreation Act (16 U.S.C. 460k-1)
- Emergency Wetlands Resources Act of 1986 (16 USC Section 3901(b) 100 Stat. 3583)
- Fish and Wildlife Act of 1956 (16 USC Section 742f (a)(1), (b)(1))

REFUGE PURPOSES:

- "... use as an inviolate sanctuary, or for any other management purpose, for migratory birds" (Migratory Bird Conservation Act (16 U.S.C. 715d))
- "... (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species ..." (Refuge Recreation Act (16 U.S.C. 460k-1)).
- "... for the conservation of the wetlands of the Nation in order to maintain the public benefits they provide to help fulfill international obligations contained in various migratory bird treaties and conventions" (Emergency Wetlands Resources Act of 1986 (16 U.S.C. Section 3901(b) 100 Stat. 3583)).
- "... for the development, advancement, management, conservation, and protection of fish and wildlife resources ...for the benefit of the United States Fish and Wildlife Service, in performing its activities and services" (Fish and Wildlife Act of 1956 (16 U.S.C. Section 742f (a)(1), (b)(1))).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

The mission of the National Wildlife Refuge System (Refuge System) "… is 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" (Refuge System Improvement Act of 1997 (Public Law 105-57, 111 Stat 1252).

DESCRIPTION OF USE:

(a) What is the use? Is the use a priority public use?
The use is public hunting of deer, wild turkey, fox, coyote, grouse, and migratory birds on Rachel Carson National Wildlife Refuge (NWR). Hunting was identified as one of six priority public uses of the Refuge System by the National Wildlife Refuge System Administration Act (NWRSAA) of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57), when found to be compatible.

(b) Where would the use be conducted?
The proposed use will allow for hunting on approximately 4,089 acres of the refuge. Big game hunting will be available in the following 9 divisions: Brave Boat Harbor, York River, Lower Wells, Upper Wells, Mousam River, Goose Rocks, Little River, Goosefare Brook, and Spurwink River. Migratory game bird hunting will be available on the following 7 divisions: Brave Boat Harbor, York River, Lower Wells, Upper Wells, Mousam River, Goose Rocks, and Spurwink River. Upland game bird hunting will be available on the following 8 divisions: Brave Boat Harbor, York River, Lower Wells, Upper Wells, Mousam River, Goose Rocks, Goosefare Brook, and Spurwink River. Please see Maps A through J provided in Section VII of the Hunting Plan.

(c) When would the use be conducted?
The refuge adopts the Maine Department of Inland Fisheries and Wildlife (MDIFW) regulations for hunting seasons. MDIFW determines hunting seasons annually with refuge-permitted species hunted between September and February. An organized mentored spring turkey hunt will take place during the State's spring turkey season annually. Legal shooting hours will be in accordance with State regulations for each species except coyote. We do not allow night hunting of coyote.

(d) How would the use be conducted?
We will continue to conduct the hunting program according to State and Federal regulations. Federal regulations in 50 CFR pertaining to the Refuge System, as well as refuge-specific regulations will apply. However, the project leader may, upon annual review of the hunting program, take the necessary steps to impose further restrictions, recommend that the refuge be closed to hunting, or further liberalize hunting regulations up to the limits of State regulations. The refuge will restrict hunting if it becomes incompatible with other priority public uses or endangers refuge resources or public safety.

Hunters will be required to have a State permit, refuge-specific permit for each species, and a Federal Duck Stamp if hunting migratory birds. Hunters are required to have a permit for the species they are hunting. Hunt packets are available on the refuge website and RecAccess. Permits can be purchased online through RecAccess at the cost of $10.00 for big game, $10.00 for migratory bird, $5.00 for upland game bird, and $5.00 for participating in hunting using falconry. Permits for youth and seniors cost 50 percent less.

To protect waterfowl and other migratory birds from potential lead poisoning, non-lead ammunition is required for firearms hunting of all species except deer and turkey. The refuge strongly encourages big game hunters to use non-lead ammunition while hunting on the refuge.

The refuge proposes to phase in non-lead ammunition for all species over the next 4 years and will become mandatory for use at the end of the 4-year period in 2026. This proposed phase-in period will allow hunters time to adapt to the new regulations without diminishing hunting opportunities on the refuge. The refuge staff will provide information to assist in this transition that benefits wildlife.

(e) Why is this use being proposed?
Hunting is one of the priority public uses outlined in the Refuge Improvement Act. The U.S. Fish and Wildlife Service (Service) supports and encourages priority uses when they are compatible on refuge lands. Hunting provides connection to wildlife and conservation in a unique way. Hunting is a traditional activity and recreational use of renewable natural resources that is deeply rooted in America's heritage. On refuges designated as an inviolate sanctuary for migratory birds, hunting can be allowed. Land purchased through the Migratory Bird Conservation Fund cannot exceed 40 percent of the land base at any one time unless shown to be beneficial to the populations.

This use will further align the refuge with the Department of the Interior's Secretarial Order 3356, which 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. Hunting promotes the stewardship of our natural resources and increase the public's appreciation and support for the refuge. Hunting was also identified as an area of interest for the refuge in its 2007 Comprehensive Conservation Plan (CCP) (https://www.fws.gov/media/rachelcarsonnwrccpeajune2007pdf).

AVAILABILITY OF RESOURCES:

Annual hunt administration costs for Rachel Carson NWR and Great Thicket NWR Berwick-York Focus Area will total approximately $10,000. Rachel Carson NWR funds are used to conduct hunts for big game, migratory bird, and upland game bird seasons. This includes staff time for planning and annual program preparation, outreach and public relations, permit administration, boundary signs, enforcement, posting, roads and parking lot maintenance. Other operating costs include signs, leaflets, equipment and vehicle fuel and maintenance. Funding for the hunt program is not specifically allocated but will be taken from station base funds on an annual basis. In the past, approximately $4,400 is generated annually from permit fees. It is anticipated that base funding for the refuge will continue to be sufficient to support the hunting program at Rachel Carson and Great Thicket NWR Berwick-York Focus Area in the future.

Table A-1. Estimated Costs for Hunting at Rachel Carson NWR and Great Thicket NWR Berwick-York Focus Area.

Identifier	Costs
Staff (Maintenance Workers, Biologist, and Refuge Manager)	$7,000
Hunt management, monitoring resource impacts	$1,500
Parking area maintenance, signs, posts	$1,500

Identifier	Costs
Total Annual Cost	**$10,000**

ANTICIPATED IMPACTS OF THE USE:

The overall impacts of this use are fully reviewed and discussed in the Rachel Carson NWR and Great Thicket Berwick-York Focus Area hunting Environmental Assessment (Appendix C).

Hunting has occurred on refuge lands for many years with no discernible adverse impacts to resources or significant conflicts with other priority public uses. Hunting provides compatible wildlife-dependent recreational opportunities that can foster a better appreciation and more complete understanding of wildlife and habitat, which can translate into stronger support for wildlife conservation, the refuge, the Refuge System, and the Service.

Migratory Birds
Migratory birds are managed on a flyway basis and hunting regulations are established in each State based on flyway data. Federal and State regulations will apply in the refuge waterfowl hunt. Hunting waterfowl on the refuge would reduce the total numbers of birds in the flyway, but harvest would be within allowable limits as determined by the Service annually. Hunting waterfowl on the refuge would make the birds more skittish and prone to disturbance, reduce the amount of time they spend foraging and resting, and alter their habitat usage patterns (Raveling 1979, Owen 1973, White-Robinson 1982, Madsen 1985, Bartelt 1987). Injury and mortality are also anticipated effects of the hunting program. Disturbance to non-target birds and resident wildlife would likely occur from hunting and associated hunter activity but would be short-term and temporary.

The refuge mitigates these effects by carefully managing waterfowl hunting through controlled waterfowl hunt areas. Blinds must be temporary, portable, and removed each day. This reduces the days and duration of disturbance to each hunted wetland unit. In addition, 60 percent of the refuge is closed to migratory bird hunting as required by the Migratory Bird Conservation Act, which allows areas for waterfowl to rest and forage during migration without disturbance. Overall, the effects on migratory birds are expected to be minor.

Big Game and Upland Game
In 2020, the State of Maine estimated that the white-tailed deer population totaled approximately 290,000 individuals. In Maine Wildlife Management District (WMD) 24, the deer harvest in 2019 was 28,323. This represents a decrease from the previous year when the deer harvest totaled 32,451.

Big game and upland game hunting are managed on a statewide basis in accordance with approved State management plans. There is potential for conflicts between big game hunters and other recreational users at Rachel Carson NWR. However, big and small/upland game hunting in Maine are well-established and anticipated annual events and most non-hunting visitors recognize that and adjust their visits accordingly when hunting is in progress. Rachel Carson NWR has provided these hunting opportunities for over 40 years and visitors have come to expect hunting activity on refuge lands. The refuge maintains areas closed to hunting for wildlife

observation and other priority public uses. This provides non-hunters with opportunities to participate in other priority public uses during the hunting season without conflict. Trailheads are also marked during the hunting season.

Other Wildlife and non-target species
Some disturbances to non-game bird species are expected since migrating and breeding activities occur from April to September. A limited mentored spring turkey hunt will overlap with this time period. In partnership with a third-party organization, a mentored spring turkey hunt for 10 to 20 participants will occur within the State's spring season to facilitate R3 opportunities. The mentored hunt locations will occur within select units opened to hunting at Rachel Carson NWR and the Berwick-York Focus Area of Great Thicket NWR but may vary from year to year to accommodate fluctuations in the population. Short-term disruptions to other species like bats, turtles, frogs, and some mammals are expected to be minor, due to periods of inactivity or hibernation.

The best available science indicates that lead ammunition and tackle may have negative impacts on wildlife and human health, and the environment (Golden et al. 2016). To move towards reduction and future elimination of this threat on the refuge, we will be eliminating the use of lead ammunition over a 4-year period to educate and work with hunters on the use of non-lead alternatives. The proposed phased transition to non-lead ammunition for all big game hunting will minimize the inadvertent exposure and subsequent lethal or sub-lethal impacts to bald and golden eagles, as well as other scavenging species. Eagles and other scavengers can be susceptible to lead poisoning when they ingest lead fragments or pellets in the tissues of animals killed or wounded by lead ammunition.

Lead shot and bullet fragments found in animal carcasses and gut piles are the most likely source of lead exposure. Many hunters do not realize that the carcass or gut pile they leave in the field usually contains lead bullet fragments. Research will continue on the effects of lead ammunition and the fragments it can deposit in killed game. Avian predators and scavengers can be susceptible to lead poisoning when they ingest lead fragments or pellets in the tissues of animals killed or wounded by lead ammunition. Lead poisoning may weaken raptors by reducing their strength and coordination, leading to muscle and weight loss, reducing motor skill function, and making them lethargic, which may make them more susceptible to disease, vehicle strikes, or power line accidents and increases mortality rates by leaving them unable to hunt (Kramer and Redig 1997; O'Halloran et al. 1989; Kelly and Kelly 2005; Golden et al. 2016). The bioaccumulation of lead is a potential concern, but it does not likely present a significant issue on this refuge, as: 1) non-lead shot is currently required for hunting waterfowl; 2) we are proposing a 4-year phase out to the use of lead ammunition for all species by 2026; 3) the refuge strongly encourages use of non-lead alternatives for hunting big or upland game for the next 4 years; 4) we will educate hunters and the public to the potential adverse impacts of lead; and 5) the updated hunting activities are not likely to introduce substantially more lead into the environment over existing amounts with the current or proposed hunting program. Some hunters will also choose non-lead methods of take such as archery.

Habitat and Vegetation
Dominant habitat types on the refuge include forested upland, barrier beach/dune, coastal

meadows, tidal salt marsh, open fields, grasslands, freshwater wetlands, shrublands, and mixed hardwood forest.

Hunters traverse large areas of the refuge landscape and walk off-trail in areas not used by other visitors. This has the potential to result in impacts to refuge habitats and vegetation. Foot traffic can affect habitats by creating new pathways, trampling vegetation, and causing minor erosion. Only minor impacts to habitat and vegetation are anticipated.

The physical effects on refuge wetland and upland vegetation are expected to be minimal during most of the hunting season (September to mid-March). Hunter density is also controlled through the refuge permit requirements. No vehicles are permitted on the refuge. Only minor effects to vegetation from hunters and hunting dogs trampling are expected, since hunters are dispersed widely across the refuge, tree cutting is not allowed, and plants are senescing or dormant during this timeframe. Soil compaction should be minimal since no vehicles are allowed, and the ground may be partially or wholly frozen.

Hunting could indirectly create a positive effect on vegetation through controlling 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, Stromayer and Warren 1997, Côté et al. 2004, White 2012). Maintaining white-tailed deer hunting will help to maintain habitat in its current form, prevent habitat degradation due to overbrowsing, and promote successful natural regeneration and a more sustainable plant community.

Threatened and Endangered Species
Rachel Carson NWR uses ECOS and IPaC to identify threatened and endangered species, including for purposes of the Intra-Service Section 7 Biological Evaluation (Appendix D). The following species were identified:

Species/Critical Habitat	Status
Northern long-eared bat	T
Roseate tern	E
Piping plover	T
Red knot	T
Monarch butterfly	C
Small whorled pogonia	T
Atlantic salmon	E
Leatherback sea turtle	E
Hawksville sea turtle	E

*Status: E= Endangered, T=Threatened, T(s/a)=Threatened by Similarity of Appearance, PE=Proposed Endangered, PT= Proposed Threatened, CH= Critical Habitat, PCH= Proposed Critical Habitat, C=Candidate Species.

Sea turtles, small whorled pogonia and Atlantic salmon

Sea turtles, Atlantic salmon and small whorled pogonia are not present on refuge lands or within waters under refuge jurisdiction. There are no Atlantic salmon occurring within any of the streams or rivers within our Divisions. Sea turtles also are largely marine species and may swim past refuge property, however they do not nest on the refuge and are not found on refuge lands or waters. Finally, small whorled pogonia is not known to occur on refuge lands or withing the refuge acquisition boundary. Because these species are not known to occur on the refuge and have no possible exposure to any of the proposed changes, the proposed hunting activities will have "no effect" on the listed sea turtles, Atlantic salmon, or small whorled pogonia.

Northern long-eared bat

Northern long-eared bat (NLEB) is present in low numbers at our York River Division and our Little River Division in Biddeford during the spring, summer and fall months. Given the small number of turkey hunt participants and the fact that proposed turkey hunt will occur in a location that is very unlikely to overlap with the presence of the bats, any potential disturbance effects from the mentored turkey hunt are extremely unlikely to occur and therefore considered discountable.

For the other hunting opportunities, noise from firearms could disturb roosting bats, but it is likely that the bats would remain in the tree during daylight hours. Such disturbances are temporary and last only for the duration of the noise, not fundamentally unlike other temporary disturbances that bats may naturally experience without long-term effects, and therefore any potential effects are expected to be insignificant. Other possible disturbances include hunters climbing and placing portable tree stands on trees. However, hunters typically select live trees for safety reasons, while bats are most often in dead or dying trees with large slabs of peeling bark. Further, hunting activities would not result in any roost tree destruction as no tree cutting or other habitat alteration is permitted on the refuge. Overall, any disturbance to NLEB would be very low, since roosting, feeding, and pup rearing activities occur from April to August, outside of the primary refuge hunting seasons (September to mid-March).

The potential for lead impacts to bats through bioaccumulation is discountable due to NLEB diets and foraging habits. Considering the chain of events that are necessary for exposure and the small amount of lead that would contribute to lead concentrations in refuge soils, it seems likely that bats that occur on the refuge will not consume lead derived from ammunition fired by hunters on the refuge. Because the potential for overlap with bats during the spring turkey hunt is very unlikely to occur; because the potential for overlap with bats during the other hunting activities (September to mid-March) is unlikely to occur, and even if there is overlap, the potential effects would be insignificant; and because the potential for lead impacts are discountable, the proposed hunting activities are not likely to adversely affect the NLEB.

Piping plover and roseate tern

Piping plovers nest on sandy beaches and dunes from April through July. Adults, chicks, and fledglings use refuge beaches and sandflats throughout the season, typically through late August.

The nesting and staging beaches are not open to hunting; neither the birds nor their habitat would be adversely impacted by hunting on the refuge. Therefore, any potential impacts from proposed hunting activities are expected to be discountable because they are extremely unlikely to occur. In the unlikely event that the species overlap with hunting activities, disturbance such as noise from firearms could disturb the shorebirds, but such disturbances are temporary and last only for the duration of the noise, not fundamentally unlike other temporary disturbances that shorebirds may naturally experience without long-term effects. Therefore, any potential disturbance is expected to be insignificant. Because hunting—including the use of lead ammunition until the planned non-lead requirement takes effect at the beginning of the fall 2026-2027 hunting season—is highly unlikely to overlap with piping plovers or roseate terns in time or space, these species are not likely to be adversely affected by the proposed hunting activities.

Red knot

Although the majority of migratory stopovers for red knot occur south of Maine, regular stopover sites do occur within the State. Migrating red knots use marine habitats at Rachel Carson NWR including sandy beaches, salt marshes, and salty mud and sand flats which contain an abundance of invertebrate prey. Given that the hunting activities on the refuge are not likely to overlap with the area where the small number of red knots known to occur on the refuge, any potential impacts from disturbance are expected to be discountable because they are extremely unlikely to occur. Like the shorebirds mentioned above, in the unlikely event that the species overlap with hunting activities, disturbances such as noise from firearms could disturb the red knot, but such disturbances are temporary and last only for the duration of the noise, not fundamentally unlike other temporary disturbances that red knots may naturally experience without long-term effects. Therefore, any potential disturbance would be considered insignificant.

Monarch butterfly

The refuge is used by monarch butterflies from spring throughout the fall. Monarchs are common in old field habitats during the breeding season and common during fall migration in salt marsh habitats (nectaring on seaside goldenrod). While hunters are walking through habitat used by monarchs, there could be some impacts including flushing while resting or feeding. Noise disturbance from discharging of a firearm while hunting may startle the species resulting in change in flight pattern or a startle response in caterpillars, but this impact will not result in long-term negative impacts and is considered discountable as this type of noise is not frequent enough to result in habituation to noise that could cause butterfly to not respond to natural threats like parasitism (Taylor and Yack, 2019).

The potential for lead impacts to monarchs is discountable due to their diets. Given that hunters are not likely to overlap with areas where monarch and their plants are known to occur; that any potential disturbance from noise is expected to be insignificant; and that bioaccumulation through plants into caterpillars or butterflies is discountable, the proposed activities are not likely to jeopardize the monarch butterfly.

All species

The best available science indicates that lead ammunition and tackle may have negative impacts on wildlife and the environment (Golden et al. 2016). Animals can be poisoned by lead in a variety of ways including "ingestion of bullet fragments and shot pellets left in animal carcasses, spent ammunition left in the field, lost fishing tackle, lead-based paints, large-scale mining, and lead smelting activities. Despite a large body of scientific literature on exposure to lead and its toxicological effects, controversy still exists regarding its impacts at a population level" (Haig et al. 2014). The use of non-lead ammunition will initially be voluntary, and we plan to require non-lead ammunition for all activities starting at the beginning of the fall 2026-2027 hunting season (after a 4-year phase-in period). This phase-in period will ensure continuity of visitor opportunities as hunters understand the changes and become more familiar with the availability and use of non-lead alternatives. We will educate hunters about the impacts of lead and strongly encourage non-lead ammunition alternatives for the next 4 years.

The bioaccumulation of lead is a potential concern, but it does not likely present a significant issue on this refuge as: 1) non-lead shot is currently required for hunting waterfowl; 2) we plan to require the use of non-lead ammunition on the refuge at the beginning of the fall 2026-2027 hunting season; 3) the refuge strongly encourages use of non-lead alternatives for hunting big game for the next 4 years; 4) we will educate hunters and the public to the potential adverse impacts of lead; and 5) the updated hunting activities are not likely to introduce substantially more lead into the environment over existing amounts with the current or proposed programs. Some hunters will also choose non-lead methods of take such as archery.

A more detailed discussion of threatened and endangered species, and the potential impacts of the proposed hunting activities to those listed species, can be found in the Intra-Service Section 7 Biological Evaluation (Appendix D).

Visitor Uses and Experiences

Under the proposed action, Rachel Carson NWR will be open to priority public uses including wildlife observation, environmental education, interpretation, photography, and hunting. The majority of visitation occurs on the Carson Trail in the Upper Wells Division. This area of the Division will remain closed to hunting. On average, Rachel Carson NWR gets approximately 275,000 visitors each year, with approximately 5 percent of those visitors utilizing the refuge for hunting (USFWS 2019).

There is some possibility of negative economic impacts for hunters who must comply with the proposed non-lead requirements beginning in 2026. While non-lead ammunition has become essentially equivalent in price to lead ammunition, certain types of non-lead ammunition can cost more than certain types of lead ammunition. However, the price of nonlead ammunition is the same or less than that of premium lead ammunition. In order to prevent the negative impacts of this switch, the refuge has begun and will continue specific outreach about the requirement to these groups and has put in place measures to mitigate the economic input beyond the proposed phased implementation, which already affords hunters time to gradually transition their supplies of ammunition. The Service will continue educating hunters on the use of non-lead ammunition during the phased in time period, provide resources on companies that produce non-lead

ammunition for purchase and work with partner organizations on non-lead ammunition giveaways or exchanges if possible.

PUBLIC REVIEW AND COMMENT:

This Compatibility Determination (CD) is part of the Rachel Carson NWR and Great Thicket NWR Berwick-York Focus Area Hunting Plan and the accompanying NEPA compliance. The plan was coordinated with all interested and/or affected parties, including State partners. We informed the public through local venues, the refuge website, and social media. We released the draft plan, CD and EA for public review and comment from May 3 through August 8, 2022, a total of 97 days. A total of nine comment letters were submitted that offered input to the refuge. Any comments and our responses can be found in the Finding of No Significant Impact (Appendix E).

DETERMINATION (CHECK ONE BELOW):

_____ Use is not compatible

__X___ Use is compatible, with the following stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

To ensure compatibility with refuge purpose(s) and Refuge System mission, hunting can occur at Rachel Carson NWR in accordance with State and Federal regulations and special refuge-specific restrictions to ensure that wildlife and habitat management goals are achieved, and that the program is providing a safe, high quality hunting experience for participants. This hunting program will be monitored and potentially modified or eliminated if any the program's components are found not compatible.

The following stipulations are necessary to ensure compatibility:

- Hunters are required to use non-lead ammunition for upland game hunting and are encouraged to use non-lead ammunition for all hunting on the refuge. The refuge strongly encourages big game hunters to use non-lead ammunition while hunting on the refuge. The refuge proposes to phase in non-lead ammunition for all species over the next 4 years and will become mandatory for use at the end of the 4-year period in 2026.

- The hunter must retrieve all species harvested on the refuge.

- Hunters are required to purchase a permit for each species they are hunting. The refuge employs a hunt permit system to avoid conflicts. Issuing permits to all hunters ensures that all hunters receive a copy of the current refuge regulations and maps of open areas. The maps and advice to hunters are especially valuable in avoiding conflicts with neighbors. Rachel Carson NWR is believed to have more neighbors than any other NWR.

JUSTIFICATION:

Hunting is a priority wildlife-dependent use for the Refuge System through which the public can develop an appreciation for fish and wildlife. Service policy is to provide expanded opportunities for wildlife-dependent uses when compatible and consistent with sound fish and wildlife management and ensure that they receive enhanced attention during planning and management.

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. Suitable habitat exists on refuge lands to support hunting as proposed.

This activity will not conflict with any of the other priority public uses or adversely impact biological resources. Therefore, through this CD process, we have determined that hunting on the refuge, in accordance with the stipulations provided above, is a compatible use that will not materially interfere with, or detract from, the fulfillment of the Refuge System mission or the purpose(s) of the refuge.

SIGNATURE:
Refuge Manager

KARL STROMAYER Digitally signed by KARL STROMAYER Date: 2022.09.01 10:02:55 -04'00'

(Signature)

09/01/2022

(Date

CONCURRENCE:
Regional Chief (Acting)

HOLLY GABORIAULT Digitally signed by HOLLY GABORIAULT Date: 2022.09.01 18:03:53 -04'00'

(Signature)

9/1/22

(Date)

MANDATORY 15 YEAR RE-EVALUATION DATE: _____

(Date)

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COMPATIBILITY DETERMINATION

USE: Hunting

REFUGE NAME: Great Thicket National Wildlife Refuge – Berwick-York Focus Areas

DATE ESTABLISHED: January 18, 2017

ESTABLISHING and ACQUISITION AUTHORITY(IES):

1) Endangered Species Act of 1973 (16 U.S.C. 1534), as amended

2) Fish and Wildlife Act of 1956 (16 U.S.C. 742a-742j), as amended

REFUGE PURPOSE(S):

The primary purpose of Great Thicket National Wildlife Refuge (NWR) is to strategically acquire and improve habitat to help achieve overlapping habitat and population goals for declining shrubland wildlife species.

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

The mission of the National Wildlife Refuge System (Refuge System) is "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" (Refuge System Improvement Act of 1997, Public Law 105-57).

DESCRIPTION OF USE:

(a) What is the use? Is the use a priority public use?
The use is public hunting of deer, wild turkey, grouse, and migratory birds on the Berwick-York Focus Areas of Great Thicket NWR. Hunting was identified as one of six priority public uses of the Refuge System by the National Wildlife Refuge System Administration Act (NWRSAA) of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57), when found to be compatible.

(b) Where would the use be conducted?
Hunting will be conducted at the Berwick-York focus area of Great Thicket NWR. Located in South Berwick, Maine, this tract would provide 47.95 acres of forested habitat for big game, migratory bird, and upland bird hunting (see attached map). All hunting will occur in the areas delineated on the refuge hunt maps (attached), which are updated annually. New parcels will be added to the refuge hunt maps for Great Thicket NWR as they are acquired.

(c) When would the use be conducted?
The refuge adopts the Maine Department of Inland Fisheries and Wildlife (MDIFW) regulations for hunting seasons. MDIFW determines hunting seasons annually with refuge-permitted species

hunted between September and February. An organized mentored spring turkey hunt will take place during the State's spring turkey season annually. Legal shooting hours will be in accordance with State regulations for each species, except coyote. We do not allow night hunting of coyote.

Hunting waterfowl in open hunting sections will conform to refuge-specific regulations. Hunting is not permitted on Sundays per State regulations. Access to the refuge for hunting any species will be permitted from 1 hour before legal hunting hours through 1 hour after legal hunting hours.

(d) How would the use be conducted?
We will continue to conduct the hunting program according to State and Federal regulations. Federal regulations in 50 CFR pertaining to the Refuge System, as well as refuge-specific regulations, will apply. However, the project leader may, upon annual review of the hunting program, take the necessary steps to impose further restrictions, recommend that the refuge be closed to hunting, or further liberalize hunting regulations up to the limits of State regulations. The refuge will restrict hunting if it becomes incompatible with other priority public uses or endangers refuge resources or public safety.

Hunters will be required to carry a State permit, a signed refuge hunt information sheet, and a Federal Duck Stamp if hunting migratory birds. Hunt information sheets are available on the refuge website and RecAccess. A fee permit is not required to hunt on Great Thicket Berwick-York Focus Area.

To protect waterfowl and other migratory birds from potential lead poisoning, non-lead ammunition is required for firearms hunting of all species except deer and turkey. The refuge strongly encourages big game hunters to use non-lead ammunition while hunting on the refuge. The refuge proposes to phase in non-lead ammunition for all species over the next 4 years and will become mandatory for use at the end of the 4-year period in 2026. This proposed phase-in period will allow hunters time to adapt to the new regulations without diminishing hunting opportunities on the refuge. The refuge staff will provide information to assist in this transition that benefits wildlife.

(e) Why is the use being proposed?
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.

Furthermore, Department of the Interior Secretarial Order 3356 directs the Service to enhance and expand public access to lands and waters on refuges for hunting, fishing, recreational shooting, and other forms of outdoor recreation. The proposed action would promote one of the priority public uses of the Refuge System. Providing opportunities for visitors to hunt would promote stewardship of our natural resources and increase public appreciation and support for the refuge.

AVAILABILITY OF RESOURCES:

Annual hunt administration costs for Rachel Carson NWR and Great Thicket NWR Berwick-York Focus Area total approximately $10,000. Rachel Carson NWR funds are used to conduct hunts for big game, upland game bird, and migratory bird seasons. This includes staff time for planning and annual program preparation, outreach and public relations, permit administration, enforcement, posting, roads, and parking lot maintenance. Other operating costs include signs, leaflets, equipment, and vehicle fuel and maintenance. Funding for the hunt programs is not specifically allocated but will be taken from station base funds on an annual basis. It is anticipated that funding would continue to be sufficient to continue the hunting program at Rachel Carson NWR and Great Thicket NWR Berwick-York Focus Area in the future.

Table B-1. Estimated Costs for Hunting at Rachel Carson NWR and Great Thicket NWR Berwick-York Focus Area.

Identifier	Costs
Staff (Maintenance Workers, Biologist, and Refuge Manager)	$7,000
Hunt management, monitoring resource impacts	$1,500
Parking area maintenance, signs, posts	$1,500
Total Annual Cost	**$10,000**

ANTICIPATED IMPACTS OF THE USE:

White-Tailed Deer

In 2019, 28,323 total deer were harvested in the State of Maine. This figure represents a 12.7 percent decrease from the previous year when 32,451 deer were harvested in the State (MDIFW 2019, MDIFW 2020). In 2021, the State estimated that there were approximately 290,000 deer in Maine. The deer population in Maine is trending upwards and, in some areas, deer are overpopulated. There are few predators of deer since the extirpation of the wolf (*Canis sp.*) and mountain lion (*Cougar Puma concolor*) and the reduction of bobcat (*Lynx rufus*) numbers. Hunting is the best source of population control (Clarke pers. comm. 2012) but occasional predation on fawns by fox and dogs is probable, and predation by coyote may be significant. Coyote packs have also been known to prey on adult deer. They were able to expand eastward from their historic range in the prairie regions of North America, in part because of the eradication or drastic reduction of gray (*C. lupus*) and red wolves (*C. rufus*) (their competitors) from the eastern states. Coyotes have been confirmed on the refuge.

Côté et al. report dramatic impacts on natural ecosystems as a result of deer foraging (2004). Selective foraging by deer affects the growth and survival of many herbaceous shrub and tree species. This, in turn, modifies patterns of relative abundance and vegetation dynamics. In forests, the effects of continued overbrowsing include reductions in species diversity and plant cover and a loss of understory in general with little regeneration of tree species, since seedlings are eaten (Tilghman 1989). Small spring ephemeral and early summer forest herbs, which can lose all their leaves or flowers in a single bite and cannot regrow, are susceptible to deer browsing and have decreased numbers in overbrowsed forests (Augustine and McNaughton 1998, Augustine and DeCalesta 2003).

Plants deter browsing by arming themselves with morphological or physical weapons (e.g., thorns) and chemical weapons like phytochemicals that cause unpalatability to potential feeders. Many nonnative, invasive plants have these defenses and therefore, are avoided by deer, thus increasing in size, abundance and area covered as other more palatable native plants are eaten. Additionally, certain native plants that are unpalatable are left unbrowsed and are proliferating, altering the composition of the habitats.

In general, the higher the population of deer in a particular area, the greater the tick density will be (Lastavica et al. 1989, Rand et al. 2004, Stafford III 2007). Of particular concern to humans are three diseases transmitted by ticks to people: Lyme disease, babesiosis, and ehrlichiosis (Krause et al. 2002). The number of human cases of Lyme disease is correlated with deer density (Telford III 2002, Wilson et al. 1988, 1990). A reduction of deer densities in Mumford Cove, Connecticut resulted in a lower incidence rate of Lyme disease in humans (Kilpatrick and LaBonte 2007).

Wild Turkey

The total turkey harvest in Maine was 8,592 birds in 2019. Prior to the spring 2020 hunting season, the turkey population in Maine was estimated at 33,500 total birds. Maine's turkey population appears to be increasing, with higher population densities in the southern portion of the State. MDIFW annually evaluates hunter harvest data and biological data for these species to inform management decisions. In partnership with a third-party organization, a mentored spring turkey hunt for 10 to 20 participants will occur within the State's spring season to facilitate R3 opportunities. The mentored hunt locations will occur within select units opened to hunting at Rachel Carson NWR and the Berwick-York Focus Area of Great Thicket NWR but may vary from year to year to accommodate fluctuations in the population. Given the low number of wild turkeys harvested in the State, we do not anticipate that opening hunting would have any significant effect on the population of wild turkey in this region of the State.

Migratory Birds

Migratory birds are managed on a flyway basis and hunting regulations are established in each State based on flyway data. Federal and State regulations will apply in the refuge waterfowl hunt. Hunting waterfowl on the refuge would reduce the total numbers of birds in the flyway, but harvest would be within allowable limits as determined by the U.S. Fish and Wildlife Service (Service) annually. Hunting waterfowl on the refuge would make the birds more skittish and prone to disturbance, reduce the amount of time they spend foraging and resting, and alter their habitat usage patterns (Raveling 1979, Owen 1973, White-Robinson 1982, Madsen 1985, Bartelt 1987). Injury and mortality are also anticipated effects of the hunting program. Disturbance to non-target birds and resident wildlife would likely occur from hunting and associated hunter activity but would be short-term and temporary.

The refuge mitigates these effects by carefully managing waterfowl hunting through controlled waterfowl hunt areas. Blinds must be temporary, portable, and removed each day. This reduces the days and duration of disturbance to each hunted wetland unit. Overall, the effects on migratory birds are expected to be minor.

Non-target species

Hunting can affect both target and non-target species. These impacts include 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). Disturbances to non-game bird species are expected to be minimal, since migrating and breeding activities occur from April to August, when there is no hunting on the refuge. Short-term disruptions to other species like bats, turtles, frogs, and some mammals are expected to be minor, due to periods of inactivity or hibernation. However, under the anticipated levels of use these impacts are expected to be minimal.

The best available science indicates that lead ammunition and tackle may have negative impacts on wildlife and human health, and the environment (Golden et al. 2016). To move towards reduction and future elimination of this threat on the refuge, we will be eliminating the use of lead ammunition over a 4-year period to educate and work with hunters on the use of non-lead alternatives. The proposed phased transition to non-lead ammunition for all big game hunting will minimize the inadvertent exposure and subsequent lethal or sub-lethal impacts to bald and golden eagles, as well as other scavenging species. Eagles and other scavengers can be susceptible to lead poisoning when they ingest lead fragments or pellets in the tissues of animals killed or wounded by lead ammunition.

Lead shot and bullet fragments found in animal carcasses and gut piles are the most likely source of lead exposure. Many hunters do not realize that the carcass or gut pile they leave in the field usually contains lead bullet fragments. Research will continue on the effects of lead ammunition and the fragments it can deposit in killed game. Avian predators and scavengers can be susceptible to lead poisoning when they ingest lead fragments or pellets in the tissues of animals killed or wounded by lead ammunition. Lead poisoning may weaken raptors by reducing their strength and coordination, leading to muscle and weight loss, reducing motor skill function, and making them lethargic, which may make them more susceptible to disease, vehicle strikes, or power line accidents and increases mortality rates by leaving them unable to hunt (Kramer and Redig 1997; O'Halloran et al. 1989; Kelly and Kelly 2005; Golden et al. 2016). The bioaccumulation of lead is a potential concern, but it does not likely present a significant issue on this refuge, as: 1) non-lead shot is currently required for hunting waterfowl; 2) we are proposing a 4-year phase out to the use of lead ammunition for all species by 2026; 3) the refuge strongly encourages use of non-lead alternatives for hunting big or upland game for the next 4 years; 4) we will educate hunters and the public to the potential adverse impacts of lead; and 5) the updated hunting activities are not likely to introduce substantially more lead into the environment over existing amounts with the current or proposed hunting program. Some hunters will also choose non-lead methods of take such as archery.

Habitat and Vegetation

The physical effects on refuge wetland and upland vegetation are expected to be minimal during most of the hunting season (September to mid-March). Hunter density is also controlled through the refuge permit requirements. No vehicles are permitted on the refuge. Only minor effects to vegetation from hunters and hunting dogs trampling are expected, since hunters are dispersed widely across the refuge, tree cutting is not allowed, and plants are senescing or dormant during this timeframe. Soil compaction should be minimal since no vehicles are allowed, and the ground may be partially or wholly frozen.

Hunting could indirectly create a positive effect on vegetation through reducing 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, Côté et al. 2004, White 2012). Maintaining white-tailed deer hunting will help to maintain habitat in its current form, prevent habitat degradation due to overbrowsing, and promote successful natural regeneration and a more sustainable plant community.

Threatened and Endangered Species

Great Thicket NWR uses ECOS and IPaC to identify threatened and endangered species, including for purposes of the Intra-Service Section 7 Biological Evaluation (Appendix D). The following species were identified:

Species/Critical Habitat	Status
Northern long-eared bat	T
Roseate tern	E
Piping plover	T
Red knot	T
Monarch butterfly	C

*Status: E= Endangered, T=Threatened, T(s/a)=Threatened by Similarity of Appearance, PE=Proposed Endangered, PT= Proposed Threatened, CH= Critical Habitat, PCH= Proposed Critical Habitat, C=Candidate Species.

Northern long-eared bat

Given the small number of turkey hunt participants and the fact that proposed turkey hunt will occur in a location that is very unlikely to overlap with the presence of the bats, any potential disturbance effects from the mentored turkey hunt are extremely unlikely to occur and therefore considered discountable.

For the other hunting opportunities, noise from firearms could disturb roosting bats, but it is likely that the bats would remain in the tree during daylight hours. Such disturbances are temporary and last only for the duration of the noise, not fundamentally unlike other temporary disturbances that bats may naturally experience without long-term effects, and therefore any potential effects are expected to be insignificant. Other possible disturbances include hunters climbing and placing portable tree stands on trees. However, hunters typically select live trees for safety reasons, while bats are most often in dead or dying trees with large slabs of peeling bark. Further, hunting activities would not result in any roost tree destruction as no tree cutting or other habitat alteration is permitted on the refuge. Overall, any disturbance to NLEB would be very low, since roosting, feeding, and pup rearing activities occur from April to August, outside of the primary refuge hunting seasons (September to mid-March).

The potential for lead impacts to bats through bioaccumulation is discountable due to NLEB diets and foraging habits. Considering the chain of events that are necessary for exposure and the

small amount of lead that would contribute to lead concentrations in refuge soils, it seems likely that bats that occur on the refuge will not consume lead derived from ammunition fired by hunters on the refuge. Because the potential for overlap with bats during the spring turkey hunt is very unlikely to occur; because the potential for overlap with bats during the other hunting activities (September to mid-March) is unlikely to occur, and even if there is overlap, the potential effects would be insignificant; and because the potential for lead impacts are discountable, the proposed hunting activities are not likely to adversely affect the NLEB.

Piping plover and roseate tern

Piping plovers nest on sandy beaches and dunes from April through July. Adults, chicks, and fledglings use refuge beaches and sandflats throughout the season, typically through late August. The nesting and staging beaches are not open to hunting; neither the birds nor their habitat would be adversely impacted by hunting on the refuge. Therefore, any potential impacts from proposed hunting activities are expected to be discountable because they are extremely unlikely to occur. In the unlikely event that the species overlap with hunting activities, disturbance such as noise from firearms could disturb the shorebirds, but such disturbances are temporary and last only for the duration of the noise, not fundamentally unlike other temporary disturbances that shorebirds may naturally experience without long-term effects. Therefore, any potential disturbance is expected to be insignificant. Because hunting—including the use of lead ammunition until the planned non-lead requirement takes effect at the beginning of the fall 2026-2027 hunting season—is highly unlikely to overlap with piping plovers or roseate terns in time or space, these species are not likely to be adversely affected by the proposed hunting activities.

Red knot

Although the majority of migratory stopovers for red knot occur south of Maine, regular stopover sites do occur within the State. Given that the hunting activities on the refuge are not likely to overlap with the area where the small number of red knots known to occur on the refuge, any potential impacts from disturbance are expected to be discountable because they are extremely unlikely to occur. Like the shorebirds mentioned above, in the unlikely event that the species overlap with hunting activities, disturbances such as noise from firearms could disturb the red knot, but such disturbances are temporary and last only for the duration of the noise, not fundamentally unlike other temporary disturbances that red knots may naturally experience without long-term effects. Therefore, any potential disturbance would be considered insignificant.

Monarch butterfly

The refuge is used by monarch butterflies from spring throughout the fall. Monarchs are common in old field habitats during the breeding season and common during fall migration in salt marsh habitats (nectaring on seaside goldenrod). While hunters are walking through habitat used by monarchs, there could be some impacts including flushing while resting or feeding. Noise disturbance from discharging of a firearm while hunting may startle the species resulting in change in flight pattern or a startle response in caterpillars, but this impact will not result in long-term negative impacts and is considered discountable as this type of noise is not frequent

enough to result in habituation to noise that could cause butterfly to not respond to natural threats like parasitism (Taylor and Yack, 2019).

The potential for lead impacts to monarchs is discountable due to their diets. Given that hunters are not likely to overlap with areas where monarch and their plants are known to occur; that any potential disturbance from noise is expected to be insignificant; and that bioaccumulation through plants into caterpillars or butterflies is discountable, the proposed activities are not likely to jeopardize the monarch butterfly.

All species

The best available science indicates that lead ammunition and tackle may have negative impacts on wildlife and the environment (Golden et al. 2016). Animals can be poisoned by lead in a variety of ways including "ingestion of bullet fragments and shot pellets left in animal carcasses, spent ammunition left in the field, lost fishing tackle, lead-based paints, large-scale mining, and lead smelting activities. Despite a large body of scientific literature on exposure to lead and its toxicological effects, controversy still exists regarding its impacts at a population level" (Haig et al. 2014). The use of non-lead ammunition will initially be voluntary, and we plan to require non-lead ammunition for all activities starting at the beginning of the fall 2026-2027 hunting season (after a 4-year phase-in period). This phase-in period will ensure continuity of visitor opportunities as hunters understand the changes and become more familiar with the availability and use of non-lead alternatives. We will educate hunters about the impacts of lead and strongly encourage non-lead ammunition alternatives for the next 4 years.

The bioaccumulation of lead is a potential concern, but it does not likely present a significant issue on this refuge as: 1) non-lead shot is currently required for hunting waterfowl; 2) we plan to require the use of non-lead ammunition on the refuge at the beginning of the fall 2026-2027 hunting season; 3) the refuge strongly encourages use of non-lead alternatives for hunting big game for the next 4 years; 4) we will educate hunters and the public to the potential adverse impacts of lead; and 5) the updated hunting activities are not likely to introduce substantially more lead into the environment over existing amounts with the current or proposed programs. Some hunters will also choose non-lead methods of take such as archery.

A more detailed discussion of threatened and endangered species, and the potential impacts of the proposed hunting activities to those listed species, can be found in the Intra-Service Section 7 Biological Evaluation (Appendix D).

Visitor Uses and Experiences

Hunting may result in conflicts between user groups on the refuge, especially in shared spaces like trails and parking areas. For the duration of the hunt period, trails and public use areas will be surrounded by safety zones to ensure visitor safety. Signage will go up at refuge kiosks and information will be placed on the refuge website to inform the public of the hunt. If unforeseen conflicts arise, the refuge manager may either further restrict hunting or limit other public uses during the hunting season to ensure public safety and provide a climate for productive coexistence of visitor uses.

There is some possibility of negative economic impacts for hunters who must comply with the proposed non-lead requirements beginning in 2026. While non-lead ammunition has become essentially equivalent in price to lead ammunition, certain types of non-lead ammunition can cost more than certain types of lead ammunition. However, the price of nonlead ammunition is the same or less than that of premium lead ammunition. In order to prevent the negative impacts of this switch, the refuge has begun and will continue specific outreach about the requirement to these groups and has put in place measures to mitigate the economic input beyond the proposed phased implementation, which already affords hunters time to gradually transition their supplies of ammunition. The Service will continue educating hunters on the use of non-lead ammunition during the phased in time period, provide resources on companies that produce non-lead ammunition for purchase and work with partner organizations on non-lead ammunition giveaways or exchanges if possible.

PUBLIC REVIEW AND COMMENT:

This Compatibility Determination (CD) is part of the Rachel Carson NWR and Great Thicket NWR Berwick-York Focus Area Hunting Plan and the accompanying NEPA compliance. The plan was coordinated with all interested and/or affected parties, including State partners. We informed the public through local venues, the refuge website, and social media. We released the draft plan, CD and EA for public review and comment from May 3 through August 8, 2022, a total of 97 days. A total of nine comment letters were submitted that offered input to the refuge. Any comments and our responses can be found in the Finding of No Significant Impact (Appendix E).

DETERMINATION (CHECK ONE BELOW):

_____ Use is not compatible

__X__ Use is compatible, with the following stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

To ensure compatibility with refuge purpose(s) and Refuge System mission, hunting can occur at Great Thicket NWR Berwick-York Focus Area in accordance with State and Federal regulations, and special refuge-specific restrictions to ensure that wildlife and habitat management goals are achieved, and that the program is providing a safe, high quality hunting experience for participants. This hunting program will be monitored and potentially modified or eliminated if any the program's components are found not compatible.

The following stipulations are necessary to ensure compatibility:

- The hunter must retrieve all species harvested on the refuge.
- We require use of non-lead ammunition for upland game hunting and encourage the use of non-lead ammunition for all hunting on the refuge. The refuge strongly encourages big game hunters to use non-lead ammunition while hunting on the refuge. The refuge

proposes to phase in non-lead ammunition for all species over the next 4 years and will become mandatory for use at the end of the 4-year period in fall 2026.

- Hunters must sign and carry the refuge hunt information sheet while hunting.

JUSTIFICATION:

Hunting is a priority wildlife-dependent use for the Refuge System through which the public can develop an appreciation for fish and wildlife. Service policy is to provide expanded opportunities for wildlife-dependent uses when compatible and consistent with sound fish and wildlife management and ensure that they receive enhanced attention during planning and management. Hunting satisfies a recreational need but hunting on refuges can be an important, proactive management action that can prevent overpopulation and the deterioration of habitat. Disturbance to other species would occur, but this disturbance is generally short-term. Suitable habitat exists on refuge lands to support hunting as proposed.

Additionally, hunting provides wildlife-dependent recreation to the public in a region where these opportunities are limited by private land ownership and development. The vast majority of private lands are posted as "No Trespassing", and this limits hunting opportunities for hunters without the agreement of private landowners. The refuge provides a low-cost, safe, and enjoyable option.

This activity would not conflict with any of the other priority public uses or adversely affect biological resources. Therefore, through this planning process, we have determined that hunting on Great Thicket NWR Berwick-York Focus Area, in accordance with the stipulations provided above, is a compatible use that will not materially interfere with, or detract from, the fulfillment of the Refuge System mission or the purpose(s) of the refuge.

SIGNATURE:
Refuge Manager

KARL STROMAYER Digitally signed by KARL STROMAYER Date: 2022.09.01 10:10:25 -04'00'

(Signature)

09/01/2022

(Date)

CONCURRENCE:
Regional Chief (Acting)

HOLLY GABORIAULT Digitally signed by HOLLY GABORIAULT Date: 2022.09.01 18:07:26 -04'00'

(Signature)

9/1/22

(Date)

MANDATORY 15 YEAR RE-EVALUATION DATE: _____

(Date)

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Environmental Assessment

Rachel Carson National Wildlife Refuge and Great Thicket National Wildlife Refuge Berwick-York Focus Area

This Environmental Assessment (EA) is being prepared to evaluate the effects associated with the 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 (43 CFR 46; 516 DM 8) and U.S. Fish and Wildlife Service (550 FW 3) regulations and policies. NEPA requires examination of the effects of proposed actions on the natural and human environment. A list of laws and executive orders evaluated through this EA is included at the end of this document.

Proposed Action

The U.S. Fish and Wildlife Service (Service) is proposing to update the existing hunt plan for Rachel Carson National Wildlife Refuge (NWR, refuge) and open hunting opportunities on the newly acquired parcel of Great Thicket NWR Berwick-York Focus Area in accordance with the refuge's 2007 Comprehensive Conservation Plan (CCP). In addition to the existing hunting opportunities, the refuge is proposing to open a mentored spring turkey hunt on Rachel Carson NWR and big game hunting on a 47.95-acre parcel of Great Thicket NWR Berwick-York Focus Area. The refuge is also proposing to remove quail, snipe and pheasant hunting due to a lack of presence on the refuge and limited or no opportunities.

As part of next year's proposed rule, Rachel Carson NWR and Great Thicket NWR will propose a non-lead requirement, which will take effect on September 1, 2026. The EA analyzes the impacts of lead ammunition; based on the breadth of comments received on the plan to require non-lead ammunition by 2026, the Service intends to complete additional analysis and provide another opportunity to comment during next year's annual rulemaking.

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 National Wildlife Refuge System Administration Act (NWRSAA) 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 and Fish and Wildlife Service Manual.

The Coastal Maine NWR was established on December 16, 1966, under the authority of the Migratory Bird Conservation Act for "use as an inviolate sanctuary, or for any other management purpose, for migratory birds" (16 U.S.C. 715d, Migratory Bird Conservation Act). In a formal dedication ceremony on June 27, 1970, the refuge was renamed in honor of scientist and author Rachel Carson, who spent much of her life along the coast of Maine. Rachel Carson NWR was established to preserve migratory bird habitat and waterfowl migration routes associated with southern Maine's coastal estuaries that were quickly succumbing to coastal development in the 1950s.

The mission of the Refuge System, as outlined by the NWRSAA, as amended by the Refuge

System Improvement Act (16 U.S.C. 668dd et seq.), is

> *"... 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"*

Additionally, the NWRSAA mandates the Secretary of the Interior in administering the Refuge System (16 U.S.C. 668dd(a)(4)) 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.

Hunting is a long-standing tradition for residents and visitors in Maine. The refuge has been open to big game, migratory bird, and upland game bird hunting since 1980. The most recent hunt plan was completed in 2012.

Purpose and Need for the Action

Hunting is identified as one of the priority public uses legislatively mandated by the NWRSAA of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57) and reinforced as a priority use by Department of the Interior Secretarial Order 3356 (September 15, 2017). The need for action revolves around hunting as a priority use and the requirement to allow hunting that is compatible with the purpose of the refuge and consistent with State of Maine regulations. Additionally, hunting is a healthy, traditional recreational use of renewable natural

resources deeply rooted in America's heritage and can be an important wildlife management tool.

The purpose of this proposed action is to expand compatible hunting opportunities on Rachel Carson NWR and Great Thicket NWR Berwick-York Focus Area. Hunting on these two refuges is conducted within the framework of Federal and State regulations. By maintaining hunting regulations that are as or more restrictive than the State of Maine's, individual refuges ensure that they are maintaining seasons which are supportive of management on a local and regional basis. Hunters on the refuges are expected to be ethical and respectful of other hunters, non-consumptive users, wildlife species, and the environment while on refuge lands.

The objectives of the hunting program on Rachel Carson NWR and Great Thicket NWR Berwick-York Focus Area are to:

1. Provide the public with a quality recreational experience on refuge lands and waters and increase opportunities and access for consumptive and non-consumptive users of the refuge. The Refuge System Improvement Act of 1997 identified hunting, where compatible, as one of the six priority public uses on refuges;

2. Design a hunting program that is administratively efficient and manageable with existing staffing levels and in alignment with Maine Department of Inland Fisheries and Wildlife (MDIFW) regulations when possible;

3. Implement a hunting program that is safe for all refuge users; and

4. Design a hunting program that aligns with refuge habitat management objectives.

Department of the Interior Secretarial Order 3356 directs the Service to enhance and expand public access to lands and waters on refuges for hunting, fishing, recreational shooting, and other forms of outdoor recreation. The proposed action would also promote the priority public uses of the Refuge System and would promote stewardship of our natural resources and increase public appreciation and support for the refuge by providing opportunities for visitors to hunt on refuge lands. To address the needs stated above, the proposed action would bring the refuge into compliance with management guidance detailed in the orders, policy, and Federal law to "recognize compatible wildlife-dependent recreational uses as the priority general uses of the Refuge System" and "ensure that opportunities are provided within the Refuge System for compatible wildlife-dependent recreational uses" (16 U.S.C. 668dd(a)(4)).

This EA serves as the NEPA document that analyzes the impacts on environmental, cultural, and historical resources of expanding hunting and other outdoor recreational opportunities on the refuges.

Alternatives

No Action Alternative – Alternative A - Current Management

The No Action Alternative would continue the refuge's current hunting program, which allows

for big game, upland game, and migratory bird hunting on designated areas of Rachel Carson NWR. The species open for hunting under the No Action Alternative are duck, goose, coot, woodcock, snipe, pheasant, quail, grouse, coyote, fox, white-tailed deer, and wild turkey. Great Thicket NWR Berwick-York Focus Area would remain closed to hunting under this alternative. No expansion or reduction of hunting access would occur, and the program would be conducted as it is currently.

Proposed Action Alternative – Alternative B

The refuge has prepared a Hunting Plan, presented in this document as the Proposed Action Alternative. Under this alternative, we propose to expand hunting opportunities on refuge lands where these uses are found to be compatible. 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 32.38) and information sheets/packets. Stipulations are further detailed in the Hunting Compatibility Determinations (Appendix A, Appendix B). Additional regulations and general procedures that pertain to hunting on Rachel Carson and Great Thicket NWR Berwick-York Focus Area can be found in Section IV(B) of the Hunting Plan.

Rachel Carson NWR would continue to administer its big game, upland game, and migratory bird hunting programs with some minor changes. We propose to expand the opportunity for turkey hunting by opening a mentored spring turkey hunt. The refuge would also close opportunities for pheasant, snipe, and quail hunting, as these species are not present on the refuge. Under this alternative, Great Thicket NWR's Berwick-York Focus Area would be opened to hunting for big game, migratory birds, upland game birds, and a spring mentored turkey hunt in designated areas.

Hunter Access

The refuge will make a reasonable effort to allow hunters access to all portions of the hunt areas. If hunting conditions are deemed unsafe to hunters or refuge staff, or negative impacts on wildlife or habitat resources are discovered, then hunt program procedures and timing are subject to change by the refuge manager.

Measures to Avoid Conflicts:

Refuge-specific regulations detailed in the Hunting Plan (and in 50 CFR 32.38) are measures that would reduce or avoid impacts or ensure that the use is compatible. Refuge and State law enforcement officers enforce hunting regulations. The refuge will continue to provide hunting information through various forums to ensure the public is aware of applicable laws and policies.

Hunting regulations and hunt unit maps (packet) would be made available to hunters at: https://www.recaccess.com/, the refuge website, and at the refuge office located in Wells, Maine. To help reduce interaction between hunters on the refuges, other user groups of the refuge, and adjacent landowners, refuge boundaries and hunt area boundaries would be clearly posted.

To protect waterfowl and other migratory birds from potential lead poisoning, non-lead ammunition is required for firearms hunting of all species except deer and turkey. The refuge strongly encourages big game hunters to use non-lead ammunition while hunting on the refuge.

The refuge proposes to phase in non-lead ammunition for all species over the next 4 years and will become mandatory for use at the end of the 4-year period in 2026. This phase-in period will allow hunters time to adapt to the new regulations without diminishing hunting opportunities on the refuge. The refuge staff will provide information to assist in this transition that benefits wildlife.

Alternative(s) Considered, But Dismissed from Further Analysis

In developing hunting plans for refuges, we often receive comments and requests from some members of the public to eliminate hunting. An alternative that would close the refuges to all hunting was therefore considered but dismissed from detailed analysis. A "No Hunting Alternative" would not accomplish the purposes we seek as described in the "Purpose and Need" section of this EA. Closing the refuge to hunting would conflict with the Refuge System Improvement Act, which provides that hunting is an appropriate and priority use of the Refuge System and shall receive priority consideration in refuge planning and management. It mandates that hunting opportunities should be facilitated when feasible and directs the Service to administer the Refuge System 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." Furthermore, Department of the Interior Secretarial Order 3356, signed in 2017, directs the Service to enhance and expand public access to lands and waters on refuges for hunting, fishing, recreational shooting, and other forms of outdoor recreation. An alternative that failed to provide any opportunity to participate in hunting activities, where such activities are compatible with the purposes of the Refuge System, would also fail to meet the goals of the Refuge System.

Refuge staff have worked closely with stakeholders and MDIFW to develop the current proposed hunting plan. There are no unresolved conflicts about the Proposed Action with respect to alternative uses of available resources. Therefore, the Service does not need to consider additional alternatives (43 CFR 46.310).

Affected Environment and Environmental Consequences

This section is organized by affected resource categories and for each affected resource discusses both (1) the existing environmental and socioeconomic baseline in the action area for each resource and (2) the direct, indirect, and cumulative effects and impacts of the proposed action and any alternatives on each resource. The effects and impacts of the proposed action considered here are changes to the human environment, whether adverse or beneficial, that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives. 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. This EA focuses on the written analyses of the environmental consequences on a resource only when the impacts on that resource could be more than negligible, and therefore considered an "affected resource." Resources that would not be more than negligibly impacted by the action may be dismissed from further analyses.

Rachel Carson NWR consists of approximately 5,690 acres across 11 refuge divisions in Maine's York and Cumberland Counties. Rachel Carson NWR consists of tidal, freshwater wetland, and upland habitats. Great Thicket NWR includes land in York County, Maine as well as other

parcels throughout New England. In Maine, Great Thicket NWR primarily consists of forest and shrubland habitat near the coast known as the Great Thicket NWR Berwick-York Focus Area. For more information regarding the general characteristics of the Rachel Carson NWR's environment, please see Chapter 3 of the refuge's 2007 CCP. For more information on general characteristics of the Great Thicket NWR's environment, please see Chapter 3 of the refuge's 2007 Land Protection Plan (LPP).

As stated above, this section predicts the foreseeable impacts of implementing the hunting program in each of the alternatives. When detailed information may be deficient or unavailable, we base our comparisons on professional judgment and experience. We usually identify potential impacts within a long-range timeframe (i.e., 15 years); beyond that timeframe, they become more speculative.

Table C-1. Potential for Adverse Impacts from Proposed Action and Alternatives

Resources	**Not Applicable:** Resource does not exist in project area	**No/Negligible Impacts:** Exists but no or negligible impacts	**Greater than Negligible Impacts:** Impacts analyzed in this EA
Species to Be Hunted/Fished	☐	☐	☒
Non-Target Wildlife and Aquatic Species	☐	☐	☒
Threatened and Endangered Species and Other Special Status Species	☐	☐	☒
Habitat and Vegetation (includes vegetation of special management concern)	☐	☐	☒
Geology and Soils	☐	☒	☐
Air Quality	☐	☒	☐
Water Quality	☐	☒	☐
Floodplains	☒	☐	☐
Wilderness	☒	☐	☐
Visitor Use and Experiences	☐	☐	☒
Cultural Resources	☐	☐	☒
Refuge Management and Operations	☐	☐	☒
Socioeconomics and Environmental Justice	☐	☐	☒

NATURAL RESOURCES

Big Game (white-tailed deer, wild turkey, coyote, fox)

Affected Resource Description
White-tailed deer

In 2019, 28,323 total deer were harvested in the State of Maine. This figure represents a 12.7 percent decrease from the previous year when 32,451 deer were harvested in the State (MDIFW 2019, MDIFW 2020*a*). In 2021, the State estimated that there were approximately 290,000 deer in Maine. The deer population in Maine is trending upwards and, in some areas, deer are overpopulated. All divisions of Rachel Carson NWR and Great Thicket NWR Berwick-York Focus Area are within the MDIFW Wildlife Management District (WMD) 20 and 24.

Wild Turkey

The total turkey harvest in Maine was 8,592 birds in 2019 (MDIFW 2020*b*, MDIFW 2020*c*). Prior to the spring 2020 hunting season, the turkey population in Maine was estimated at 33,500 total birds. Maine's turkey population appears to be increasing, with higher population densities in the southern portion of the State. MDIFW annually evaluates hunter harvest data and biological data for these species to inform management decisions.

Coyote and Fox

Within Maine, 1,909 coyote and 706 foxes (red and gray) were reported to have been taken during the 2019-2020 seasons (MDIFW 2020). There are an estimated 12,000 coyotes living in Maine. In 1980, Maine's pre-harvest population of red foxes was estimated at 14,500 animals and was expected to increase. While there has not been a State population survey of red fox since, MDIFW considers the population healthy and stable. Gray fox population data is limited. There is no bag limit for red or gray fox hunting in Maine. The 2020-2021 season for both red and gray foxes is from October 19 to February 27.

Anticipated Impacts

No Action Alternative

Under this alternative, the current hunt program would be maintained. No new public use opportunities would be provided on Rachel Carson NWR and Great Thicket NWR Berwick-York Focus Area. Fox and coyote would be open concurrently with deer only and would be hunted incidentally while deer hunting.

The current hunting program on refuge lands and waters carries the potential for adverse health impacts to huntable wildlife species from discarded lead in the environment and the potential for adverse human health impacts from lead in game meat. There is potential for the presence of discarded lead in the environment to have adverse impacts on wild game species in addition to the inherent impacts of intentional harvest from hunting. Some wild game species are susceptible to direct ingestion of lead and/or bioaccumulation of lead from their food sources. These types of species that are susceptible to these circumstances are discussed in detail in the non-target wildlife and aquatic species section but are applicable to similar species that are hunted including predators and big game.

White-tailed deer

White-tailed deer hunting would continue to be permitted in designated areas of Rachel Carson NWR. We do not have refuge-specific harvest levels for deer, but harvest rates for the WMD that the refuge occupies represents 3.7 percent of the statewide deer harvest of more than 28,000 deer (MDIFW 2019). The harvest on the refuge would have a negligible impact on the Maine deer population. Disturbance to deer in the area would occur during the hunting season, but the

disturbance is considered negligible, as hunting pressure is likely low, and deer are prone to move regularly over large areas.

Wild turkey

Wild turkey hunting would continue to be permitted in designated areas of Rachel Carson NWR. We do not have refuge-specific harvest levels for wild turkey, but harvest rates for the WMD that the refuge occupies represents 4.5 percent of the Statewide fall harvest of more than 1,980 wild turkey (MDIFW 2020*c*). The harvest on the refuge would have a negligible impact on the Maine wild turkey population. Disturbance to wild turkey in the area would occur during the hunting season, but the disturbance is considered negligible, as hunting pressure is believed to be low. Under this alternative, a spring mentored wild turkey would not occur.

Coyote and Fox

We would continue to limit coyote and fox hunting during the State firearm deer season. We only allow hunting of fox and coyote with archery or shotgun as incidental take with a refuge big game permit. We do not anticipate that allowing the continuation of fox and coyote hunting on the refuge would have any effect on the statewide or regional populations of these species.

Proposed Action Alternative

Expanding hunting to Great Thicket NWR Berwick-York Focus Area and opening Rachel Carson NWR to a mentored spring turkey hunt would provide increased opportunities for hunters. Under this alternative Great Thicket NWR would be opened to hunting for the first time.

We do not expect the big game harvest on Rachel Carson NWR to significantly change. Refuges, including Rachel Carson and Great Thicket NWRs, conduct the refuge hunting program within the framework of State and Federal regulations. MDIFW sets hunting frameworks based on species' populations and monitored harvests. The proposed refuge hunting regulations will be the same as, or more restrictive than, hunting regulations throughout the State. By maintaining hunting regulations that are the same as or more restrictive than the State, the refuge can ensure that they 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.

White-tailed deer

It is unlikely that opening the Berwick-York Focus Area of nearly 48 acres to deer hunting would result in any additional hunting pressure on the refuge. The existing and proposed increase in deer hunting opportunities on the refuge would have a negligible impact on the Maine deer population.

Wild turkey

Under this proposed action, a spring mentored wild turkey hunt for approximately 10 to 20 participants would be opened on Rachel Carson NWR and Great Thicket NWR Berwick-York Focus Area. The mentored hunt locations would occur within select units on the refuge opened to hunting and may vary from year to year to accommodate fluctuations in the population. The existing and proposed increase in wild turkey hunting opportunities and the spring mentored wild turkey hunt would cause a negligible impact on Maine wild turkey population due to being highly regulated and monitored.

Coyote and Fox
It is unlikely that opening the Berwick-York Focus Area of nearly 48 acres to hunting would result in any measurable adverse effect on the statewide or regional populations on the refuge.

Upland/Small Game (ruffed grouse, bobwhite quail, pheasant)

Affected Resource Description
No surveys have been completed on Rachel Carson NWR or Great Thicket NWR Berwick-York Focus Area to document the populations of these upland and small game species. However, ruffed grouse have been observed on the refuge. Bobwhite quail and pheasant are not found on the refuge. Table C-2 shows seasonal dates and limits of hunting these species.

Table C-2. Season and Daily limit (Ruffed Grouse, Fox, Coyote, Quail, Pheasant)

Species	Season	Daily Limit	Possession
Ruffed Grouse	September 25 through December 31	4	8
Bobwhite Quail	September 25 through December 31	4	8
Pheasant	September 25 through December 31	2	4

Anticipated Impacts
No Action Alternative
Under this alternative, upland game hunting would continue, and upland game hunting on Great Thicket NWR Berwick-York Focus Area would not be opened. Rachel Carson NWR would not close opportunities for pheasant and quail hunting.

We do not anticipate that allowing the continuation of upland game hunting on Rachel Carson NWR to have any effect on the statewide or regional populations of these species.

Proposed Action Alternative
Under this alternative, the refuge would close opportunities for pheasant and bobwhite quail hunting on Rachel Carson NWR, as these species are not present. We do not anticipate that closing these species will have any measurable adverse effect on the statewide or regional populations since they are not found on the refuge.

Upland game hunting of ruffed grouse would be opened on Great Thicket NWR Berwick-York Focus Area. We do not anticipate that opening upland game on Great Thicket NWR Berwick-York Focus Area will have any measurable adverse effect on the statewide or regional populations on the refuge.

Migratory Game Birds (woodcock, snipe, duck, goose, coot)

Affected Resource Description
MDIFW works with the Service to establish hunting seasons and bag limits for migratory game bird hunting. Season length and harvest limits are set annually by MDIFW. Season dates vary based on the location in Maine. During the 2018-2019 hunting season, hunters in Maine

harvested 39,400 ducks, 11,400 Canada geese, and 10,700 sea ducks (MDIFW 2020). The waterfowl season length varies based on the location in Maine, but for the coastal region, the following hunting seasons apply:

- **Seaduck:** November 9 through January 16.
- **Duck:** October 1 through October 16 and November 6 through January 2.
- **Goose:** September 1 through September 25, October 1 through October 12, and October 27 through January 2.
- **Coot:** October 1 through October 16 and November 6 through January 2.
- **Woodcock:** October 1 through November 21.
- **Common snipe:** September 1 through December 16.

Anticipated Impacts

No Action Alternative

Under this alternative, migratory game bird hunting would continue as is on Rachel Carson NWR and be closed on Great Thicket NWR Berwick-York Focus Area.

Proposed Action Alternative

The proposed action alternative alters our migratory bird hunting program on Rachel Carson NWR by closing snipe but expands hunting opportunities on Great Thicket NWR Berwick-York Focus Area.

The Service believes that due to the time of year in which it is allowed, hunting on the refuges 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 refuges, 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 refuges is only 6 percent (USFWS 2013); (2) there are no populations that exist wholly and exclusively on refuges; (3) annual hunting regulations within the United States are 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 Maine. Although the Proposed Action Alternative will increase hunting opportunities compared to the No Action Alternative A, the slight increase in hunter activity will not rise to a significant cumulative impact locally, regionally, or nationally. We do not believe that this alternative would have any measurable adverse effect on the State or regional population of waterfowl and migratory birds.

Non-Target Wildlife and Aquatic Species

Affected Resource Description

Rachel Carson NWR supports a diversity of wildlife species including game and non-game species, reptiles, amphibians, and invertebrates, which are important contributors to the overall

biodiversity of the refuge. Diverse habitats around refuge estuarine communities support more than 120 passerine birds. Year-round residents, short-distance migrants, and neotropical migrants alike find nesting, feeding, and roosting habitat in the uplands close to refuge estuaries. The refuge has a limited amount of freshwater cattail marsh or pond habitat. However, within its uplands, the refuge protects an extensive network of rivers, uplands, and vernal pools, which provide important amphibian and reptile habitat. Invertebrates found in the intertidal habitat are consumed by shorebirds and waterfowl throughout the year.

The best available science indicates that lead (Pb) ammunition and tackle have negative impacts on wildlife. This broad potential for adverse impacts to non-target wildlife and aquatic species and the overall environment is not inherent to the activities of hunting and fishing, but specifically to the use of lead ammunition and tackle. Those potentially adverse impacts can be prevented by requiring non-lead ammunition and tackle for hunting and fishing activities. Currently there are manufacturers that offer non-lead ammunition and fishing tackle, and some states have either implemented restrictions on the use of lead or offer incentives to use non-lead ammunition or fishing tackle (U.S. Fish and Wildlife Service 1999; Center for Biological Diversity 2007; Arizona Game and Fish Department 2018; Washington Department of Fish and Wildlife 2022). In areas where non-lead ammunition and tackle are used, there have been declines in adverse effects to wildlife (Anderson et al. 2000; Samuel and Bowers 2000; Sieg et al. 2009, Kelly et al. 2011; Lewis et al. 2021).

Anticipated Impacts

No Action Alternative

Under this alternative, the current hunt program would be maintained with a total of 4,089 acres in the refuge open to some form of hunting. 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. Rachel Carson NWR and Great Thicket NWR Berwick-York Focus Area prohibit hunting activities during the summer months when the potential to disturb nesting migratory birds would be the most likely to occur. Most shorebirds will have already migrated out of the region before the waterfowl hunting season begins in early October.

Proposed Action Alternative

Impacts to game and non-game species 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). 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.

The best available science indicates that lead ammunition and tackle may have negative impacts on wildlife and the environment (Golden et al. 2016). Animals can be poisoned by lead in a variety of ways including “ingestion of bullet fragments and shot pellets left in animal carcasses, spent ammunition left in the field, lost fishing tackle, lead-based paints, large-scale mining, and lead smelting activities. Despite a large body of scientific literature on exposure to lead and its toxicological effects, controversy still exists regarding its impacts at a population level” (Haig et al. 2014). Many hunters do not realize that the carcass or gut pile they leave in the field usually

contains lead bullet fragments. Research will continue on the effects of lead ammunition and the fragments it can deposit in killed game. Avian predators and scavengers can be susceptible to lead poisoning when they ingest lead fragments or pellets in the tissues of animals killed or wounded by lead ammunition. Lead poisoning may weaken raptors by reducing their strength and coordination, leading to muscle and weight loss, reducing motor skill function, and making them lethargic, which may make them more susceptible to disease, vehicle strikes, or power line accidents and increases mortality rates by leaving them unable to hunt (Kramer and Redig 1997; O'Halloran et al. 1989; Kelly and Kelly 2005; Golden et al. 2016).

The use of non-lead ammunition will initially be voluntary, and we plan to require non-lead ammunition for all activities starting at the beginning of the fall 2026-2027 hunting season (after a 4-year phase-in period). This phase-in period will ensure continuity of visitor opportunities as hunters understand the changes and become more familiar with the availability and use of non-lead alternatives. We will educate hunters about the impacts of lead and strongly encourage non-lead ammunition alternatives for the next 4 years.

The bioaccumulation of lead is a potential concern, but it does not likely present a significant issue on this refuge as: 1) non-lead shot is currently required for hunting waterfowl; 2) we plan to require the use of non-lead ammunition on the refuge at the beginning of the fall 2026-2027 hunting season; 3) the refuge strongly encourages use of non-lead alternatives for hunting big game for the next 4 years; 4) we will educate hunters and the public to the potential adverse impacts of lead; and 5) the updated hunting activities are not likely to introduce substantially more lead into the environment over existing amounts with the current or proposed programs. Some hunters will also choose non-lead methods of take such as archery.

Hunters are encouraged by MDIFW and the refuge to use non-lead ammunition for all hunting to lessen potential impacts from lead ammunition. Hunting pressure on Rachel Carson NWR property is currently low, and we do not anticipate that opening Great Thicket NWR Berwick-York Focus Area and these new properties to hunting would significantly change the level of hunting pressure.

Threatened and Endangered Species, and Other Special Status Species

Affected Resource Description
Federally designated endangered or threatened species at the refuge include the piping plover, roseate tern, red knot, and Northern long-eared bat. Additionally, monarch butterfly, small whorled pogonia, Atlantic salmon, leatherback sea turtle, and hawksbill sea turtle may exist. While no longer listed, the refuge does support multiple pairs of nesting bald eagles that are sensitive to disturbance during the nesting period (March to July).

The Northern long-eared bat is present during the spring and summer months and moves to hibernacula in early fall. They are also usually only active from dusk to dawn and are unlikely to be seen or impacted by hunters. Piping plovers, red knots, and roseate terns utilize the refuge but are not present during the hunting season.

Anticipated Impacts

No Action Alternative
The hunting occurring on Rachel Carson NWR has not affected the federally listed species found on the refuge. The number of visitors currently participating in hunting on the refuge is relatively low and not expected to have an adverse impact on threatened and endangered species. Hunting will remain closed on Great Thicket Berwick-York Focus Area under this alternative.

Proposed Action Alternative
Sea turtles, small whorled pogonia and Atlantic salmon

Sea turtles, Atlantic salmon and small whorled pogonia are not present on refuge lands or within waters under refuge jurisdiction. There are no Atlantic salmon occurring within any of the streams or rivers within our Divisions. Sea turtles also are largely marine species and may swim past refuge property, however they do not nest on the refuge and are not found on refuge lands or waters. Finally, small whorled pogonia is not known to occur on refuge lands or withing the refuge acquisition boundary. Because these species are not known to occur on the refuge and have no possible exposure to any of the proposed changes, the proposed hunting activities will have "no effect" on the listed sea turtles, Atlantic salmon, or small whorled pogonia.

Northern long-eared bat

Northern long-eared bat (NLEB) is present in low numbers at our York River Division and our Little River Division in Biddeford during the spring, summer and fall months. Our existing survey data is not inclusive of all lands, and it is possible additional locations exist. It is unknown where these bats winter as some studies at Acadia National Park found NLEB hibernating in cracks and crevices along rocky coastlines, yet other studies found bats move to mass hibernacula by early fall. There are no known hibernacula or maternity roost trees on the refuge; however, undoubtedly small numbers of NLEB are breeding on the refuge. Pregnant females migrate to summer areas where they roost in small colonies and give birth to a single pup. Most bats within a maternity colony give birth around the same time, which may occur from late May or early June to late July, depending on where the colony is located within the species' range.

With the proposed mentored spring turkey hunt, while the season may last from late April to early June, we anticipate that the hunt would be a limited to a three-day event within that time frame, for 10 hunting groups (20 participants). In coordination with partners, we will select a location away from any known bat areas among the 11 divisions. Given the small number of participants and the fact that proposed turkey hunt will occur in a location that is very unlikely to overlap with the presence of the bats, any potential disturbance effects from the mentored turkey hunt are extremely unlikely to occur and therefore considered discountable.

For the other hunting opportunities, noise from firearms could disturb roosting bats, but it is likely that the bats would remain in the tree during daylight hours. Such disturbances are temporary and last only for the duration of the noise, not fundamentally unlike other temporary disturbances that bats may naturally experience without long-term effects, and therefore any potential effects are expected to be insignificant. Other possible disturbances include hunters climbing and placing portable tree stands on trees. However, hunters typically select live trees for safety reasons, while bats are most often in dead or dying trees with large slabs of peeling

bark. Further, hunting activities would not result in any roost tree destruction as no tree cutting or other habitat alteration is permitted on the refuge. Overall, any disturbance to NLEB would be very low, since roosting, feeding, and pup rearing activities occur from April to August, outside of the primary refuge hunting seasons (September to mid-March).

The potential for lead impacts to bats through bioaccumulation is discountable due to NLEB diets and foraging habits. Lead bullet fragments would have to break down in the soil to be taken up by plants near the area in which the fragments fall on or penetrate the soil surface. Typically, however, plants do not take heavy metals up until they have reached critical thresholds in the soil (Sharma and Dubey 2005). If lead is taken up by plants, it is mainly through the root system and partly, in minor amounts through the leaves. Inside the plants, lead accumulates primarily in the root, but a part of it is translocated to the aerial portions. Larvae of certain herbivorous insect species could ingest some of the lead when they eat the exposed plants. Some of the insects could then be consumed by bats. Northern long-eared diet consists of insects such as moths, flies, leafhoppers, caddisflies and beetles, only some of which are herbivorous. In addition, bats are transitory in nature and will not consume their entire diets on the refuge area. Considering the chain of events that are necessary for exposure and the small amount of lead that would contribute to lead concentrations in refuge soils, it seems likely that bats that occur on the refuge will not consume lead derived from ammunition fired by hunters on the refuge.

Because the potential for overlap with bats during the spring turkey hunt is very unlikely to occur; because the potential for overlap with bats during the other hunting activities (September to mid-March) is unlikely to occur, and even if there is overlap, the potential effects would be insignificant; and because the potential for lead impacts are discountable, the proposed hunting activities are not likely to adversely affect the NLEB.

Piping plover and roseate tern

Piping plovers nest on sandy beaches and dunes from April through July. Adults, chicks, and fledglings use refuge beaches and sandflats throughout the season, typically through late August. A small number of birds may stop over on refuge beaches and flats through the early fall, but most have left the area by mid-September. Roseate terns do not nest on the refuge but use refuge beaches, tidal streams and sand flats for roosting and staging during spring migration and post breeding season (July and August). They are exceedingly rare on the refuge in September when the early goose hunting season begins. The nesting and staging beaches are not open to hunting; neither the birds nor their habitat would be adversely impacted by hunting on the refuge. Therefore, any potential impacts from proposed hunting activities are expected to be discountable because they are extremely unlikely to occur. In the unlikely event that the species overlap with hunting activities, disturbance such as noise from firearms could disturb the shorebirds, but such disturbances are temporary and last only for the duration of the noise, not fundamentally unlike other temporary disturbances that shorebirds may naturally experience without long-term effects. Therefore, any potential disturbance is expected to be insignificant. Regarding the impacts of lead ammunition, and specifically for roseate tern and piping plover, neither the mentored spring turkey hunt nor the opening of 47 acres of Great Thicket NWR will occur within, or in close proximity to areas where those species occur. The spring turkey hunt will not occur near refuge salt marshes, beaches or estuarine areas, and the Great Thicket NWR

parcel is several miles inland. Even if lead could leach out into coastal habitats these species use, the increase in lead would be extremely minor and dispersed, and therefore insignificant.

Because hunting—including the use of lead ammunition until the planned non-lead requirement takes effect at the beginning of the fall 2026-2027 hunting season—is highly unlikely to overlap with piping plovers or roseate terns in time or space, these species are not likely to be adversely affected by the proposed hunting activities.

Red knot

Although the majority of migratory stopovers for red knot occur south of Maine, regular stopover sites do occur within the State. Migrating red knots use marine habitats at Rachel Carson NWR including sandy beaches, salt marshes, and salty mud and sand flats which contain an abundance of invertebrate prey. Typically, they occur in small numbers in southern Maine, ranging from a few to groups as large as forty. Most observations from the refuge have occurred at Biddeford Pool, however we are lacking data from the interior salt marsh rivers and flats, where the species may be difficult to observe. Given the smaller numbers, there is no critical habitat designated on the refuge. Records from eBird indicate the species may be present from spring migration, fall migration and into early December. Staging beaches are not open to hunting and there would be limited to no hunting pressure on mudflats. The Division with the most records of red knot occurrence, the Biddeford Pool Division, is not open to hunting. The majority of the flats at Oxcart Lane are also closed to hunting in addition to the Moody Division. Given that the hunting activities on the refuge are not likely to overlap with the area where the small number of red knots known to occur on the refuge, any potential impacts from disturbance are expected to be discountable because they are extremely unlikely to occur. Like the shorebirds mentioned above, in the unlikely event that the species overlap with hunting activities, disturbances such as noise from firearms could disturb the red knot, but such disturbances are temporary and last only for the duration of the noise, not fundamentally unlike other temporary disturbances that red knots may naturally experience without long-term effects. Therefore, any potential disturbance would be considered insignificant.

As with the roseate tern and piping plover, mentioned above, neither the mentored spring turkey hunt nor the opening of 47 acres of Great Thicket NWR will occur within, or in close proximity to areas where red knot occurs. The spring turkey hunt will not occur near refuge salt marshes, beaches or estuarine areas, and the Great Thicket NWR parcel is several miles inland. Even if lead could leach out into habitats these species use, the increase in lead would be extremely minor and dispersed, and therefore insignificant. Because hunting—including the use of lead ammunition until it is discontinued at the beginning of the fall 2026-2027 hunting season—is highly unlikely to overlap with red knots in time or space, the species is not likely to be adversely affected by the proposed hunting activities.

Monarch butterfly

The refuge is used by monarch butterflies from spring throughout the fall. Monarchs are common in old field habitats during the breeding season and common during fall migration in salt marsh habitats (nectaring on seaside goldenrod). We have not completed a census of

monarchs using the refuge.

In order to access the nearly 48 acres opening for hunting at Great Thicket NWR, and for the proposed changes at Rachel Carson NWR for turkey hunting, hunters are most likely to use tracts through forested parts of the refuge, where monarchs and their nectaring plants generally do not occur. Furthermore, given that only light foot travel from hunters accessing the area is expected to occur on these acres, we anticipate that any potential damage to nectaring plants from foot traffic disturbance will be extremely unlikely to occur, and therefore considered discountable.

While hunters are walking through habitat used by monarchs, there could be some impacts including flushing while resting or feeding. Noise disturbance from discharging of a firearm while hunting may startle the species resulting in change in flight pattern or a startle response in caterpillars, but this impact will not result in long-term negative impacts and is considered discountable as this type of noise is not frequent enough to result in habituation to noise that could cause butterfly to not respond to natural threats like parasitism (Taylor and Yack, 2019).

The potential for lead impacts to monarchs is discountable due to their diets. Adult monarch butterflies feed on nectar. Nectar typically carries less lead contaminants than other parts of the plant if lead is absorbed through the plant. Larvae consume the leaves and stems of milkweeds, where higher concentrations of lead could be present, if lead is absorbed through the plant. Lead absorption by plants typically occurs first through roots and only makes its way into other plant parts if concentrations are high enough. This means that, as with bats, bioaccumulation through the plant to the monarch butterfly or larvae could potentially occur. However, as with bats, it relies on the very unlikely occurrence that lead concentrations in the soil from hunting activities reach high enough levels for uptake by plants, and in this case, it would further require uptake by milkweed and the specific plants that monarchs rely on for nectar sources. Overall, lead is strongly adsorbed onto soil particles and is not readily translocated to above-ground portions of plants (McLaughlin 2002).

Given that hunters are not likely to overlap with areas where monarch and their plants are known to occur; that any potential disturbance from noise is expected to be insignificant; and that bioaccumulation through plants into caterpillars or butterflies is discountable, the proposed activities are not likely to jeopardize the monarch butterfly.

<u>All species</u>

The best available science indicates that lead ammunition and tackle may have negative impacts on wildlife and the environment (Golden et al. 2016). Animals can be poisoned by lead in a variety of ways including “ingestion of bullet fragments and shot pellets left in animal carcasses, spent ammunition left in the field, lost fishing tackle, lead-based paints, large-scale mining, and lead smelting activities. Despite a large body of scientific literature on exposure to lead and its toxicological effects, controversy still exists regarding its impacts at a population level” (Haig et al. 2014). The use of non-lead ammunition will initially be voluntary, and we plan to require non-lead ammunition for all activities starting at the beginning of the fall 2026-2027 hunting season (after a 4-year phase-in period). This phase-in period will ensure continuity of visitor opportunities as hunters understand the changes and become more familiar with the availability

and use of non-lead alternatives. We will educate hunters about the impacts of lead and strongly encourage non-lead ammunition alternatives for the next 4 years.

The bioaccumulation of lead is a potential concern, but it does not likely present a significant issue on this refuge as: 1) non-lead shot is currently required for hunting waterfowl; 2) we plan to require the use of non-lead ammunition on the refuge at the beginning of the fall 2026-2027 hunting season; 3) the refuge strongly encourages use of non-lead alternatives for hunting big game for the next 4 years; 4) we will educate hunters and the public to the potential adverse impacts of lead; and 5) the updated hunting activities are not likely to introduce substantially more lead into the environment over existing amounts with the current or proposed programs. Some hunters will also choose non-lead methods of take such as archery.

Lead added to the environment from either a small mentored spring turkey hunt or the opening of 47 acres is in such small quantity that there is a low probability of accumulation of lead from food sources of bats, monarchs, or shorebirds, and there would be no direct consumption of lead by these species.

We understand that reinitiation of consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law), and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

Habitat and Vegetation

Affected Resource Description
Refuge habitat is about 35 percent tidal, 10 percent freshwater wetlands, and 55 percent uplands. Tidal habitats include beach, dune, dune grassland, river, rocky shore, estuarine, bay and salt marsh. Freshwater wetlands include cattail marsh, bog, emergent scrub-shrub wetland, pocket swamp, red maple swamp and floodplain forest. Most of the upland forest consists of mixed oak and pine; however, hemlock, spruce and pitch pine stands, as well as hickory and maple forests, also occur. Viburnums, winterberry, blueberry, serviceberry, Virginia rose, and maleberry comprise much of the shrub understory. Other upland habitats are composed of grassland and thicket. Habitats are quite diverse, containing elements of the more southerly oak-pine forests and the softwood forests of northern forests. Those two community types blend here, creating a wealth of biodiversity.

It is important to note that according to the U.S. Forest Service, Maine is the most heavily forested state in the country, with over 90 percent of Maine forested (17.6 million acres). In contrast to many other states in this region, this provides abundant opportunities for hunters to access land open to hunting, including over 3 million acres managed by North Maine Woods in the northern section of the State.

Rachel Carson NWR supports a variety of wetlands including forested wetlands, freshwater

marsh, freshwater ponds, vernal pools, and tidal streams. These habitats are located throughout the refuge and specific details are provided in the refuge's CCP (USFWS 2007).

Great Thicket NWR Berwick-York Focus Area is made up of mixed northern hardwoods and the softwoods typical of northern forests. Freshwater emergent wetland habitat is also found on this property

Anticipated Impacts

No Action Alternative

Under this alternative, the current hunt program would be maintained, with a total of 4,089 acres open to hunting and Great Thicket NWR Berwick-York Focus Area's parcel remaining closed. We estimate that the current number of hunters comprises a small fraction of the refuge's total visitation. No vegetation impacts due to hunting activities have been observed.

Proposed Action Alternative

The anticipated number of hunters would comprise a small fraction of the refuge's total visitation. With the opening of new hunt areas, trampling of vegetation may increase slightly, but the physical effects on refuge vegetation from hunting are expected to be minimal and short-term based on anticipated levels of use. We do not anticipate the opening of Great Thicket Berwick-York Focus Area 47.95-acre property to significantly increase the total number of visits. Most hunting activities occur during the fall, and some hunt seasons extend into winter when plants are dormant, and the ground is frozen and/or covered in snow. Hunters would have minimal impacts on plants during this period.

Both Sharma and Dubey (2005) and Johnson and Eaton (1980) find that lead is easily absorbed and accumulated in various plant parts. Lead in plants acts as a "protoplasmic poison, which is cumulative, slow acting and subtle" (Johnson and Eaton 1980). Excess lead in plants causes a variety of toxic symptoms including stunted growth, chlorosis, blackening of root systems, inhibited photosynthesis, disrupted mineral nutrition and water balance, and altered plant hormones (Sharma and Dubey 2005).

A literature review by Rattner et al. (2008) found that "migration of lead from soil to roots and other parts of plants generally is considered to be minimal (Sorvai et al. 2006), although some studies have documented elevated lead levels in plants in the vicinity of shooting ranges (as summarized in Rattner et al. 2008). Lead is strongly adsorbed onto soil particles and is not readily translocated to above-ground portions of plants, thus limiting exposure to grazing animals (McLaughlin 2002). In general, concentrations in below-ground plant tissues are approximately three times greater than in above-ground tissues" (Linder et al. 1999).

For these reasons, hunting is expected to have minimal adverse effects on vegetation. The mentored spring turkey hunt location will be selected to minimize impact to sensitive habitats and will have minimal adverse effects on vegetation.

VISITOR USE AND EXPERIENCE

Affected Resource Description

Rachel Carson NWR is open to hunting, fishing, wildlife observation, photography, interpretation, environmental education, canoeing, and kayaking. On average, Rachel Carson NWR gets approximately 275,000 visitors each year, with approximately 5 percent of those visitors utilizing the refuge for hunting (USFWS 2019). Visitation data is not yet available for the Great Thicket NWR parcels in Maine.

The State of Maine issued 154,580 hunting licenses in 2020. This represents a decrease from the previous year when the State issued 162,065 licenses. Hunting at Rachel Carson and Great Thicket NWRs would represent a small fraction of the total number of hunters in Maine each year.

Anticipated Impacts

No Action Alternative

Currently Rachel Carson NWR is open to all six priority public uses. Rachel Carson NWR has taken steps to minimize potential conflicts between non-consumptive refuge visitors and hunters. Non-hunters may observe hunters entering and exiting the refuge on the same trails where hiking is allowed on the refuge. It is possible that non-hunting visitors may feel uncomfortable seeing hunters on the refuge trails. Information is posted on kiosks, at headquarters, and on refuge websites to alert non-hunters of hunting activity and to recommend wearing blaze orange while walking the trails during the hunting season.

Currently Great Thicket NWR Berwick-York Focus area is closed to hunting and will remain closed under this alternative.

Proposed Action Alternative

This land has been historically open to hunting. The mentored spring turkey hunt is closely monitored and occurs on areas of the refuge closed to the general public. Our refuge-specific hunting regulations were developed to minimize potential conflict between user groups on the refuge and we do not anticipate a significant increase in the number of hunters coming to Rachel Carson NWR and Great Thicket NWR Berwick-York Focus Area to hunt. Therefore, we do not anticipate an increased level of conflict between hunters and non-consumptive users of the refuge.

CULTURAL RESOURCES

Affected Resource Description

The refuges contain diverse ecosystems that have provided humans with wide ranges of flora and fauna for them to subsist upon. The landscape at Rachel Carson and Great Thicket NWR Berwick-York Focus Area has been dynamic as a result of changes in the environment during the end of the Pleistocene and throughout the Holocene. Humans have also caused anthropogenic changes upon the landscape throughout history by their choices about where and how to foster their livelihood. They have been active agents in species representation in the biosphere through choosing which flora and fauna they exploit, clearing land by fire to provide fresh, green forage for deer, and clearing large expanses of land for farming in historic times. Each generation has acted upon those landscapes differently than the previous, creating subtle or obvious changes which affect future environments. Because professional archaeologists have surveyed less than 1

percent of the refuge, only 49 archaeological sites have been recorded. Of those, 13 are eligible for inclusion in the National Register of Historic Places. One study identified several landforms that may contain archaeological resources dating as long ago as 11,500 years (Will et al. 1995).

Anticipated Impacts

No Action Alternative

Given our current knowledge about the cultural resources on refuge lands, we do not anticipate any adverse impacts would occur under this alternative.

Proposed Action Alternative

There are no known cultural resources sites on the 47.95 acres being proposed for opening on Great Thicket NWR Berwick-York Focus Area. The mentored spring turkey hunts on Rachel Carson and Great Thicket NWR Berwick-York Focus Area do not involve excavating material and therefore we do not anticipate any adverse impacts to cultural resources.

REFUGE MANAGEMENT AND OPERATIONS

Affected Resource Description

The refuge headquarters is located on the Upper Wells Division in Wells, Maine. The headquarters consists of the refuge headquarters building, maintenance and storage facilities, and seasonal residences.

Public use facilities include kiosks at trailheads, interpretive signs along some trails, a wildlife observation deck, and a wheelchair-accessible trail and fishing pier. Public restrooms are available near the visitor contact area. The current refuge staff consists of seven permanent full-time positions. During the summer months, the refuge hosts a Youth Conservation Corps crew and crew leader and contracts for seven to ten interns and seasonal staff.

Anticipated Impacts

No Action Alternative

Current levels of hunting are manageable within the refuge's infrastructure, staffing, and budget. The Refuge Manager coordinates the budget each year to ensure funds are available, and the estimated cost to run the current hunt program is $10,000.

Proposed Action Alternative

The proposed action would open additional refuge lands to hunting (47.95 acres), close quail, snipe, and pheasant hunting on Rachel Carson NWR, and open a mentored spring wild turkey hunt on Rachel Carson NWR and Great Thicket NWR Berwick-York Focus Area. We do not anticipate a significant increase in hunting pressure associated with these openings. The estimated annual cost to run the hunt program is $10,000. A detailed cost breakdown can be found in the Rachel Carson NWR and Great Thicket Berwick-York Focus Area Hunting Plan and CD.

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

Affected Resource Description

In 2019, the population in York County, Maine was estimated at 207,641 people. The median

household income in York County was $65,538 in 2018. The largest industries in York County are health care and social services, retail trade, and manufacturing. In 2011, hunters in Maine spent $203 million on expenses related to hunting. These expenses primarily include equipment, lodging, transportation, and other trip-related expenses. While this amount is fractional within the economy in Maine, it does represent a small positive economic benefit of hunting.

From an economic perspective, Rachel Carson NWR provides a variety of environmental and natural resource goods and services used by people either directly or indirectly. Approximately 500 hunters obtain hunt permits to hunt at the refuge each year. We do not have any specific information on the number of hours in which hunters engage in hunting activities on the refuge.

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 effects of their programs and policies on minorities and low-income populations and communities.

The demographic indicators provided in the EPA's Environmental Justice screening tool include People of Color Population, Low Income Population, Linguistically Isolated, Less than a High School Education, Under the Age of 5, and Over the Age of 64. In the area around Rachel Carson NWR, the population of people of color is below the 25th percentile nationally. The indicators for low-income population, linguistically isolated people, people with less than a high school education and people under the age of 5 are all in between the 25th and 50th percentiles nationally. The population of people over the age of 64 is above the 75th percentile nationally.

In the area around Great Thicket NWR Berwick-York Focus Area in Maine, the population of people of color is below the 25th percentile nationally. The indicators for low-income population, linguistically isolated people, people with less than a high school education and people over the age of 64 are all in between the 25th and 50th percentiles nationally. The population of people below the age of 5 is above the 50th percentile nationally.

No Action Alternative
We do not anticipate that this action would have any significant effect on the socioeconomic resources in this region. We believe hunting on the refuge contributes modestly to the local economy. There is a possibility of human health impacts from the current hunting program allowing and continuing to allow the use of certain types of lead ammunition for the harvest of certain species. However, minority and/or low-income communities are not disproportionately at risk or impacted. The Service has found these impacts negligible for all opportunities in the current hunting programs, but there is strong scientific evidence of impacts to human health from consuming animals hunted with lead ammunition.

Proposed Action Alternative
We do not anticipate that implementing this proposed action would result in a significant increase in either consumptive or non-consumptive use of the refuge. Within the State of Maine, millions of acres are open for hunting, and often provide higher densities of game species than can be found on the refuge.

The Service has not identified any potential high and adverse environmental or human health impacts from this proposed action or any of the alternatives. This alternative would help eliminate the risk of human health impacts that would follow if the Service continued to allow the use of certain lead ammunition for certain species on current and future Service lands and waters within the authorized boundary of the refuges. The Service has found these impacts negligible for all opportunities in the current hunting programs, which makes the benefit negligible, but there is strong scientific evidence of impacts to human health from consuming animals hunted with lead ammunition or tackle use for fishing such as higher blood lead levels (Frank et al. 2019, Fisher et al. 2006; Tsuji et al. 2008; Iqbal et al. 2009; Grade et al. 2019, Sahmel et al. 2015).

Even though non-lead ammunition can cost the same, or up to 30 percent more expensive, as lead, the cost of several boxes per year is minor compared to the other expenses involved such as firearm cost. Deer and turkey hunting also require less ammunition than small game.

The Service has not identified any extensive minority or low-income communities within the impact area. While non-lead ammunition has become essentially equivalent in price to lead ammunition, certain types can cost more than certain types of lead ammunition. However, the price of non-lead ammunition is the same or less than that of premium lead ammunition. For some calibers and gauges even the difference between cheaper lead ammunition and nonlead ammunition can be less than $10 per box (State of California, 2022). The minor economic burden involved in transitioning between ammunition could be more impactful to low-income hunters. In order to prevent the negative impacts of this switch, the refuge has begun and will continue specific outreach about the requirement to these groups and has put in place measures to mitigate the economic input beyond the phased implementation, which already affords hunters time to gradually transition their supplies of ammunition. In order to mitigate economic impacts to hunters who previously used lead ammunition, in addition to implementing the requirement in phases, the Service will continue educating hunters on the use of non-lead ammunition during the phased in time period, provide resources on companies that produce non-lead ammunition for purchase and work with partner organizations on non-lead ammunition giveaways or exchanges if possible. With these mitigation measures, minority and/or low-income communities are not disproportionately impacted from this alternative.

Monitoring

Many game species populations are monitored by MDIFW through field surveys and game harvest reports, which provide an additional means for monitoring populations. The State has determined that populations of game species are at acceptable levels to support hunting and these assessments are reviewed and adjusted periodically.

We will continue to base the annual level of harvest on the observed population size and habitat conditions. If the results of monitoring programs indicate that resident fish and wildlife populations are unable to withstand any of the proposed harvest management strategies, the regulations would be made more restrictive or seasons would be closed until the population can withstand the harvest pressure.

The refuge will be adaptive towards harvest management under the hunt program to ensure

species and habitat health. Refuge-specific hunting regulations may be altered to achieve species-specific harvest objectives in the future.

Summary of Analysis
An objective of this EA is to briefly provide sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

No Action Alternative
There would be no additional costs to the refuge under this alternative. There would be no change to the current public use and wildlife management programs on the refuge. The refuge would not change its impact on the economy and would not provide new hunting and access opportunities. This alternative has the least direct impact on physical and biological resources. In addition, this alternative would minimize our mandates under the NWRSAA and Secretarial Order 3356.

This action is not likely to adversely affect endangered or threatened species or their critical habitat. Effects on other wildlife and habitat would be negligible, although there may be some negative effects as the potential of lead being present and bioavailable for wildlife and aquatic species to consume would continue to occur under this alternative, even if that lead entering the environment from hunting and fishing activities is estimated to be small. The refuge would still be able to manage for species of concern and meet the refuge purpose to manage for migratory birds. Water quality and soil impacts are likely negligible from continued use of lead ammunition and tackle, as the addition of lead from these activities are small and will not reach levels of contaminating these resources as levels that may affect human and wildlife health. There will be no impacts to special designations of the refuge. There would be no effect to cultural resources and impacts to the socioeconomics of the area are negligible.

This alternative helps meet the purpose and needs of the Service as described above, because it provides additional wildlife-dependent recreation opportunities on the refuge meeting the Service's priorities and mandates. However, it continues to pose a threat to human health and the environment by continuing to allow the use of lead ammunition and tackle. There would be no new authorizations under this alternative, but the nature of discarded lead means that continuing to allow the use of lead ammunition and tackle on Service lands and waters would mean adding newly deposited lead to the current amount of lead in the environment on Service lands and waters. This would mean the risk of adverse impacts from lead available in the environment would continue and even increase for natural resources and for human health under the No Action Alternative, as described throughout this document.

Proposed Action Alternative
This alternative is the Service's proposed action because it offers the best opportunity for public hunting and increased public access, would result in a minimal impact on physical and biological resources, and meets the Service's mandates under the NWRSAA and Secretarial Order 3356. This action is not likely to adversely affect endangered or threatened species or their critical habitat. Effects on other wildlife and habitat would be negligible and could be slightly positive.

The Service believes that hunting on the refuge will not have a significant impact on local, regional, or Atlantic flyway wildlife populations because the percentage likely to be harvested on the refuges, though possibly additive to existing hunting takes, would be a tiny fraction of the Statewide harvest and estimated population levels. Opening a mentored spring turkey hunt on Rachel Carson NWR and Great Thicket NWR Berwick-York Focus Area and opening Great Thicket NWR Berwick-York Focus Area to big game, migratory bird, and upland game hunting expands opportunities for one of the priority uses and would not significantly add to impacts to wildlife from hunting at the local or regional levels and is not expected to cause negative impacts to wildlife 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.

Economic impacts to hunters and anglers due to required use of non-lead ammunition and tackle will be mitigated by a phased-in approach and outreach programs. Additional hunting would not add more than slightly to the cumulative impacts stemming from hunting at the local, regional, or Atlantic flyway levels. This alternative best meets the purpose and need stated earlier.

List of Sources, Agencies and Persons Consulted
James Connolly, Director of Resource Management, MDIFW
Ryan Robicheau, Lands Management Biologist with MDIFW
Scott Lindsay, Regional Biologist, MDIFW

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Karl Stromayer, Refuge Manager
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Wilson Darbin, Visitor Services Assistant, Regional Office
Tom Bonetti, Regional Hunting and Fishing Coordinator, Regional Office
Laura Kelly, Intern, Regional Office (Cover Graphics)
John Saluke, Visitor Services Assistant, Regional Office

State Coordination
The refuges reviewed the operations and regulations for neighboring State wildlife management areas and refuges to find consistency where possible. The refuge first reached out to the State in August 2021 to discuss this Hunting Plan. We worked with the local State biologist and conservation officers early in the development of the plan and asked for review by the State regional office to help adjust our plan to align, where possible, with State management goals. We have continued to consult and coordinate on specific aspects of the Hunting Plan, and MDIFW is in agreement with the refuges' Hunting Plan as it will help meet State objectives.

Rachel Carson NWR and MDIFW will continue to work together to ensure safe and enjoyable recreational hunting opportunities. Hunter participation and harvest data are collected by the State, and refuge law enforcement officers and MDIFW work together to patrol.

Tribal Consultation
The refuge has not yet consulted with any Tribes about this hunting plan.

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

This EA is part of the Rachel Carson NWR and Great Thicket NWR's Berwick-York Focus Area. Hunting Plan, with accompanying CDs. The public will be notified of the availability of the draft Hunting Plan, EA, and CDs with no less than a 60-day review and comment period. We will inform the public through local venues, the refuge website, and social media.

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

_X_ 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 **may significantly affect** the quality of the human environment and the Service will prepare an Environmental Impact Statement.

Preparer Signature: THOMAS BONETTI Digitally signed by THOMAS BONETTI Date: 2022.09.01 10:39:26 -04'00' Date: 9/1/2022

Name/Title/Organization: Thomas Bonetti, Hunt/Fish Coordinator NWRS, Region 5

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OTHER APPLICABLE STATUTES, EXECUTIVE ORDERS AND REGULATIONS

CULTURAL RESOURCES

- American Indian Religious Freedom Act, as amended, 42 U.S.C. 1996 - 1996a; 43 CFR Part 7.
- Antiquities Act of 1906, 16 U.S.C. 431-433; 43 CFR Part 3.
- 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.
- 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, 450.
- Fish and Wildlife Act of 1956, 16 U.S.C. 742a-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.
- 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).

INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM

Originating Person: Kate O'Brien
Telephone Number: (207) 646-9266 **Email:** kate_obrien@fws.gov
Date:

Project Name: Rachel Carson National Wildlife Refuge and Great Thicket National Wildlife Refuge Berwick-York Focus Area Hunting Plan

I. Service Program:

_____ Ecological Services
__X__ National Wildlife Refuge System
_____ Federal Aid
____ Clean Vessel Act
____ Coastal Wetlands
____ Endangered Species Section 6
____ Partners for Fish and Wildlife
____ Sport Fish Restoration
____ Wildlife Restoration

II. State/Agency: National Wildlife Refuge System

III. Station Name: Rachel Carson National Wildlife Refuge and Great Thicket National Wildlife Refuge Berwick-York Focus Area.

Rachel Carson NWR consists of 11 refuge divisions protecting approximately 5,690 acres of coastal wetlands and upland habitat. All divisions lie along 50 miles of the southern Maine coastline, encompassing the coastal communities of Kittery, York, Ogunquit, Wells, Kennebunk, Kennebunkport, Biddeford, Saco, Old Orchard Beach, Scarborough, and Cape Elizabeth, within York and Cumberland Counties.

The refuge has been open to big game, migratory bird, and upland game bird hunting since 1980. The most recent hunt plan was completed in 2012.

IV. Description of Proposed Action (attach additional pages as needed):

- Open a mentored spring turkey hunt on Rachel Carson NWR and Great Thicket NWR Berwick-York focus area. Spring turkey hunting opportunities on Rachel Carson NWR and Great Thicket NWR Berwick-York focus area will include a mentored quota hunt co-managed with a third party to facilitate "recruitment, retention, and reactivation" (R3) hunting opportunities. We anticipate that this opportunity will be allowed for 10 to 20 participants. The season for spring turkey hunting in Maine is set by the State, and

regulations are subject to change. In the 2022/2023 season the spring turkey hunt for MDIFW Wildlife Management Districts 20 and 24 occurs between May 1, 2023 and June 3, 2023 with a youth-only day occurring on April 29, 2023.

- Open recently acquired parcels of Great Thicket NWR Berwick-York focus area to big game, migratory bird, and upland game bird hunting. Currently, there will be 47.95 acres open with a target of 2,000 acres. Parcels within the Great Thicket NWR also occur within Wildlife Management Districts 20 and 24, within the South Zone or Coastal Zone for migratory waterfowl and with seasons opening in September for big game archery, fall turkey and early goose, and late October to late November for big game firearms. The majority of the seasons fall between time intervals occurring between September and early January, with the exception being falconry.

- Close bobwhite quail, snipe and pheasant hunting on Rachel Carson NWR. Quail and pheasant do not occur on the refuge and are not likely to occur on the refuge in the future. Snipe functionally do not occur on the refuge and do not present a viable opportunity for hunting.

- The use of non-lead ammunition will initially be voluntary, and we plan to require non-lead ammunition for all hunting activities starting at the beginning of the fall 2026-2027 hunting season (after a 4-year phase-in period).

V. Pertinent Species and Habitat:

A. Include species/habitat occurrence map:

B. Complete the following table:

Species/Critical Habitat	Status
Northern long-eared bat	T
Roseate tern	E
Piping plover	T
Red knot	T
Monarch butterfly	C
Small whorled pogonia	T
Atlantic salmon	E
Leatherback sea turtle	E
Hawksville sea turtle	E

*Status: E= Endangered, T=Threatened, T(s/a)=Threatened by Similarity of Appearance, PE=Proposed Endangered, PT= Proposed Threatened, CH= Critical Habitat, PCH= Proposed Critical Habitat, C=Candidate Species.

VI. Location (attach map):

A. **Ecoregion Number and Name:** 59f Gulf of Maine Coastal Lowland

B. **County and State:** York and Cumberland County, Maine

C. Section, Township, and Range (or latitude and longitude)
Latitude: 43-21'00" N
Longitude: 070-32'28" W

D. Distance (miles) and direction to nearest town: Varies, see Hunt Maps

E. Species/habitat occurrence: See map

Rachel Carson NWR and Great Thicket NWR use ECOS and IPaC to identify threatened and endangered species, including for purposes of this Biological Evaluation. This is done because the IPaC database is the better of the Service's databases for the refuges and may contain the best available information on species presence. Nevertheless, in order to ensure a thorough review, this Biological Evaluation considers all threatened and endangered species identified by both the IPaC and ECOS databases. Note, however, that these databases are updated regularly, approximately every 90 days, and, thus, it is possible that the specific threatened and endangered species identified as present on or near the refuge may change between the finalization of this Biological Evaluation and its publication and/or between finalization and the reading of this document.

Staff present on the refuges and conducting this evaluation may have the best available information about the presence of fish and wildlife species. Thus, where species are identified by either database, but the refuge has information that the species is not actually present within the "action area," we have explained that as the basis for our determination that any hunting and fishing activities will have no effect on or are not likely to adversely affect the species.

VII. Determination of Effects:

1. For each species below, when applicable, we describe the effects of the proposed new hunting opportunities and evaluate the effect of the plan to require non-lead ammunition, which would take effect at the beginning of the fall 2026-2027 hunting season (after a 4-year phase-in period).

   The proposed hunting changes are expected to only slightly increase the numbers of hunters on the two refuges (i.e., 10 to 20 additional hunters). This is anticipated to result in take of 5 deer on an annual basis, and the new hunt opening at Great Thicket NWR could have additional take of 15 to 20 ducks, 5 to 10 geese, and perhaps an occasional woodcock on an annual basis.

   Over the next few years, the refuge will encourage all hunters to adopt lead-free

ammunition, prior to the beginning of the fall 2026-2027 hunting season, when we plan to require the use lead-free ammunition to participate in any hunting activity on the refuge. This may result in hunters reducing the amount lead entering the environment earlier. There may be some effect on all species in the interim, as discussed below for each species, but by the beginning of the fall 2026-2027, there will be no new introduction of lead and the only potential effects would be from the bioaccumulation of lead from previous years.

A. Explanation of effects of the action on species and critical habitats in item V.

Sea turtles, small whorled pogonia and Atlantic salmon

Sea turtles, Atlantic salmon and small whorled pogonia are not present on refuge lands or within waters under refuge jurisdiction. There are no Atlantic salmon occurring within any of the streams or rivers within our Divisions. Sea turtles also are largely marine species and may swim past refuge property, however they do not nest on the refuge and are not found on refuge lands or waters. Finally, small whorled pogonia is not known to occur on refuge lands or withing the refuge acquisition boundary. Because these species are not known to occur on the refuge and have no possible exposure to any of the proposed changes, the proposed hunting activities will have "no effect" on the listed sea turtles, Atlantic salmon, or small whorled pogonia.

Northern long-eared bat

Northern long-eared bat (NLEB) is present in low numbers at our York River Division and our Little River Division in Biddeford during the spring, summer and fall months. Our existing survey data is not inclusive of all lands, and it is possible additional locations exist. It is unknown where these bats winter as some studies at Acadia National Park found NLEB hibernating in cracks and crevices along rocky coastlines, yet other studies found bats move to mass hibernacula by early fall. There are no known hibernacula or maternity roost trees on the refuge; however, undoubtedly small numbers of NLEB are breeding on the refuge. Pregnant females migrate to summer areas where they roost in small colonies and give birth to a single pup. Most bats within a maternity colony give birth around the same time, which may occur from late May or early June to late July, depending on where the colony is located within the species' range.

With the proposed mentored spring turkey hunt, while the season may last from late April to early June, we anticipate that the hunt would be a limited to a three-day event within that time frame, for 10 hunting groups (20 participants). In coordination with partners, we will select a location away from any known bat areas among the 11 divisions. Given the small number of participants and the fact that proposed turkey hunt will occur in a location that is very unlikely to overlap with the presence of the bats, any potential disturbance effects from the mentored turkey hunt are extremely unlikely to occur and therefore considered discountable.

For the other hunting opportunities, noise from firearms could disturb roosting bats, but it is likely that the bats would remain in the tree during daylight hours. Such disturbances are temporary and last only for the duration of the noise, not fundamentally unlike other temporary disturbances that bats may naturally experience without long-term effects, and therefore any potential effects are expected to be insignificant. Other possible disturbances include hunters

climbing and placing portable tree stands on trees. However, hunters typically select live trees for safety reasons, while bats are most often in dead or dying trees with large slabs of peeling bark. Further, hunting activities would not result in any roost tree destruction as no tree cutting or other habitat alteration is permitted on the refuge. Overall, any disturbance to NLEB would be very low, since roosting, feeding, and pup rearing activities occur from April to August, outside of the primary refuge hunting seasons (September to mid-March).

The potential for lead impacts to bats through bioaccumulation is discountable due to NLEB diets and foraging habits. Lead bullet fragments would have to break down in the soil to be taken up by plants near the area in which the fragments fall on or penetrate the soil surface. Typically, however, plants do not take heavy metals up until they have reached critical thresholds in the soil (Sharma and Dubey 2005). If lead is taken up by plants, it is mainly through the root system and partly, in minor amounts through the leaves. Inside the plants, lead accumulates primarily in the root, but a part of it is translocated to the aerial portions. Larvae of certain herbivorous insect species could ingest some of the lead when they eat the exposed plants. Some of the insects could then be consumed by bats. Northern long-eared diet consists of insects such as moths, flies, leafhoppers, caddisflies and beetles, only some of which are herbivorous. In addition, bats are transitory in nature and will not consume their entire diets on the refuge area. Considering the chain of events that are necessary for exposure and the small amount of lead that would contribute to lead concentrations in refuge soils, it seems likely that bats that occur on the refuge will not consume lead derived from ammunition fired by hunters on the refuge.

Because the potential for overlap with bats during the spring turkey hunt is very unlikely to occur; because the potential for overlap with bats during the other hunting activities (September to mid-March) is unlikely to occur, and even if there is overlap, the potential effects would be insignificant; and because the potential for lead impacts are discountable, the proposed hunting activities are not likely to adversely affect the NLEB.

Piping plover and roseate tern

Piping plovers nest on sandy beaches and dunes from April through July. Adults, chicks, and fledglings use refuge beaches and sandflats throughout the season, typically through late August. A small number of birds may stop over on refuge beaches and flats through the early fall, but most have left the area by mid-September. Roseate terns do not nest on the refuge but use refuge beaches, tidal streams and sand flats for roosting and staging during spring migration and post breeding season (July and August). They are exceedingly rare on the refuge in September when the early goose hunting season begins. The nesting and staging beaches are not open to hunting; neither the birds nor their habitat would be adversely impacted by hunting on the refuge. Therefore, any potential impacts from proposed hunting activities are expected to be discountable because they are extremely unlikely to occur. In the unlikely event that the species overlap with hunting activities, disturbance such as noise from firearms could disturb the shorebirds, but such disturbances are temporary and last only for the duration of the noise, not fundamentally unlike other temporary disturbances that shorebirds may naturally experience without long-term effects. Therefore, any potential disturbance is expected to be insignificant. Regarding the impacts of lead ammunition, and specifically for roseate tern and piping plover, neither the mentored spring turkey hunt nor the opening of 47 acres of Great Thicket NWR will

occur within, or in close proximity to areas where those species occur. The spring turkey hunt will not occur near refuge salt marshes, beaches or estuarine areas, and the Great Thicket NWR parcel is several miles inland. Even if lead could leach out into coastal habitats these species use, the increase in lead would be extremely minor and dispersed, and therefore insignificant.

Because hunting—including the use of lead ammunition until the planned non-lead requirement takes effect at the beginning of the fall 2026-2027 hunting season—is highly unlikely to overlap with piping plovers or roseate terns in time or space, these species are not likely to be adversely affected by the proposed hunting activities.

Red knot

Although the majority of migratory stopovers for red knot occur south of Maine, regular stopover sites do occur within the State. Migrating red knots use marine habitats at Rachel Carson NWR including sandy beaches, salt marshes, and salty mud and sand flats which contain an abundance of invertebrate prey. Typically, they occur in small numbers in southern Maine, ranging from a few to groups as large as forty. Most observations from the refuge have occurred at Biddeford Pool, however we are lacking data from the interior salt marsh rivers and flats, where the species may be difficult to observe. Given the smaller numbers, there is no critical habitat designated on the refuge. Records from eBird indicate the species may be present from spring migration, fall migration and into early December. Staging beaches are not open to hunting and there would be limited to no hunting pressure on mudflats. The Division with the most records of red knot occurrence, the Biddeford Pool Division, is not open to hunting. The majority of the flats at Oxcart Lane are also closed to hunting in addition to the Moody Division. Given that the hunting activities on the refuge are not likely to overlap with the area where the small number of red knots known to occur on the refuge, any potential impacts from disturbance are expected to be discountable because they are extremely unlikely to occur. Like the shorebirds mentioned above, in the unlikely event that the species overlap with hunting activities, disturbances such as noise from firearms could disturb the red knot, but such disturbances are temporary and last only for the duration of the noise, not fundamentally unlike other temporary disturbances that red knots may naturally experience without long-term effects. Therefore, any potential disturbance would be considered insignificant.

As with the roseate tern and piping plover, mentioned above, neither the mentored spring turkey hunt nor the opening of 47 acres of Great Thicket NWR will occur within, or in close proximity to areas where red knot occurs. The spring turkey hunt will not occur near refuge salt marshes, beaches or estuarine areas, and the Great Thicket NWR parcel is several miles inland. Even if lead could leach out into habitats these species use, the increase in lead would be extremely minor and dispersed, and therefore insignificant. Because hunting—including the use of lead ammunition until it is discontinued at the beginning of the fall 2026-2027 hunting season—is highly unlikely to overlap with red knots in time or space, the species is not likely to be adversely affected by the proposed hunting activities.

Monarch butterfly

The refuge is used by monarch butterflies from spring throughout the fall. Monarchs are

common in old field habitats during the breeding season and common during fall migration in salt marsh habitats (nectaring on seaside goldenrod). We have not completed a census of monarchs using the refuge.

In order to access the nearly 48 acres opening for hunting at Great Thicket NWR, and for the proposed changes at Rachel Carson NWR for turkey hunting, hunters are most likely to use tracts through forested parts of the refuge, where monarchs and their nectaring plants generally do not occur. Furthermore, given that only light foot travel from hunters accessing the area is expected to occur on these acres, we anticipate that any potential damage to nectaring plants from foot traffic disturbance will be extremely unlikely to occur, and therefore considered discountable.

While hunters are walking through habitat used by monarchs, there could be some impacts including flushing while resting or feeding. Noise disturbance from discharging of a firearm while hunting may startle the species resulting in change in flight pattern or a startle response in caterpillars, but this impact will not result in long-term negative impacts and is considered discountable as this type of noise is not frequent enough to result in habituation to noise that could cause butterfly to not respond to natural threats like parasitism (Taylor and Yack, 2019).

The potential for lead impacts to monarchs is discountable due to their diets. Adult monarch butterflies feed on nectar. Nectar typically carries less lead contaminants than other parts of the plant if lead is absorbed through the plant. Larvae consume the leaves and stems of milkweeds, where higher concentrations of lead could be present, if lead is absorbed through the plant. Lead absorption by plants typically occurs first through roots and only makes its way into other plant parts if concentrations are high enough. This means that, as with bats, bioaccumulation through the plant to the monarch butterfly or larvae could potentially occur. However, as with bats, it relies on the very unlikely occurrence that lead concentrations in the soil from hunting activities reach high enough levels for uptake by plants, and in this case, it would further require uptake by milkweed and the specific plants that monarchs rely on for nectar sources. Overall, lead is strongly adsorbed onto soil particles and is not readily translocated to above-ground portions of plants (McLaughlin 2002).

Given that hunters are not likely to overlap with areas where monarch and their plants are known to occur; that any potential disturbance from noise is expected to be insignificant; and that bioaccumulation through plants into caterpillars or butterflies is discountable, the proposed activities are not likely to jeopardize the monarch butterfly.

<u>All species</u>

The best available science indicates that lead ammunition and tackle may have negative impacts on wildlife and the environment (Golden et al. 2016). Animals can be poisoned by lead in a variety of ways including “ingestion of bullet fragments and shot pellets left in animal carcasses, spent ammunition left in the field, lost fishing tackle, lead-based paints, large-scale mining, and lead smelting activities. Despite a large body of scientific literature on exposure to lead and its toxicological effects, controversy still exists regarding its impacts at a population level” (Haig et al. 2014). The use of non-lead ammunition will initially be voluntary, and we plan to require non-lead ammunition for all activities starting at the beginning of the fall 2026-2027 hunting

season (after a 4-year phase-in period). This phase-in period will ensure continuity of visitor opportunities as hunters understand the changes and become more familiar with the availability and use of non-lead alternatives. We will educate hunters about the impacts of lead and strongly encourage non-lead ammunition alternatives for the next 4 years.

The bioaccumulation of lead is a potential concern, but it does not likely present a significant issue on this refuge as: 1) non-lead shot is currently required for hunting waterfowl; 2) we plan to require the use of non-lead ammunition on the refuge at the beginning of the fall 2026-2027 hunting season; 3) the refuge strongly encourages use of non-lead alternatives for hunting big game for the next 4 years; 4) we will educate hunters and the public to the potential adverse impacts of lead; and 5) the updated hunting activities are not likely to introduce substantially more lead into the environment over existing amounts with the current or proposed programs. Some hunters will also choose non-lead methods of take such as archery.

Lead added to the environment from either a small mentored spring turkey hunt or the opening of 47 acres is in such small quantity that there is a low probability of accumulation of lead from food sources of bats, monarchs, or shorebirds, and there would be no direct consumption of lead by these species.

We understand that reinitiation of consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law), and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

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

Rachel Carson and Great Thicket NWR Berwick-York Focus Area do not allow year-round hunting which helps avoid adverse impacts to federally-listed species that utilize either refuge. The location of the mentored spring turkey hunt will be selected to eliminate any negative impact on listed or candidate species.

VIII. Effects Determination and Response Requested:

Species/Critical Habitat	Determination	Response Requested
Northern long-eared bat	NL	Concurrence
Roseate tern	NL	Concurrence
Piping plover	NL	Concurrence
Red knot	NL	Concurrence
Monarch butterfly	NJ	Concurrence
Small whorled pogonia	NE	Concurrence

Leatherback sea turtle	NE	
Hawksville sea turtle	NE	
Atlantic salmon	NE	

Determination/Response Requested:

NE= no effect. This determination is appropriate when the proposed action will not directly, indirectly, or cumulatively impact, either positively or negatively, any listed, proposed, candidate species or designated/proposed critical habitat. Response requested is optional but A Concurrence is recommended for a complete Administrative Record.

NL= not likely to adversely affect. This determination is appropriate when the proposed action is not likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat or there may be beneficial effects to these resources. Response requested is A Concurrence.

NJ= not likely to jeopardize. This determination is appropriate when the proposed action is not likely to jeopardize the continued existence of a candidate species. No critical habitat has been designated for this candidate species; therefore, none will be affected. Response requested is A Concurrence.

AA= likely to adversely affect. This determination is appropriate when the proposed action is likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat. Response requested for listed species A Formal Consultation. Response requested for proposed or candidate species is A Formal Consultation.

References

This determination is based upon the science referenced in the environmental assessment associated with the proposed action described in this analysis. Where there is not an overlap in literature cited, specific references have been included.

Golden, N.H., S.E. Werner and M.J. Coffey. 2016. A Review and Assessment of Spent Lead Ammunition and its Exposure and Effects to Scavenging Birds in the United States. P.de. Voogt (ed.), Reviews of Environmental Contamination and Toxicology 237:123-191.

Haig, S., J. D'Eilia, C. Eagles-Smith, J.M. Fair, J. Gervais, G. Herring, J.W. Rivers, and J.H. Schulz. 2014. The persistent problem of lead poisoning in birds from ammunition and fishing tackle. The Condor 116:408-428.

McLaughlin, M.J. 2002. Bioavailability of metals to terrestrial plants. Pages 39-69 in H.E. Allen, editor. Bioavailability of Metals in Terrestrial Ecosystems: Importance of Partitioning for Bioavailability to Invertebrates, Microbes, and Plants. SETAC Press, Pensacola, Florida.

Sharma, P. and Dubey R.S. March 2005. Lead toxicity in plants. Brazilian Journal of

Plant Physiology 17 (1). https://doi.org/10.1590/S1677-04202005000100004

Taylor, C. J. and Yack J.E. November 2019. Hearing in caterpillars of the monarch butterfly (*Danaus plexippus*). Journal of Experimental Biology. 222(22). https://journals.biologists.com/jeb/article/222/22/jeb211862/225206/Hearing-in-caterpillars-of-the-monarch-butterfly

KARL STROMAYER Digitally signed by KARL STROMAYER Date: 2022.09.01 10:19:59 -04'00' — 09/01/2022

Signature (Originating Station) — Date

Project Leader

Title

IX. Review Ecological Services Office Evaluation

A. Concurrence X **Nonconcurrence** _____

B. Formal consultation required

C. Conference required

D. Informal conference required

E. Remarks (*attach additional pages as needed*):

AMANDA CROSS Digitally signed by AMANDA CROSS Date: 2022.08.31 15:54:07 -04'00' — 8/31/22

Signature — Date

Project Leader/Supervisor — Maine Field Office

Title — Office

FINDING OF NO SIGNIFICANT IMPACT
ENVIRONMENTAL ASSESSMENT OF HUNTING PLAN

RACHEL CARSON NATIONAL WILDLIFE REFUGE AND GREAT THICKET NATIONAL WILDLIFE REFUGE BERWICK-YORK FOCUS AREA
WELLS, MAINE

The U.S. Fish and Wildlife Service (Service) is expanding hunting opportunities for big game, migratory bird, and upland game bird on the Rachel Carson National Wildlife Refuge (NWR, refuge) and Great Thicket NWR Berwick-York Focus Area in accordance with Maine (State) regulations, the refuge's 2022 Hunting Plan and the 2007 Comprehensive Conservation Plan (CCP).

Selected Action

Alternative B - Proposed Action Alternative

The refuge has been open to big game, migratory bird, and upland game bird hunting since 1980. The most recent hunt plan was completed in 2012. We propose the following changes as part of an update to the existing hunting plan:

- Open a mentored spring turkey hunt on Rachel Carson NWR and Great Thicket NWR Berwick-York focus area.

- Open recently acquired parcels of Great Thicket NWR Berwick-York focus area to big game, migratory bird, and upland game bird hunting.

- Close bobwhite quail, snipe, and pheasant hunting on Rachel Carson NWR. These species do not occur on the refuge and are not likely to occur on the refuge in the future.

As part of next year's proposed rule, Rachel Carson NWR and Great Thicket NWR will propose a non-lead requirement, which will take effect on September 1, 2026. The EA analyzes the impacts of lead ammunition; based on the breadth of comments received on the plan to require non-lead ammunition by 2026, the Service intends to complete additional analysis and provide another opportunity to comment during next year's annual rulemaking.

This alternative was selected over the other alternatives because (1) it helps fulfill the statement of objectives detailed in the Hunting Plan; (2) it would result in a minimal impact on physical and biological resources; and (3) it meets the Service's mandates under the National Wildlife Refuge System Administration Act (NWRSAA) of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997, and Department of the Interior Secretarial Order 3356. The Service believes that expanding hunting opportunities on Rachel Carson NWR and Great Thicket NWR will not have a significant impact to wildlife, other uses, or refuge administration. This alternative will best meet the purpose and need, refuge objectives, and Service mandates.

Department of the Interior Secretarial Order 3347 – "Conservation Stewardship and Outdoor Recreation," signed March 2, 2017, and Secretarial Order 3356 – "Hunting, Fishing, Recreational Shooting, and Wildlife Conservation Opportunities and Coordination with States, Tribes, and Territories," signed September 15, 2017, includes direction to Department of the Interior agencies to "increase outdoor recreation opportunities for all Americans, including opportunities to hunt and fish; and improve the management of game species and their habitats for this generation and beyond." The selected alternative will also promote one of the priority public uses of the Refuge System. Providing opportunities for visitors to hunt will promote stewardship of our natural resources and increase public appreciation and support for the refuges.

Other Alternatives Considered and Analyzed

Alternative A - No Action Alternative

The No Action Alternative would continue the refuge's current hunting program, which allows for big game, upland game, and migratory bird hunting on designated areas of Rachel Carson NWR. The species open for hunting under the No Action Alternative are duck, goose, coot, woodcock, snipe, pheasant, quail, grouse, coyote, fox, white-tailed deer, and wild turkey. Great Thicket NWR Berwick-York Focus Area would remain closed to hunting under this alternative. No expansion or reduction of hunting access would occur, and the program would be conducted as it is currently.

This action is not likely to adversely affect endangered or threatened species or their critical habitat. Effects on other wildlife and habitat would be negligible, although there may be some negative effects as the potential of lead being present and bioavailable for wildlife and aquatic species to consume would continue to occur under this alternative, even if lead entering the environment from hunting activities is estimated to be small. The refuge would still be able to manage for species of concern and meet the refuge purpose to conserve wetlands and manage for migratory birds.

This alternative helps meet the purpose and needs because it provides additional wildlife-dependent recreation opportunities on the refuge meeting the Service's priorities and mandates. However, it continues to pose a threat to human health and the environment by continuing to allow the use of lead ammunition. There would be no new authorizations under this alternative, but the nature of discarded lead means that continuing to allow the use of lead ammunition on Service lands and waters would mean adding newly deposited lead to the current amount of lead in the environment on Service lands and waters. This would mean the risk of adverse impacts from lead available in the environment would continue and even increase for natural resources and for human health under the No Action Alternative. This alternative was not selected, because it would not fulfill the Service's mandate under the NWRSAA to expand compatible priority uses as well as the proposed action.

Summary of Effects of the Selected Action

An Environmental Assessment (EA) was prepared in compliance with the National

Environmental Policy Act (NEPA) to provide decision-making framework that 1) explored a reasonable range of alternatives to meet project objectives, 2) evaluated potential issues and impacts to the refuge, resources, and values, and 3) identified mitigation measures to lessen the degree or extent of these impacts. The EA evaluated the effects associated with the proposed action and no action alternative. It is incorporated as part of this finding.

We have updated the EA to include additional information, primarily for threatened and endangered species. While our conclusions have not changed, we wanted to utilize the latest research and best available information with regards to the potential impacts of lead ammunition.

Under the preferred action alternative, although a great many hunters are already voluntarily making the switch to non-lead ammunition, the refuge will require the use of non-lead ammunition by the 2026-2027 hunting season for all species. This will allow the continued use of lead ammunition for hunting activities until the full phased in approach is completed. In the interim, the refuge will encourage hunters to voluntarily transition to non-lead ammunition through outreach ahead of the 2026-2027 requirement deadline.

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

Table E-1. Summary of Impacts

Affected Environment	Potential Impacts of the Selected Action
Big game (white-tailed deer, wild turkey, coyote, fox)	Negligible impacts to big game. 2019 surveys indicate white-tailed deer population is trending upward within the State and overpopulated in some areas. Maine's wild turkey are highly regulated and monitored for population fluctuations. Opening the Berwick-York Focus Area of nearly 48 acres to fox and coyote hunting would not result in any measurable adverse effect on the statewide or regional populations.
Upland/Small Game (ruffed grouse, bobwhite quail, pheasant)	No measurable effect anticipated. Pheasant and bobwhite are not present on the refuge. No measurable adverse effects are anticipated on the statewide or regional grouse populations by opening hunting.
Migratory birds	No measurable adverse effect on the State or regional population of waterfowl and migratory birds. The proportion of the national waterfowl harvest that occurs on national wildlife refuges is only 6 percent. No populations exist wholly and exclusively on refuges. Overall populations will continue to be monitored and future harvests will be adjusted as needed under the existing flyway and State regulatory processes.

Affected Environment	Potential Impacts of the Selected Action
Non-target wildlife and aquatic species	Negligible impacts expected. Some non-game wildlife may be disturbed, displaced, or distressed as hunters walk, or discharge firearms on the refuges. We anticipate the amount of lead introduced on the refuge to decline with our proposed measures. The phased transition to non-lead ammunition for all hunting will minimize the inadvertent exposure and subsequent lethal or sub-lethal impacts to waterfowl, bald and golden eagles, as well as other scavenging species.
Threatened and endangered species and other special status species	For more detail, see the completed Intra-Service Section 7 Evaluation (Appendix D). No expected impacts to threatened or endangered species. Time of year and hunt locations have been selected to avoid species of special status. Sea turtles, Atlantic salmon and small whorled pogonia are not present on refuge lands or within waters under refuge jurisdiction. There are no Atlantic salmon occurring within any of the streams or rivers within our Divisions. Sea turtles also are largely marine species and may swim past refuge property, however they do not nest on the refuge and are not found on refuge lands or waters. Finally, small whorled pogonia is not known to occur on refuge lands or withing the refuge acquisition boundary. Because these species are not known to occur on the refuge and have no possible exposure to any of the proposed changes, the proposed hunting activities will have “no effect” on the listed sea turtles, Atlantic salmon, or small whorled pogonia. We anticipate the amount of lead introduced on the refuge to decline with our proposed measures. The phased transition to non-lead ammunition for all hunting will minimize the inadvertent exposure and subsequent lethal or sub-lethal impacts to bald and golden eagles, as well as other scavenging species. Lead shot is prohibited for small game, upland game bird, and migratory game bird hunting. Therefore, it can only be used for hunting big game species during the appropriate season (usually November to January, and during any mentored spring turkey hunts). The listed species could not be exposed to lead shot, as they are not present on the

Affected Environment	Potential Impacts of the Selected Action
	refuge during the hunting season and hunters targeting waterfowl in intertidal areas where these birds forage are required to use non-lead shot. Furthermore, some participants in the hunt will choose non-lead methods of take such as archery. We also encourage use of non-lead ammunition and fishing tackle and will educate hunters and anglers about lead. As a result, we determine that we are not likely to adversely affect any of the listed species (Northern long-eared bat, roseate tern, piping plover, red knot, and monarch butterfly).
Vegetation and habitat	Effects are expected to be minimal and short-term. Most hunting activities occur during the fall, and some hunt seasons extend into winter when plants are dormant. The mentored spring turkey hunt location will be selected to minimize impact to sensitive habitats and will have minimal adverse effects on vegetation.
Visitor use and experience	No anticipation of increased conflict between hunters and non-consumptive users of the refuge. This land has been historically open to hunting. The mentored spring turkey hunt is closely monitored and occurs on areas of the refuge closed to the general public. Our refuge-specific hunting regulations were developed in an effort to minimize potential conflict between user groups.
Cultural resources	No anticipated adverse impacts to cultural resources. There are no known cultural resource sites on the 47.95 acres proposed to open.
Refuge management and operations	No anticipated increase in hunting pressure from these openings.
Socioeconomics and environmental justice	No anticipated significant increase in either consumptive or non-consumptive use of the refuge. We expect a positive, but negligible, effect on human health. Phasing out the use of lead ammunition would help to eliminate the risk of human health impacts that would follow if the Service continued to allow the use of certain lead ammunition for certain species on current and future Service lands within the authorized boundary of the refuge. Within the State of Maine, millions of acres are open for hunting, and often provide higher densities of game species than on the refuge. There is some possibility of negative economic impacts for socioeconomically disadvantaged

Affected Environment	Potential Impacts of the Selected Action
	hunters who must comply with the proposed non-lead ammunition requirements after 2026. Even though non-lead ammunition can cost the same, or up to 30 percent more expensive, as lead, the cost of several boxes per year is minor compared to the other expenses involved such as firearm cost. Deer and turkey hunting also require less ammunition than small game. The minor economic burden involved in transitioning between ammunition could be more impactful to low-income hunters. In order to prevent the negative impacts of this switch, the refuge has begun and will continue specific outreach about the requirement to these groups and has put in place measures to mitigate the economic input beyond the phased implementation, which already affords hunters time to gradually transition their supplies of ammunition. The Service will continue educating hunters on the use of non-lead ammunition during the phased in time period, provide resources on companies that produce non-lead ammunition for purchase and work with partner organizations on non-lead ammunition giveaways or exchanges if possible. With these mitigation measures, minority and/or low-income communities are not disproportionately impacted from this alternative.

Measures to mitigate and/or minimize adverse effects have been incorporated into the selected action. The refuge mitigates these effects by carefully managing waterfowl hunting through controlled waterfowl hunt areas. Blinds must be temporary, portable, and removed each day. This reduces the days and duration of disturbance to each hunted wetland unit. In addition, 60 percent of the refuge is closed to migratory bird hunting as required by the Migratory Bird Conservation Act, which allows areas for waterfowl to rest and forage during migration without disturbance. Overall, the effects on migratory birds are expected to be minor.

Conflicts can arise between sportsmen/women and other public users, but it is not a substantial issue at the current or proposed levels of use. Some trail users, birdwatchers, and photographers may be impacted by the presence of hunters or noise, but public outreach and signs at trailheads are used to address possible conflicts. Overall, refuge hunting is expected to have a continued positive impact by increasing community participation of distinct user groups at the refuge. The Novice Hunt for deer is expected to encourage new hunters to engage in deer hunting and other wildlife-related activities.

While refuges, by their nature, are unique 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 local, State, and refuge hunting programs, the proposed action will only result in a tiny fraction of estimated populations and harvests. The Service works closely with the State of Maine to ensure that additional species harvested on a 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 program 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 an ecologically sensitive area;

- 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 designated wilderness areas because there are none in the refuges;

- 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 hunters must use established access points that will not be located near sensitive habitats.

Additionally, the following stipulations are necessary to ensure compatibility:

- We allow the use of dogs for hunting consistent with State regulations except for dog

training.

- We only allow temporary blinds and stands, which you must remove at the end of each day's hunt. This will ensure equitable opportunities for all hunters due to the limited size of the refuge.

- We allow take of migratory birds and grouse by falconry on the refuge during State seasons.

- We allow hunting with shotgun and archery only. We prohibit rifles and muzzleloader firearms for hunting.

- During the State firearm deer season, we only allow hunting of fox and coyote with archery or shotgun as incidental take with a refuge big game permit.

- We allow access for hunting from 1 hour before legal hunting hours until 1 hour after legal hunting hours.

- To protect waterfowl and other migratory birds from potential lead poisoning, non-lead ammunition is required for firearms hunting of all species except deer and turkey. The refuge strongly encourages big game hunters to use non-lead ammunition while hunting on the refuge. The refuge proposes to phase in non-lead ammunition for all species over the next 4 years and will become mandatory for use at the end of the 4-year period in 2026.

- The hunter must retrieve all species harvested on the refuge.

The following hunt procedures apply specifically to Rachel Carson NWR only:

- Prior to entering designated refuge hunting areas, you must obtain a refuge permit (and sign and always carry the permit).

- We open designated youth hunting areas to hunters aged 15 and younger who possess and carry a refuge hunting permit. Youth hunters must be accompanied by an adult age 18 or older. The accompanying adult must possess and carry a refuge hunting permit and may also hunt.

- We allow only archery on those areas of the Little River division open to hunting.

The following hunt procedures apply specifically to Great Thicket NWR:

- Prior to entering designated refuge hunting areas, you must obtain a refuge hunt information sheet (and sign and always carry the information sheet).

- We will open designated youth hunting areas to hunters aged 15 and younger who

possess and carry a signed refuge hunt information sheet. Youth hunters must be accompanied by an adult age 18 or older. The accompanying adult must possess and carry a signed refuge hunt information sheet and may also hunt.

Public Review

The plan has been thoroughly coordinated with all interested and/or affected parties. Refuge staff coordinated with State agency staff in preparation of the Hunting Plan, Compatibility Determinations, and EA, and incorporated their comments into the documents. We released the draft plan and EA for public review and comment from May 3 through August 8, 2022, a total of 97 days. We distributed a press release to news organizations and alerted visitors to the plan's availability on the refuge websites. We also hosted a 3-hour Open House on July 25 to answer questions and provide information to the public.

A total of 9 comment letters were submitted from the public that offered input to the refuge:

Commenters

1. Karen Fanale
2. E. Hardy Kern (submitted signatures for American Bird Conservancy, National Wildlife Refuge Association, Association of Zoos and Aquariums, National Wildlife Rehabilitators Association, Maryland Ornithological Society, Center for Biological Diversity, and EarthJustice)
3. Tony Liguori, MDIFW Advisory Council
4. William Meyers
5. Maine Audubon (petition signed by 634 members)
6. Cara O'Donnell, Mi'kmaq Nation
7. Coalition of Scientists (Dr. Mark Pokras, DVM; Rick Rabin; Dr. Robert H. Poppenga, DVM, PhD, DABVT; Dr. Wayne Beilman, DVM; Elaine F. Leslie, Retired Chief of National Park Services Agency, Biological Resource Division; Margie Manthey, Fishing Director – Wolfe Lake Association)
8. Michael Woods, New England Backcountry Hunters and Anglers
9. Gordon R. Batcheller, The Wildlife Society

Comment: Opposed to any hunting. Arguments include inhumane, unnecessary, and species such as coyotes are not hunted for meat. (1)

RESPONSE: The mission of the Refuge System is "…*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 …"* Hunting is well established as a form of outdoor recreation. There are few predators of deer since the extirpation of the wolf (*Canis sp.*) and mountain lion (*Cougar Puma concolor*) and the reduction of bobcat (*Lynx rufus*) numbers. Overpopulations of deer have caused detrimental grazing on herbaceous shrubs and trees (Côté et al. 2004). This, in turn, modifies patterns of relative abundance and vegetation dynamics. In forests, the effects of continued overbrowsing include reductions in species diversity and plant cover and a loss of understory in general with little regeneration of tree species since seedlings are eaten (Tilghman 1989).

Refuge managers consider predator management decisions on a case-by-case basis. As with all species, a refuge manager decides about managing predator populations, which are included in resident wildlife, including allowing predatory species to be hunted, only after careful examination to ensure the action would comply with relevant laws, policies, and directives. Hunting coyote and fox is incidental: not the primary species purposed for the hunt, but additional to large game. Controlling coyote populations helps maintain prey species within their environment. These predators have estimated populations that are stable or growing within the State. Shore birds such as the endangered red knot are susceptible to the growing predator populations as they feed along the shores of Rachel Carson NWR. The endangered piping plover construct ground nests vulnerable to these canine predators and indirectly benefit from hunting.

We follow State hunting and fishing regulations (except for where we determine it is necessary to be more restrictive on individual stations) including State regulations concerning responsible hunting, or prohibitions on wanton waste (defined as "to intentionally waste something negligently or inappropriately"). We only allow hunting on refuges and hatcheries when we have determined that the opportunity is sustainable and compatible.

Comment: Support lead removal and/or propose an accelerated phase out of lead ammunition. (2, 5, 7, 9?)

RESPONSE: The Service thanks you for your support of the proposed plan. We also thank you for the additional research and citations supporting the harmful effects of lead on eagles, avian scavengers, and waterbirds. We think the four-year timeline is necessary to educate hunters and ease the transition to non-lead alternatives. This phase-out period will provide hunters time to gradually transition their supplies of ammunition to non-lead alternatives, lessening the impact of the change.

Comment: Who tracks harvest numbers for Rachel Carson NWR? (3)

RESPONSE: Rachel Carson NWR has no required reporting system. The State of Maine tracks harvests divided into Wildlife Management Districts (WMD). The refuge is within WMD 24.

Comment: Why do you close the property during off-season? (3)

RESPONSE: In accordance with Federal law and policies, in order to ensure that wildlife needs come first, existing refuge lands and waters are closed to public uses until they are specifically opened for such uses. Rachel Carson NWR has opened parts of the refuge for hunting as well as fishing and other recreational uses at various times. Parts of the refuges are closed during the off season to protect the habitats of the species that call the refuges home. Much of the efforts of the refuges are directed toward habitat restoration to benefit wildlife.

Comment: Why does Upland Game not include varying hare? (3)

RESPONSE: One of our species of concern is the New England cottontail. Varying hare closely resemble this species that we are working to protect and enhance habitat for. The risk of taking New England cottontails outweighs the benefits of hunting varying hare at this time.

Comment: Allow/extend muzzleloader season. (3, 4)

RESPONSE: The State definition of a muzzleloader includes the word "rifle." In Maine, most of the communities that the refuge lies within prohibit the use of rifles, and only allow archery or shotguns. Only one town allows rifles, but the refuge has prohibited rifles for over three decades.

We are fortunate to offer hunting in an area within Maine with the highest increase in human population in the State and need to keep people safe while hunters are afield. The main difference between hunting with a modern muzzleloader verses a shotgun with buckshot or slugs is the range. The effective range of a scoped shotgun shooting slugs through a rifled barrel is about 100 yards, while modern muzzleloaders have effective ranges of 150 yards and beyond.

Comment: Consider allowing tree stands to be left in the woods for longer periods. (3, 4)

RESPONSE: This was discussed at the hunting open house. We believe that removing tree stands daily allows more hunters a fair chance at selecting a spot to put up their stand each day.

Comment: Institute a mentored turkey hunt for disabled vets and youths (4). Spring limited hunting for youth or veterans would be a bonus, beneficial and great PR if organized and publicized (3).

RESPONSE: We are planning a mentored spring turkey hunt, and will consider developing a volunteer-run hunt program for disabled veterans in the future, modeled after other successful programs in the Northeast Region.

Comment: Allow a youth hunt on the refuge. (4)

RESPONSE: RCNWR currently allows several youth hunts in alignment with State of Maine youth hunts, and there are areas of the refuge that are designated youth hunting areas only. The hunting plan includes one mentored youth hunt for migratory birds while the State includes two dates (September 24 and October 22), plus Big Game Youth (deer) October 22. With the removal of pheasant hunting on the refuge, there are no youth upland game birds to be hunted in the state of Maine.

Comment: Tribal leadership notes interest in further discussions around cultural use and access within the refuges, and how the Mi'kmaq Nation, and potentially the Wabanaki Tribes of Maine could partake in specific hunts on the refuge (6).

RESPONSE: We welcome all hunters to partake in hunting on the refuge as outlined in this plan during each season. We look forward to further discussion and coordination on cultural use and access with Tribal leadership.

Comment: Supports expansion of hunting acres. (8)

RESPONSE: Thank you for your support.

Comment: Concerned with the Service's proposal to prohibit the use of lead on refuge lands by 2026. "While we share the goal of working to minimize the unintended adverse effects that lead ammunition and tackle may have on wildlife, we do not support regulatory and/or legislative bans on the use of lead" (8)

RESPONSE: While we support hunting as a priority public use, the Service also has a duty to maintain the biological integrity, diversity, and environmental health of the Refuge System, and ensure compatibility of any use with the purposes of refuge establishment and the mission of the Refuge System. Lead has documented negative impacts to numerous species in wild and urban areas. The EA discusses the anticipated and potential impacts of lead ammunition to refuge ecology. We have determined that we have responsibility to stop increasing or reduce a known toxic element in the environment with reasonable limitations to other priority public uses. The proposal helps to halt hunters from continually and voluntarily adding to the potential bioaccumulation of lead within the refuge.

The commentor notes that this topic tends to be polarizing within the hunting community, and that the proposed actions would likely complicate ongoing efforts related to lead use on all lands. Of Maine's 22.6 million acres, 600,000 acres are public land, and nearly ten million acres of private land allow hunting. Public hunting areas include 20 Wildlife Management Districts (WMD) and 2 deer management subunits. Rachel Carson NWR allows hunting on over 4,136 of their total acreage, which accounts for 0.04 percent of the hunting area in Maine, or 0.7 percent of the State's public hunting area. WMD 24, of which the refuge is part of, accounted for 3.7 percent of Maine's 2019 deer harvest. The Service has determined that this proposal is not an undue hardship on the hunting and fishing community. Non-lead ammunition and tackle are available as an alternative for hunters and anglers. Any concern that a proposed phase out of lead ammunition on the refuges in 4 years could impact the State's hunters or reduce hunter participation is probably unwarranted, with significant opportunities for hunting with lead ammunition readily available on nearby State-managed properties or other huntable lands.

Comment: Propose increased education efforts regarding the impacts of lead. (8, 9)

RESPONSE: The Service continues to educate hunters and anglers on the impacts of lead on the environment, and particularly on human health and safety concerns of ingesting animals harvested with lead ammunition. We always encourage hunters and anglers to voluntarily use non-toxic ammunition and tackle for all harvest activities. Lead

alternatives to both ammunition and tackle are becoming more widely available and used by hunters and anglers.

Corrections

Statistics were mis-stated in the Rachel Carson Compatibility Determination on page A-4. These deer harvests were State totals, not just for WMD 24. These statistics were correctly stated later in the Great Thicket Compatibility Determination and Environmental Assessment.

> "In Maine Wildlife Management District (WMD) 24, the deer harvest in 2019 was 28,323. This represents a decrease from the previous year when the deer harvest totaled 32,451."

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 open and expand hunting opportunities on the Rachel Carson NWR and Great Thicket NWR Berwick-York Focus Area does not constitute a major Federal action significantly affecting the quality of the human environment under the meaning of section 102 (2) (c) of the National Environmental Policy Act of 1969 (as amended). As such, an environmental impact statement is not required.

The Service has decided to select the proposed action as described in the EA and implement the Hunting Plan for Rachel Carson NWR and Great Thicket NWR Berwick-York Focus Area upon publication of the final 2022-2023 Station-Specific Hunting Regulations. This action is compatible with the purposes of the refuge and the mission of the Refuge System and is consistent with applicable laws and policies. See attached Compatibility Determination (Appendix A, Appendix B).

HOLLY GABORIAULT Digitally signed by HOLLY GABORIAULT Date: 2022.09.01 18:12:27 -04'00'

Regional Chief (Acting),
National Wildlife Refuge System

9/1/22
Date